

THE
ENCYCLOPAEDIA
OR THE
TREASURY OF BOTANY

of
THE VEGETABLE KINGDOM;
WITH WHICH IS INCORPORATED
A GLOSSARY OF BOTANICAL TERMS.

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ILLUSTRATED BY NUMEROUS WOODCUTS BY FITCH AND BRANSTON
AND STEEL ENGRAVINGS BY ADLARD.

LOW PRICE PUBLICATIONS
(A Division of D.K. Publishers Distributors (P) Ltd.)
DELHI-110 052

Sales Office

D.K. Publishers Distributors (P) Ltd.

1, Ansari Road, Darya Ganj

New Delhi - 110 002

Phone: 3261465, 3278368

Fax: 091-011-3264368

PREFACE TO THE SECOND EDITION.

THE New and Revised Edition now issued contains such corrections and additions as the stereotyped text of the First Edition permitted to be made. The Editor takes the present opportunity to thank the many kind friends who have given him their valuable aid in pointing out errors and omissions, and in supplying the necessary corrections. His thanks are especially due to the Rev. M. J. Berkeley [M. J. B.], Dr. Masters [M. T. M.], Professor Thisleton Dyer [W. T. D.], Colonel J. G. Halliday [J. G. H.], Mr. James Britten [J. Br.], and Mr. J. R. Jackson [J. R. J.], who have not only supplied emendations of the original text, but have also contributed copiously to the Supplemental matter which has been introduced, and which, as nearly as possible, brings the TREASURY OF BOTANY up to the present date in respect to its information.

T. M.

BOTANIC GARDEN, CHELSEA :

November 1873.

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ILLUSTRATIONS OF PHYTO-GEOGRAPHY.

THE PLATES of which the following pages furnish explanations, have been prepared with the view of showing some of the more remarkable aspects of the vegetation which clothes the surface of the earth in different parts of our planet. From these examples, which have been selected from a variety of sources, a tolerably adequate notion may be formed of the nature of the luxuriant and diversified leafage to be met with in tropical forests; while some knowledge may also be obtained of the quaint succulent vegetation which is scattered over the rocky arid wastes of the New World; of the scarcely more abundant, and much less developed, clothing to be found on arctic cliffs; of the peculiar tree-growth of the Australian continent; and of the characteristics of various other well-marked centres of plant life, the peculiar features of which are pointed out in the descriptive notice of each Plate.

EPIPHYTAL RHODODENDRONS OF THE HIMALAYA.

(Plate I.—Frontispiece.)

[REFERENCE.—*Rhododendron Dalhousiae*]

THE focus of the genus *Rhododendron* seems to be East Nepal and the Sikkim Himalaya mountains. It is there we find the species most numerous and their flowers of the greatest size and most brilliant tints. The genus chiefly prevails between 10,000 and 14,000 feet above the sea-level, its several species composing three-fourths of the vegetation above the forest region (12,000 feet). There *Rhododendron* wood supplies the native with fuel, and, from its tough nature and property of being easily worked, with many domestic utensils, poles for his tent, stools, saddle, bowl and spoon. The bark is used as that of the birch in the Arctic regions, and the leaves serve as plates and wrappers for butter, curd, and cheese. It is the traveller's constant companion throughout every day's march; on the

right hand and on the left hand of the devious path, the old trees and bushes are seen breast high or branching overhead, whilst the seedlings cover every mossy bank. At 13,000 feet the flanks of the snowy mountains glow with the blood-red blossoms of *Rhododendron fulgens*, whilst the beauty of *R. campanulatum* and the great elegance and delicacy of the white bells of *R. campylocarpum* excite the more admiration from their being found in such regions of fog and rain. Some kinds grow habitually as epiphytes, among them *R. Dalhousiae* figured in our frontispiece, and one of the many noble introductions for which we are indebted to the labours of the indefatigable Dr. J. D. Hooker. *R. Dalhousiae* is a slender straggling shrub, six to eight feet high, with oblong leaves, and white bell-shaped fragrant flowers with a delicate rosy tinge. It is generally growing, like many tropical orchids, amongst moss, with ferns and *Aroidæ*, upon the limbs of large trees, at from 5,000 to 9,000 feet above the sea, in a region of fogs, moisture, and rain, in sight of the snow-capped peaks of the Himalaya. [B. S.]

VEGETATION OF THE CAROLINE ISLANDS, ON THE OUTSKIRTS OF WOOD.

(Plate II., p. 190.)

[REFERENCE.—a. *Artocarpus incisa*; b. *Caladium*; c. *Pandanus odoratissimus* in fruit; d. *Crinum*; e. Tree-Fern.]

This illustration introduces us into a valley of the island of Ualan, Caroline Archipelago, where, without much labour, the level land has been brought into a certain state of cultivation, being planted principally with those products of the island which furnish food. Bread-fruit trees, bananas, two gigantic species of *Caladium*, and the Tahitian sugar-cane grow here so intermingled that there is some difficulty in determining whether there has been any arbitrary plantation or not. The Bread-fruit tree (*Artocarpus incisa*) on the left-hand side is quite a young specimen, just beginning to bear fruit. The plantains and bananas of this place belong to four varieties, the specific types of which are *Musa paradisiaca* and *Musa sapientum*. Of the two larger *Caladiums* (fig. b) one is allied to, if not identical with, the well-known *C. macrorrhizum*, the root of which is used as an article of food. A third smaller species is the *Caladium esculentum*, the Kalo or Taro of the South Sea Islands. *Pandanus odoratissimus*, the Screw-pine, so called from its leaves being arranged like the windings of a screw, and its fruits having somewhat the outward appearance of pine-cones, is seen on the right-hand side of our illustration. Close to it will be seen the *Morinda citrifolia*, having a pale-green foliage and a whitish edible fruit of poor flavour. To the most prominent plants of this island belongs the widely-diffused *Dracena terminalis*, commonly used for hedges. A fine *Crinum* with massive leaves grows isolated about the outskirts of the forests; and a *Martia*, growing gregariously, abounds. Almost in the very centre of our picture are seen tree-ferns; and just above them the *Terminalia Catappa*, the horizontal branches of which form distinctly marked stories around the erect stems, imparting to the tree the aspect of a pine tree, and to the landscape a very peculiar and well-marked feature. [B. S.]

ANTIARIS AND COFFEE PLANTATION IN JAVA.

(Plate III., p. 74.)

A glance at our illustration, taken from Buine's magnificent *Rumphia*, showing the *Antiaris toxicaria* or Upas tree of Java, surrounded by coffee plantations and other indications of human industry, at once disproves many of the exaggerated and

'fabulous accounts propagated about this famous poison plant by the early travellers. There is no sign of the extreme sterility of the ground in the vicinity of the poison trees, which was said for a considerable distance round to produce neither grass nor any other vegetable. Nor can it, with such surroundings, be true that, if the tree be pierced, those standing to windward would quickly be suffocated by its noxious effluvia, or that birds which fly over a recently wounded tree would meet the same fate. These and similar fables, Bennett and others have explained by transferring the odium to the marshy and unwholesome exhalations of parts of the Indian Archipelago to which state criminals, and especially those of the highest class, were sometimes banished, and where they speedily died of malarial, and not, as the vulgar believed, of the emanations of the Upas tree. The poisonous nature of the *Antiaris toxicaria*, stripped of all exaggeration, is, however, sufficiently powerful and deadly to make great precaution necessary. Dr. Horsfield had some difficulty in inducing the inhabitants of Java to assist him in collecting the juice which he required for his experiments, as they feared a cutaneous eruption and inflammation, resembling, according to the account they gave of it, that produced by the *Rhus vernix* of Japan, and the *Rhus radicans* of North America; but they were only affected by a slight heat and itching of the eyes. In clearing new grounds for cultivation, in which the Upas tree occurs, it is with difficulty the inhabitants can be made to approach the Upas, as they dread the cutaneous eruption which it is known to produce when newly cut down. But except when the tree is largely wounded, or when it is felled, by which a considerable portion of the juice is disengaged, the effluvia of which, mixing with the atmosphere, affect persons exposed to it with the symptoms just mentioned, the tree may be approached and ascended like the other common trees of the forests. [B. S.]

VEGETATION OF BAMBOOS IN JAVA.

(Plate IV., p. 120.)

Those who compare the small meadow grasses of northern countries with the tall cocoa-nut trees of the tropics will probably think it fanciful that botanists should proclaim the plebeian grasses to approach in their external structure, as well as their internal organisation, nearest to the palms, termed by the illustrious Linnæus, the Princes of the Vegetable Kingdom. But this dictum of science will appear less fanciful when the huge bamboo, as the noblest representative of the grasses, with its tree-like trunk fit for fuel and building

purposes, and its light feathery foliage, is placed by the side of some small rattan as the representative of the palms. Indeed grasses are regarded by many eminent botanists as a sort of palm of lower grade. In-habit the two natural orders have much in common: their leaves are formed upon exactly the same plan, the only difference being that those of the palms are generally (not always) divided. Even the siliceous secretions so characteristic of grasses, are observable in rattans; whilst about their flowers, it may be said that those of the grasses are those of the palms, with the floral envelopes removed and only the bracts remaining. The group on the right-hand side of our plate affords a good illustration of the manner in which bamboos grow. They delight in humid localities, and are the ornament of most tropical rivers, often forming impenetrable thickets, the favourite retreat of wild animals. Their young shoots come up like asparagus, and in many Eastern countries are picked and preserved. The growth of the stem is rapid in the extreme. *Dambusa gigantea* was found to grow 25 feet 8 inches in length during the thirty-one days of July, 1833, when it was measured in the Calcutta Botanic Garden; and in the Botanic Garden at Glasgow the same plant was ascertained to rise one foot in twenty-four hours: so that an attentive observer could actually see a bamboo grow as plainly as he could see the movements of the hands of a watch. [B. S.]

VEGETATION OF NEW SOUTH WALES, NEAR PORT JACKSON.

(Plate V., p. 1239.)

[REFERENCE.—a. *Banksia*; b. *Xanthorrhoea*.]

The view here presented is that of Port Jackson as it was when the illustrious Bauer visited it, rather than as it is at the present day, when Sydney has become a large magnificent city, and its wealthy inhabitants have scattered elegant villas and country-seats all over the neighbourhood, when thousands of *Araucarias* have been planted to give variety to the monotony of the Australian vegetation, and when foreign trees, shrubs, and weeds are as fast taking the place of native productions as the white race has usurped that of the black. Yet there is still a great deal of the original vegetation left. Even in Sydney itself, much that is seen in the parks and gardens consists of gum trees and other *Myrtaceæ*, which the hand of man has not planted. We need not go far from the town still to see *Banksias* with their thick coriaceous leaves and singular flower-heads so much like a grenadier's cap, or to come across the much more singular grass trees, with their charred

trunks, grass-like leaves, and tall rod-like scapes of flowers. We can still revel amongst leafless *Acacias*, *Metrosideros*, strange forms of *Proteaceæ*, and Australian *Bignoniæ*; visit forests where the trees shed their bark instead of their leaves, and all the leaves are turned edgeways; or cast our eyes over large tracts of country still wearing the same evergreen, or rather brownish-green, mantle which it wore when Captain Cook and his naturalists first set foot on the shores of Port Jackson, then the unknown haunt of a few lawless savages, now the capital of Australia and the seat of the Governor-General. Unger, in his 'New Holland in Europe,' has shown us that at one period of the earth's history there flourished in Europe a vegetation very similar to that still beheld in Australia; but that the whole of it has been swept away, to make room for other vegetable forms, leaving no trace behind except what is recorded in the great stone-book of nature. Viewed in this light, the vegetation of New Holland is highly instructive. It is a faithful picture of what the aspect of the flora of our planet must have been ages ago; and on paying a visit to Australia, we are as it were transporting ourselves back to antehistorical periods. The effect which such an inspection produces on one's mind is very singular. It kindles within feelings of curiosity, but no sympathy. We delight in bright green foliage, sweet-smelling flowers, and fruits with some kind of taste in them. But we have here none of all that. The leaves are of a dull green colour, the flowers have no smell, and the fruits, without any exception, are tasteless and insipid. Not a single edible plant has the whole of Australia added to our tables, and Europeans who should have to rely upon what Australian vegetation can supply for their food, would have to share the melancholy fate of Burko and Wills when they tried to eke out their existence by eating the wretched *Nardoo* seeds of the Australian swamps. [B. S.]

FOREST ON GUAHAN, ONE OF THE MARIANNE ISLANDS.

(Plate VI., p. 368.)

[REFERENCE.—a. *Ficus* with suspended roots; b. *Cycas circinalis*; c. *Cordia*; d. *Cycas circinalis*, old and branched; e. *Cerbera Odollam*; f. *Gigantea Ficus*; g. Slender leaved *Pandanus*.]

As far as the Mariannes are represented by Guahan, the most extensive and southernmost of these islands, they are at once distinguished from the more northern Caroline group by their dry climate, which imparts to the whole country the look of a steppe. The month of March, in which our illustration was taken, is evidently the

dry season; everywhere is aridity, very few trees with fresh foliage are seen in the forest, and perhaps the third part of all is quite leafless. The sea-shores are either kept supplied with moisture by rivulets from the interior, and then overgrown with *Bruguiera* and other Mangroves; or they are sandy, and in that case distinguished by two forms very characteristic of this island—*Cycas circinalis*, very common hereabouts, and a shrubby pyramidal *Casuarina*, which is again met with in the upper steppes of the interior. Banks of coral surround the shores on all sides, making this larger island, as the high Carolines, appear like mountains risen in the centre of extensive coral plains. The plain, shown in our illustration, though destitute of springs, is nevertheless covered with fine tall trees, and, although thorny underwood abounds, is on the whole tolerably easy to penetrate. True, there are occasionally considerable thickets of luxuriant *Cycas*, as shown in the centre of our illustration, a few old trees of considerable height forming an agreeable contrast with this rather chaotic group of saplings. Amongst them are a few branching apparently very old specimens, as seen on the left of our plate. The forest trees include one distinguished by its slender growth and thick foliage (the leaves resembling those of the ash), which vernacularly is termed 'Pal-pai', and esteemed on account of its extremely hard wood. The same remark applies to another tree of similar aspect, the leaves of which are, however, more like those of the myrtle, whilst the bark is pale yellow. A screw-pine, *Pandanus*, though isolated, is rather common. It does not seem to differ essentially from *Pandanus odoratissimus*, and is conspicuous by its slender undulated branches, and long narrow leaves, of which there are comparatively few in each crown. Several species of *Cordia* exhibit their gigantic growth, and are in the dry season but sparingly clad with leaves; here and there their stem is surrounded by a network of creepers. But the most striking of all the trees is a huge species of Fig, the representative of the banyan in this place. It differs evidently in every respect from that of Ualan, the height of which it nowhere seems to attain. Its comparatively tall stem has the appearance of a gigantic bundle of sticks, the component parts of which must be considered as being curiously twisted around each other, and grown together into a compact mass. On the upper end of this rather conical bundle spreads out like an umbrella a crown formed of fantastically twisted branches, which has numerous fine leaves of a dark rather greyish-green. The tree seen on the right-hand side of the foreground is a smaller species of fig, the aerial roots of which have quite the look of creepers. Elegant ferns cover its branches. There is also a species of *Cerbera*, frequently met in the Caroline, Marianne, and Bonine Islands; it resembles in growth and in its leaves the *Terminalia Catappa*, but its principal branches are more rectangular. [B. &.]

CORAL REEF IN THE CAROLINES.

(Plate VII., p. 1157.)

[REFERENCE.—a. *Myrtaceae* tree; b. *Scaevola*; c. *Tournefortia*; d. *Coccoloba*; e. *Artocarpus incisa*; f. *Tournefortia*; g. *Pandanus odoratissimus*.]

Imagine a chain of comparatively long narrow sandbanks, hardly elevated above the level of the ocean, having a general horseshoe-like outline, and sheltered against the waves by a coral reef surrounding the whole. Everywhere within the latter the water is shallow; the bottom, consisting of coral sand, is evidently rising and gradually becoming dry land, so that the open narrow channels crossing the long ridge of land and dividing it into several islands, will in time disappear. The present view represents one of these channels. Standing at the extremity of one island, we look across upon the other. On the right we have an expanded view of the reef, distant about 200 paces, and behind it the surf of the ocean; on the left we behold the basin of unequal depth, surrounded by the horseshoe-like chain, where the prospect is closed by a few islets of this selfsame chain. Such coral islands, but recently risen above the sea-level, exhibit no trace of that vegetation which establishes itself on the older ones. The first green appearing on the hitherto naked sand invariably consists of shrubby *Scaevola* with small white flowers, which afterwards form also the principal brushwood of the shores, and a specimen of which is represented in the centre of the foreground. The rich juicy foliage of this plant may be well suited to the formation of vegetable mould, in which afterwards a more diversified vegetation finds a home. Next follows a *Tournefortia*, common in all the islands of these seas, which assumes more the look of a small tree, and has a less bushy habit; the silvery grey colour of its leaves forms a strong contrast with the fresh light green of the *Scaevola*. A young specimen of this exclusively littoral plant is seen on the right-hand side of the foreground, and an older one in the distance. Close by will be noticed the delicate foliage of another probably myrtaceous shrub peculiar to the outskirts of these forests; an old fully grown specimen of it is seen in the foreground to the left. In the outskirts of the forest at a distance are found, besides the exclusively littoral plants, other half-shrubby trees. Two specimens of *Pandanus odoratissimus*, so common in all these islands, will easily be recognised by their peculiar habit. Their trunks exhibit numerous crowns. On the right-hand side of the smaller specimen to the left are seen, besides the low *Scaevola* and the just-mentioned *Myrtacea*, a species of *Hibiscus*, with cordate leaves and dark carmine-coloured flowers, which either occurs as a shrub or small tree; and above it a *Calophyllum*, which in other places becomes a stately forest tree, and has a dark green

foliage. Immediately behind it rises an isolated cocoa palm, and more to the right a young specimen of *Barringtonia speciosa*, one of the most beautiful trees of this region, but which grows less freely in these coral islands. Groups of cocoa-nut palms, which suffer little underwood to spring up, show themselves here, and through these may be seen the other end of the forest, a proof of the limited extent of such an island as this. In its centre, where the accumulation of vegetable mould has been going on the longest, stately forest trees have already found a home, among them a large *Eugenia* with lanceolate leaves, and fruits about the size of a large plum of a pale green colour tinged with red, and several bread-fruit trees (*Artocarpus incisa*) of considerable height. [B. S.]

VEGETATION OF TENERIFFE, WITH SUCкулENT EUPHORBIAS.

(Plate VIII., p. 476.)

Our illustration introduces us to a wild rocky glen, a barranco, on the east coast of Teneriffe, Canary Islands, where succulent cactus-like *Euphorbias* (*E. canariensis* and *piscatoria*), arborescent *Compositæ* and *Rubiaceæ* are the leading plants. The vegetation has a glaucous look. The *Euphorbia canariensis*, with its straight stiff branches, all springing from the root, is generally seen on the top of rocks and the very edges of precipices, imparting a peculiar feature to the landscape, and contrasting strangely with the tree-like *Kleinia neriifolia* with its long naked branches crowded at the top with tufts of leaves, or *Plocama pendula*, almost resembling a weeping willow, and seen in close proximity to a *Kleinia* in the lowermost right-hand corner of our illustration. *Pyrethrum crithmifolium*, *Conyza sericea*, and *Periploca laevigata*, are three plants also found in this spot. The whole may be taken as a fair illustration of the aspect of the vegetation of the coast region of the Canary Islands, where herbage is so scanty as to afford pasturage to only a few flocks of goats. [B. S.]

VEGETATION OF JAVA—TREE-FERNS IN THE FOREGROUND, A FOREST OF AMENTACEÆ IN THE DISTANCE.

(Plate IX., p. 494.)

The traveller in Java, after emerging from the coast region and ascending to the height of 4,000 to 6,000 feet, experiences so

great a change in everything surrounding him, that he can hardly believe himself to be in the same island. Instead of the sultry heat and clammy atmosphere, he now inhales a pure cool air which exercises a delightful reaction upon his spirits. Mountain streams of delicious coolness are met with at every step, and a bright verdure is spread over hill and dale. Our illustration introduces us to a view in the mountains of Java, where a large waterfall dashing over the edge of high perpendicular rocks, looking like a stream of silver from a distance, diffuses an unusual amount of moisture, and favours a great luxuriance of vegetation. Ferns, especially tree-ferns, those palm-like plants, unrivalled in their grace and beauty by any other members of the vegetable kingdom, are here plentiful, and attain often forty to seventy feet in height, their fronds measuring several yards in length. The background of this view is filled by a variety of amentaceous trees, chiefly species of evergreen oaks and *Castanopsis*, growing gregariously together as do their congeners in more temperate climates. [B. S.]

SWAMPY FOREST, WITH BANYAN TREES, IN THE ISLAND OF UALAN.

(Plate X., p. 1133.)

[REFERENCE.—a. Spiny Cyperaceous plant; b. *Ficus*, with root-covered trunk; c. Epiphytal *Freycinetia*; d. *Barringtonia acutangula*, young plants; e. *Cordia*; f. *Thamnopteris Nidus*, nestling on a fig stem.]

A description of forest peculiar to the tropics. The adjacent ground, just above high-water mark, becomes inundated by the high tide forcing back the water discharged by rivers and rivulets. A soil thus periodically submerged is never quite dry, and only becomes somewhat firm by the gigantic roots of the trees occupying it. In Ualan, these swampy forests have a twofold character. Where the underwood consists of the *Hibiscus littoralis*, they are almost impenetrable; where this is wanting, there is, under the huge bower formed by the crown of large trees, a wider prospect. The underwood is composed of numerous small trees, the crowns of which have not been able to attain the height of the larger trees, and have therefore remained undeveloped. The greater number of them belong to *Barringtonia acutangula*, the fine drooping flower-bunches of which are often seen on the ground. The stems are covered with epiphytal ferns: amongst them *Thamnopteris Nidus*, which imparts a striking character to the landscape. No less ornamental are the isolated *Freycinetias*, which in Ualan mostly grow epiphytically, and are shown quite in the foreground of the picture. The principal features of the plate are gigantic Fig-trees, such as are

often met with in these forests. Those here represented may be assumed as having established, above the heads of other trees, a connection with each other by means of their branches, as is common in this kind of plant throughout India, where entire forests are formed, the stems of which are connected. These latter are the far-famed banyan-trees, regarded in some places as sacred. Among the wonderful phenomena of the vegetable kingdom, as displayed in the tropics, they occupy the foremost place. The most striking peculiarity of these trees is their aerial roots, which, springing from the bark, grow downwards, often from a considerable height, but as soon as they touch the ground they enter it and form a new stem. They also have, in a prominent degree, a tendency to grow together as soon as their different parts come in contact with each other, by which is caused that extremely fantastic shape generally observed in these trees. The present species differs from other kinds of banyan, not only in its astonishing height (our illustration shows only the lower parts of the stems), but especially by its drooping aerial roots. These roots, appearing in bundles of tender, originally disconnected fibres, gradually grow together, and, after reaching the ground, increase in thickness. The new stem thus formed soon loses, more or less, all traces of its original formation. The height of the whole is so considerable that the crowns reach above that of other trees, and here and there form as it were a forest above a forest. The spectator, standing below, soon loses sight of the upper parts of the tree, and only notices accidentally the connection existing amongst trees which at first view would seem to be perfectly unconnected. It has been found impracticable to show in our plate the foliage of this tree; of the crown little was visible, and the leaves are small and of roundish shape. All the young saplings growing about here are those of the *Barringtonia acutangula*, which in these woods assumes an epiphytal character.

[B. S.]

VEGETATION OF THE CANARY ISLANDS—VIEW IN THE CALDERA.

(Plate XI, p. 69.)

[REFERENCE.—a. *Pistacia atlantica*; b. *Juniperus Cedrus*; c. *Phoenix dactylifera*; d. *Laurus indica*; e. *Pinus canariensis*.]

The Canary Islands are covered with a vegetation singularly characteristic of their geographical position. It is neither strictly tropical, nor typical of the temperate zone, but rather a blending of the forms most peculiar to either. A singular instance of this is presented to us in Webb's view of the Caldera. Surrounded by steep

perpendicular walls of rock 4,000 feet high, that gien enjoys, like a garden conservatory, a temperature always uniform, allowing plants from all heights to flourish in company with each other—the Canarian cedar (*Juniperus Cedrus*) from the most elevated mountain ridge, and *Kleinia neriifolia* from the hot coast region. Here may still be witnessed the strange phenomenon of date-palms and pine-trees growing in the same spot harmoniously together. Leopold von Buch doubted the existence of this vegetative harmony, which had been mentioned by Viera, one of the earliest writers on the Canaries. But the fact is now placed beyond doubt by the united testimony of Berthelot, Webb, and Bolle. But the hand of man, even in this mysterious, almost inaccessible workshop of Nature, the way to which leads through so many dangers along yawning precipices, has not spared the 'Fawns of the wilderness' banished hither. It has allowed the fire to accomplish what the axe was not able to do. In September 1852, says Bolle, there stood only, on one inaccessible rock near the Barranco del Almendrero Amargo, surrounded by pine-trees, one solitary wild palm. Heine's conception of the longing of the two trees, so beautifully expressed in one of his elegies, had here found its realisation.

[B. S.]

VEGETATION OF THE CINCHONA FORESTS OF PERU, WITH PALMS AND TREE-FERNS.

(Plate XII, p. 284.)

The valley of San Juan del Oro represented in the accompanying engraving, is a continuation of the ravine of Sandia, the Peruvian province of Carabaya. In this province great spurs run out from the main chain of the Cordillera, and gradually subside into the vast plains, covered with virgin forest and traversed by navigable rivers, which extend to the Atlantic. These spurs form beautiful valleys, such as that of San Juan del Oro, which was once famous for its gold washings. Here torrents and cascades pour down on every side into the river flowing through the valley, and the mountain-sides are clothed with the richest subtropical vegetation. Here may be seen gigantic buttressed trees, festooned with creepers and fringed with graceful ferns and orchids; here are tall tree-ferns, bright-flowering melastomaceous shrubs, and numerous species of palms. Among them are the tall chortá, with its hard serviceable wood; the slender beautiful chiralá (*Euterpe*); the towering muruna (*Triarteia*), with its roots shooting out from eight feet above the ground; and an *Astrocaryum* with thorny leaves, and a lofty stem thickly set with alternate rings of spines. But the

prevailing vegetation of this valley, which is about 5,000 feet above the sea, consists of plants of the cinchonaceous order, with their graceful foliage and panicles of fragrant flowers. Among them are several species of the *Cinchona* which yields the inestimable bark of commerce. It was in these lovely Caravayan valleys that Mr. Clements Markham made a collection of cinchona plants for introduction into India, while he caused other collections of plants and seeds to be made in Northern Peru and Ecuador. Thus the cultivation of those precious quinine-yielding trees, which were until lately only met with growing wild in such valleys as that of San Juan del Oro, is now successfully established in our great Indian possessions. The cascarrilleros or bark collectors are represented in the plate as engaged in packing the bark, previous to its being forwarded to the nearest depôt, on the backs of Indians. [B. S.]

VEGETATION OF JAVA.

(Plate XIII., p. 840)

[REFERENCE.—a. *Pandanus latifolius*; b. *Eriodendron indicum*.]

Perhaps one of the most singular genera of plants of the eastern hemisphere is that of the Screw-pines (*Pandanus*), so called from their long narrow sword-shaped leaves being arranged around the stem like the windings of a screw, and their fruits having the outward appearance of pine cones. In many instances their stem is branched and tree-like, and in several of our plates specimens of this mode of growth may be seen; but in some instances the stem is simple, and on the left-hand side of our present illustration will be noticed one of the finest and most robust species inhabiting the island of Java, the *Pandanus latifolius*. It grows here in company with feathery palms and the *Eriodendron indicum*; the latter easily recognised by its strictly horizontal branches, arranged in distinct whorls at certain intervals around the stem, and imparting to it the look of a coniferous tree. There are very few plants in the lower coast region of the tropics that have a similar habit. We can only recall *Terminalia Catappa*, and some *Myristicas*. [B. S.]

MOUNTAIN VEGETATION OF JAVA.

(Plate XIV., p. 856.)

[REFERENCE.—a. *Rafflesia Rochussenii*; b. *Vanilla*; c. *Freycinetia*; d. *Selliguea*.]

Few spots on the globe support a more luxuriant and diversified vegetation than the island of Java. It is literally teeming

with botanical treasures. Ferns and orchids, palms and oaks, bananas and nutmegs, vines and convolvuli, and an endless host of other plants of which not even the name has penetrated beyond the circle of scientific botanists, cover its surface. In the illustration before us, the artist has contrived to introduce us to a genus of plants which bears the most gigantic of flowers, the famous *Rafflesia*. Nature has equally divided her gifts by according to the New World the plant with the largest leaves (*Victoria regia*), to the Old World that with the largest flowers (*Rafflesia Arnoldii*); and it is not a little singular that both these plants, notwithstanding their prominence, have only been discovered in recent times. *Rafflesia Arnoldii* has flowers often three feet across, but, alas! it has no leaves. The gigantic flowers are seated on the stems of vines, different kinds of *Vitis* (*Cissus*), from which they draw their nourishment parasitically. The species figured in our illustration is *Rafflesia Rochussenii*, not quite so large as the first-mentioned species, surrounded by creeping *Vanillas*, *Freycinetias*, ferns, and other mountain plants. A Dutch gardener, M. Teymann, was the first who, by carefully observing the way in which *Rafflesias* grow, succeeded in cultivating and flowering them in the Botanic Garden at Buitenzorg in Java, and there is reason to hope that at no distant day we may grow in our hot-houses the largest-flowered plant of the eastern, as we do the largest-leaved plant of the western hemisphere. [B. S.]

VEGETATION OF NEW HOLLAND— AN ACACIA 'SCRUB.'

(Plate XV., p. 5.)

Among those plants which by beauty and elegance attract our attention, the *Acacias* occupy a prominent place. Few genera are richer in singular forms, or possess a greater number of truly ornamental species. Their graceful branches, airy foliage, and numerous often fragrant blossoms, have made them favourites with all those who are sensible to the charms of the vegetable kingdom. Especially the *Acacias* called *Phyllodineæ*, are, by their habit, their curiously shaped and highly developed leaf-stalks, the absence of true leaves in old plants, and their diversified tints, even if destitute of flowers, objects of particular interest; and although the species with pinnated leaves do not rank so high in this respect, they are nevertheless not destitute of grace or beauty. The genus *Acacia*, though now considerably reduced, contains upwards of 500 species, a great number of which are peculiar to New Holland and the adjacent islands. Indeed, the *Phyllodineæ* are almost exclusively Australian, only one species, *Acacia Koa*,

being found north of the Equator in the Hawaiian or Sandwich Islands. The acacias are social plants; woods are often entirely formed of them, a fact which increases the commercial importance of several species. Our illustration introduces us to a grove of *Acacias* in Eastern Australia, the burying-ground of Milmeridien. 'On reaching the spot,' says Mitchell, in his *Three Expeditions into Eastern Australia*, 'the natives became silent and held down their heads. Nor did their curiosity restrain them from passing on, although I unfolded my sketch-book, which they had not seen before, and remained there half an hour for a purpose of which they could have no idea. The burying-ground was a fairy-like spot, in the midst of a "scrub" of drooping *Acacias*. It was extensive, and laid out in walks, which were narrow and smooth, as if intended only for "sprites," and they meandered in gracefully curved lines among the heaps of reddish earth which contrasted finely with the *Acacias* and dark *Casuarinas* around. Others girt with moss shot far into the recesses of the bush, where slight traces of still more ancient graves proved the antiquity of these simple but touching records of humanity. With all our art, we could do no more for the dead than these poor savages had done.' [B.S.]

VEGETATION OF KAMTSCHATKA,
WITH TALL UMBELLIFERS - A
BIRCH FOREST IN THE DISTANCE.

(Plate XVI., p. 1189.)

[REFERENCE.—a. b. Tall species of Nettle; a. *Angelica*.]

Gigantic umbelliferous plants are more characteristic of the grassy plains of Kamtschatka than of any other part of the Bolschaja Reka district. The tallest among them are the *Heracleum dulce* (?), and a species of *Angelica* of surprising dimensions: it abounds in a few level valleys of the western slopes, principally in the district traversed by the Baunaja Reka, a tributary of the Bolschaja Reka, but is not met with again even in the neighbourhood of its real home. This stately herb is known throughout the country by the Russian name of 'Medwe-shie Koren' (Bear's root); its hollow stems are dark reddish in the autumn. Another plant is a tall, always gregariously growing nettle (*Urtica dioica*), which contributes an essentially characteristic feature to the country, but which does not occur anywhere in such masses as in these western districts. It is generally ten feet high. Its long stems yield a superior fibre for nettle yarn, which in former times was the only material the Kamtschatkans had for fishing-nets; lately it has in some

measure been displaced, on the Kamtschatka river, by plantations of hemp, which also attains an astonishing height. In the western plains, however, it abounds in such quantities as to have preserved its place in the domestic economy of the inhabitants. The forest at the background consists of *Betula Ermanni*, edged by low willows. [B.S.]

CACTUS VEGETATION ON THE BANKS
OF THE GILA, NEW MEXICO.

(Plate XVII., p. 256.)

[REFERENCE.—a. *Cereus giganteus*.]

The *Cactaceae* or family of Cactuses furnish perhaps the most singular plants of the present creation. Though a few species are found in the Old World, the bulk of this natural order is confined to the New; and in no part of America do we encounter a greater number both of species and individuals than in Mexico, California, and those countries until recently part and parcel of Mexican territory. In that region, but seldom visited by refreshing showers of rain, the Cactus is the leading plant, imparting a peculiar character to the landscape. The greater number of Cactuses are without leaves, and they generally present fleshy, globular, oblong compressed, or cylindrical stems, densely covered with bundles of spines. An estimate may be formed of the number of these spines, by stating that a single specimen of an *Echinocactus Venosa*, the Toothpick Cactus, was found to have 51,000, and a *Pilocereus sentile*, the Old Man Cactus, 71,000. Yet the specimens on which they were counted were only such as had been brought over to England. The giants met with in Mexico and surrounding regions have hundreds of thousands of spines. The favourite haunts of Cacti are the mountain ridges which intersect or border the Mexican tableland, 5,000 to 7,000 feet above the sea. The view chosen as an illustration of this singular vegetation is a landscape on the banks of the river Gila, in the Colorado region of New Mexico, representing the largest form of all known *Cactaceae*, the *Cereus giganteus*, which rises like a huge candelabrum amongst the rocks and ravines of that barren wilderness. In front is a specimen which, though already nearly sixty feet high, is still in vigorous health, and sending forth young side branches. On the right, a little towards the background, is a specimen in a decaying state, showing the form of a woody skeleton; and around them at short distances may be seen younger plants in various stages of development. A few *Opuntias* (Cactuses with compressed articulated stems), feathery *Mimosaes*, the usual companions of

Illustrations of Phyt-Geography.

Cactus vegetation, affording shelter against the sun to the young plants, a couple of *Agaves* also typical of Mexico, and some herbs, are distributed over the soil, as yet the roving-ground of the wild Indian. Young plants of *Cereus giganteus* retain a globular shape for several years; and they begin to flower when about ten to twelve feet high. We have actual measurement of stems 46 feet high, so that there is nothing improbable in Colonel Emory's disputed statement that the *Cereus* attains 50 to 60 feet in height. The stem is thickest at or a little above the middle, and tapers upwards and downwards. It is mostly simple, but the older ones have often a few erect branches. Both stem and branches are ribbed, almost fluted like columns, and covered with bundles of spines. The flowers are produced in abundance near the summit, and the fruit has a crimson-coloured, sweet, but rather insipid pulp. [B.S.]

of ancient columns is evidently copied from the trunk of the Deleb palm, of which a singular bulging out is one of the most striking characteristics; whilst the capitals of the column are, in many instances, slavish copies of the crowns of the date-palm, as may be seen in the ancient temple at Edfoo. The exact geographical range of *Hyphæne thebaica* has as yet to be ascertained. We know it extends considerably into Central Africa, but do not know exactly where it leaves off, as we have no botanical specimens to decide the question, and have to depend upon the information of travellers not able to discriminate between this species and those allied to it. It is certain, however, that there are more than one species of *Hyphæne*, and that some of them at least have a straight cylindrical and unbranched trunk, like that of the generality of palms. [B.S.]

HYPHÆNE OR DOUM PALM-TREES IN UPPER EGYPT.

(Plate XVIII., p. 612.)

As the traveller is leaving the lower and gradually ascending into the upper portion of Egypt, he meets with the most characteristic of African trees, in the shape of branched Palms, the famous *Hyphæne thebaica*. They are seen in their full beauty about the cataracts of the Nile, as represented in our plate. The contrast between these trees and the rest of the palm tribe is very great. Whilst most of the palms have a straight pole to which at the upper extremity a number of feathery leaves are attached, we have here a regularly branched tree, somewhat like a screw-pine or *Pandanus*, and large fan-shaped leaves, between which grow large bunches of light yellow fruits with a thick mealy rind, so much resembling in look and taste real gingerbread as to have conferred upon the palm the name of Gingerbread tree. In Cairo and other towns of Egypt these bunches are exposed for sale in the market-places, together with dates, figs, oranges, and other produce of the country. The wood of the tree is used for various domestic purposes; the seed of the fruit is eaten; and the kernels turned into beads for rosaries, and at Kano into toys. From the hieroglyphics we know that it was cultivated more than 4,000 years ago in and about Thebes; but though always a leading tree and a most striking object of the Egyptian landscape of the Upper Nile, the *Hyphæne* does not seem to have exercised, as far as we know, any decisive influence upon ancient Egyptian architecture, like the date palm (*Phoenix dactylifera*) and the Deleb palm (*Borassus? æthiopum*), for instance, have done. The peculiar swelling

VEGETATION ON THE ICE-CLIFFS IN KOTZEBUE SOUND, ARCTIC AMERICA.

(Plate XIX., p. 1028.)

The soil of the Arctic region is always frozen, and merely thaws during the summer months a few feet below the surface. But the thawing is by no means uniform. In peat it extends not deeper than two feet, while in other formations, especially in sand or gravel, the ground is free from frost to the depth of nearly a fathom. The roots of the plants, even those of shrubs and trees, do not penetrate into the frozen subsoil. On reaching it they recoil as if they touched upon a rock through which no passage could be forced. It may be surprising to behold a vegetation flourishing under such circumstances, existing independent as it were of terrestrial heat. But surprise is changed into amazement on visiting Kotzebue Sound, where, on the top of icebergs, herbs and shrubs are thriving with a luxuriance only equalled in more favoured climes. There, from Elephant to Eschscholtz Point, is a series of cliffs from 70 to 90 feet high, which present some striking illustrations of the manner in which Arctic plants grow. As may be seen in our plate, three distinct layers compose these cliffs. The lower, as far as it can be seen above the ground, is ice, pure ice, and from 20 to 50 feet high. The central is clay, varying in thickness from 2 to 20 feet, and being intermingled with remains of fossil elephants, horses, deer, and musk oxen. The clay is covered with peat, the third layer, bearing the vegetation to which it owes its existence. Every year, during July, August, and September, masses of the ice melt, by which the uppermost layers are deprived of support and tumble down. A complete chaos is thus created; ice, plants, bones, peat, clay, are mixed in the most disorderly manner. It

is hardly possible to imagine a more grotesque aspect. Here are seen pieces of peat still covered with lichens, mosses, and saxifrages; there a shoal of earth with *Salix* of willow; at one place a lump of clay with *Senecio*s and *Polygonum*s; at another the remnants of the mammoth, tufts of its hair, and some brown dust which emits the smell peculiar to burial-places, and is evidently decomposed animal matter. The foot frequently stumbles over enormous osteological remains—some elephant's tusks measuring as much as 12 feet in length, and weighing more than 240 pounds. Nor is this formation confined to Eschscholtz Bay. It is observed in various parts of Kotzebue Sound, on the river Buckland, and in other localities, making it probable that a great portion of extreme North-Western America is, underneath, a solid mass of ice. With such facts before us, we must acknowledge that terrestrial heat exercises but a limited and indirect influence upon vegetable life, and that to the solar rays we are mainly indebted for the existence of those forms which clothe the verdure and gay flowers the surface of our planet.

[B.S.]

HOLY CROSS ABBEY, COVERED WITH IVY.

(Plate XX., p. 572.)

It is now, thanks to the indefatigable labours of Mr. H. C. Watson, an easy task to give a scientific man a clear idea of the nature and extent of the flora of our British Islands, by explaining to him that the whole territory is divisible into six zones of altitude, the super-arctic, the mid-arctic, the infer-arctic, the super-agrarian, the mid-agrarian, and the infer-agrarian, and into botanical provinces, the boundaries of which are founded upon physical and not upon political differences; and that the vegetation comprised in these divisions is composed of so-called Germanic, Scandinavian, Iberian, Boreal, and North-American types. This explana-

tion, however, would convey but a vague notion of what the vegetation of the British Islands really looked like to one who had not had an opportunity of familiarising himself with the nature of the different zones, or the character of the types. To conjure up any idea of what the British flora really appears like, we should have to speak of waving corn fields, smiling meadows, shady lanes, mossy tombstones, yew-girt churches, gloomy pine woods, purple heather, and golden furze—objects which at once recall scenes and aspects of nature familiarised by the pen of the poet and the brush of the painter. For that reason we have chosen as one of the most characteristic features of the vegetation of the British Islands, Holy Cross Abbey covered with Ivy. This Ivy, it is true, is not peculiarly British, but diffused over the whole of Europe in several distinct varieties, some of which have white, some yellow, and some black berries. The yellow-berried Ivy is confined to the south of Europe, and is the plant with which in times gone by poets were crowned, and which played so prominent a part in the festivals held in honour of Bacchus. The black-fruited variety is much more common, and the one indigenous to our islands. Though it cannot claim the distinction of having encircled the heads of poets, it has furnished the theme of many a poet's song, and in no part of Europe does it thrive with such luxuriance as in the British Islands, especially in Ireland, where, favoured by a humid and mild climate, it ascends the tops of the highest trees, covers with its thick evergreen foliage rocks and walls, and gives a picturesqueness to many an old ruined castle or Gothic abbey. It has been mentioned that in remote times our European Ivy, *Hedera Helix*—at least the yellow-berried variety—was brought from the highlands of Asia; but the Ivy which flourishes in Nepal and throughout the Himalayas with such luxuriance is a species quite distinct, being covered with minute yellow scales instead of white stellate hairs, as our Ivy is. Our *Hedera Helix* is a strictly European plant, which may be said to attain in Britain its highest development, imparting to some of its landscapes a striking and characteristic peculiarity.

[B.S.]

THE TREASURY OF BOTANY.

AARON'S BEARD. *Hypericum calycinum*.

ABACA. A name given in the Philippine Islands to *Musa textilis*, which yields Manila hemp.

ABACOPTERIS. A name given by Fee to a group of the species of *Nephrodium*, in which the veins of the fronds are united in numerous superposed angles. [T.M.]

ABATIA. A small genus of *Lythraceæ*, consisting of Peruvian and Brazilian shrubs with greyish tomentum; opposite, shortly stalked, undivided crenate-serrate leaves, and terminal racemes of rather small, dull purplish, apetalous flowers, with numerous stamens. [J. T.S.]

ABBREVIATIONS. Signs to express particular attributes are largely employed by botanists. The following are those most in use:

♂ = male.

♀ = female.

♂ = hermaphrodite, or bisexual.

♂ - ♀ - ♀ = polygamous.

♂ ♀ = dioecious.

♂ - ♀ = monoecious.

♂ - ♀ - ♀ = triecious.

Ⓐ or ○ = annual.

Ⓑ or ♂ = biennial.

℥ = perennial.

℥ = a tree or shrub.

∞ = an indefinite and considerable number of any thing.

! placed after a person's name, indicates that an authentic specimen from that person has been seen.

* at the end of a citation, denotes that a plant is fully described in the place referred to.

v.v. = seen alive.

v.s. = seen in a dried state.

v.c. = seen cultivated.

v.sp. = seen wild.

" " " When these signs are placed after a number, they express a foot, an inch, or a line respectively; thus,

5' = 5 feet.

5" = 5 inches.

5" = 5 lines.

A very full account of all such signs is given in *Ludley's Introduction to Botany*, ed. 4, li. 384.

ABELE TREE. *Populus alba*.

ABELIA. A small genus of ornamental shrubs, found in India, China, Japan, and Mexico, and belonging to the natural order *Caprifoliaceæ*. The species are of slender branching habit, bearing opposite leaves and terminal bunches of showy tubular flowers. The genus is distinguished by having an oblong calyx-tube, which is connate with the ovary, and terminated by a five-parted limb of foliaceous segments; a tubular funnel-shaped corolla, with a five-lobed spreading limb; four subdidynamous or nearly equal scarcely exerted stamens; a capitate stigma; and a three-celled ovary, of which two of the cells are many-ovuled, but abortive, and the other one-seeded and fertile, becoming a coriaceous berry. *A. floribunda*, which is a native of Mexico, is a very handsome freely-branching shrub, naturally rather straggling in habit, producing opposite, blunt, ovate, crenate leaves, which are smooth on the surface; it produces large showy blossoms, which come from the axils of the leaves, at the ends of branches, so as to form a pendent leafy panicle. These flowers are a couple of inches in length, rich purple-red, tubular, the tube narrowing at the base and enlarging upwards, and finally spreading out into a limb of five nearly equal rounded lobes. *A. speciosa*, a native of China, on the Chamoo hills, has shorter tubular flowers, of a pale rose colour, and forms a lovely dwarf bush, loaded towards autumn with its ornamental blossoms. The few known species are rather objects of ornament than of utility. [T.M.]

ABELICEA. A genus of *Ulmaceæ*, containing a single species from Greece and Eastern Asia. It is so nearly related to *Platanus* that it would perhaps be better to consider it as a section of that genus, separated from the true *Platanus* by its smooth capsule and sessile leaves. Both have alternate, ovate, crenate-serrate leaves, like the elm. The flowers are hermaphrodite, or polygamous from the non-development of parts. They occur in axillary fasciculate clusters, the inferior flowers of the fascicle being staminal, the superior hermaphrodite or rarely pistilline. There are four or five stamens. The ovoid ovary is one-celled and one-ovuled, and crowned with two spreading styles, which are stigmatose down the inner side. [W.C.]

ABELIOSCHUS. The name applied to a genus of plants of the Mallow family

(*Malvaceæ*). The word is derived from the Arabic, signifying musk seed, and was given in allusion to the agreeable odour of the seeds of one species, *A. moschatus*, a native of Bengal. The seeds of this plant were formerly mixed with hair powder, and are still used to perfume pomatum. They possess cordial and stomachic properties and are mixed with coffee by the Arabs. In the West Indies the bruised seeds, steeped in rum, are used both externally and internally as a remedy for snake-bites. *A. eculeatus*, formerly called *Hibiscus* *...*

are boiled down in water to form essence of spruce, from which spruce beer is made. *A. balsamea* is the Balm of Gilead Fir, an American tree of much smaller stature than the common spruce fir, with flat leaves, which beneath its cones are erect. It

scope objects.

A. canadensis, or the Hemlock Spruce, is a native of North America and Canada, and from its abundance and eminent beauty, is frequently referred to by the American poets under the name of the hemlock. The bark is much used for tanning purposes.

A. Picea, the Silver Fir, is so called from its leaves, which are whitish on their under surface, arranged in two rows, and have their points turned upwards. The cones are erect, of a greenish purple colour, their scales provided with long tapering bracts on their outer surface. The beauty of this tree is such that Virgil has applied to it the epithet *pulcherrima*, 'very beautiful.' It attains a height of 100 feet and upwards, and is a native of Central Europe and Northern Asia. Its timber is not so much prized as that of some other species, but is durable under water, and from its bark exudes a resin which, when purified, is known as Strasburg turpentine.

A. Larx is the common Larch fir. Its needle-shaped leaves are at first arranged in tufts, but subsequently become separated one from the other by the lengthening of the branch upon which they grow. They fall off at the approach of winter. The cones are small, erect, somewhat egg-shaped, but blunt-pointed, and the scales have irregular margins: for these reasons the larch is sometimes placed in a distinct genus, and called *Larix europæa*. The wood of the larch is much prized, and very durable; its bark is employed by tanners, and it, as well as the trunk, affords what is known as Venice turpentine, which differs from most other kinds of turpentine in not becoming hard by exposure to the air for a considerable period. A kind of sugary matter exudes from the larch in summer time, and is collected under the name of Manna of Briançon. The larch attains a great size, and forms a most beautiful object on the mountain sides in Switzerland and other Alpine districts of Europe, and is much cultivated in this country for the sake of its timber, while its pyramidal form, pendent branches, light green leaves, and purplish cones render it a very beautiful tree for ornamental purposes. Round some of the meres or lakes in Shropshire the larch is abundantly planted. Its leaves fall into the water, and become felted together into large ball-like masses by the agency of a peculiar species of *Conserva*. These larch balls may be met with of all sizes, from that of a marble to that of a child's head; they lie at the bottom of the lake, and are washed up round its margins.

A. Cedrus, or, as it is sometimes called, *Cedrus Libani*, is the well-known Cedar of Lebanon. It is principally distinguished

thickening soups, for which they are well adapted. The young pods are gathered green and pickled like capers. The plant is cultivated in the south of France for the sake of its pods, which when ripe are of a conical shape, covered with hair, and about an inch in length. All the species of this genus furnish excellent fibre. The genus is botanically characterised by a deciduous ten-leaved involucre; a spathe-like, tubular, conical, five-toothed calyx; spreading petals; one-celled anthers; a style cleft into five divisions at the top; a capsule with five cells and five valves, whose edges are not bent inwards. [M. T. M.]

ABERRANT. Something which differs from customary structure. Also a group of plants which stands intermediate, as it were, between two other groups:—e.g. *Fumariaceæ*, which are by some regarded as an aberrant group of *Papaveraceæ*.

ABIES. In this genus of the cone-bearing family (*Coniferae*) are included the plants commonly called Firs, in contradistinction to pines (*Pinus*). The firs are for the most part lofty trees, with small, narrow evergreen leaves, placed in two rows along the sides of the branches, or occasionally tufted. The flowers are unisexual; but the male flowers are borne upon the same trees as the female ones, and both kinds are produced in catkins. The mature female inflorescence constitutes the cone, which is usually of a cylindrical form, consisting of a number of woody scales overlapping each other, but not thickened at their points, as in pines. The species of fir are remarkable as timber trees, and for yielding turpentine, &c.

A. eculea is the common or Norway Spruce Fir, which when well grown is a handsome tree, sometimes reaching the height of one hundred to one hundred and fifty feet. The leaves are of a dull green colour, of a four-cornered shape, and sharply pointed; the cones are cylindrical, pendulous, their scales bluishish, or slightly waved or toothed. The tree is a native of Norway, Russia, and the mountainous parts of Europe generally, thriving best on a damp soil. Its timber is much used under the name of white deal. From its trunk exudes a resin commonly called frankincense, which, when melted in water and strained, constitutes Burgundy pitch. The young leaf-buds or shoots of this and other species

from the larch by its evergreen leaves, and by its cones, which are from three to five inches in length, oblong, blunt, erect, and composed of numerous densely packed scales of a purplish-brown colour. They are not fully ripened till the third year, and remain on the tree for several years. The tree is a native of the mountains of Lebanon and of Taurus, where its majestic form and huge spreading branches render it a very prominent feature. A recent traveller in Syria, Mr. Urquhart, thus speaks of it. 'The trunk dividing at from ten to twenty feet from the ground, the branches contorted and snake-like, spreading out as from a centre, and giving to the tree the figure of a dome; the leaf-bearing boughs spread horizontally, the leaves or spicula point upwards, growing from the bough like grass from the earth. The leaves are thick and short, about an inch in length. The cones stand up in like manner, and are seen in rows above the straight boughs. The timber is in colour like the red pine. The wood has been said to be very durable, but there is some reason to think that the wood of a species of *Thuja* has been mistaken for that of the cedar of Lebanon, which is not so indestructible as was once supposed. From the noble appearance that the tree presents, it is frequently met with in parks, &c., the habit or general appearance of the tree, and the arrangement of its branches, differing considerably in different individual trees. Many magnificent trees of this species are to be seen in Blenheim Park, Oxfordshire; but scarcely any two are alike in the disposition of their branches or the colour of the leaves.

A. Deodara, or *Cedrus Deodara*, the Deodar or Indian Cedar, differs from the cedar of Lebanon, in having the cones placed on short thick stalks; and the scales of the ripe cone fall off, instead of being persistent, as in the Lebanon cedar, while its leaves are longer and more distinctly three-sided than in that plant; but it is by no means certain that the two plants are really specifically distinct. The individual plants forming the species of this genus differ so remarkably in habit and general appearance one from the other, that great caution is necessary in dogmatizing as to the distinctness of this or that form. The Indian or Deodar cedar is a native of Nepal and of the Himalayas, where it attains a height of from fifty to one hundred feet and upwards. Its timber is of great value from its durability, and it furnishes a turpentine which is much employed as a medicament by the natives in North-Western India. It was introduced into this country in the year 1822, and is now much cultivated as an ornamental tree, from its elegant form, gracefully pendent branches, and the glaucous hue of its foliage.

A. atlantica, the Algerian, or Mount Atlas Cedar, called also *Cedrus atlantica*, forms almost the entire vegetation of the upper mountainous regions of certain provinces of Algeria. According to M. Cosson, there is no doubt but that this is a mere variety of the Lebanon cedar, from which it differs

in the length of its leaves. The form and size of the cones are too variable to constitute a point of distinction.

Several other species of this genus are grown in this country as ornamental trees, among which *A. bracteata* and *A. Douglasii*



Abies Douglasii (cone).

may be mentioned as particularly interesting species. [M. T. M.]

ABNORMAL. Opposed to usual structure. Thus, stamens standing opposite to petals, and nowhere else, as in *Rhinanthe*, are abnormal, it being usual for stamens to be alternate with petals, if equal to them in number. Leaves growing in pairs from the same side of a stem, as in *Atropa Belladonna*, and flower-stalks adherent to the midrib of a bract, as in *Tilia*, are also abnormal.

ABOLIA radiata is a curious little Orchid from New Grenada, differing from *Odontoglossum* and *Oncidium* in having a slender delicate caudicle, and solid pollen masses. The flowers are brown, with yellow streaks, and a white lip.

ABOLBODA. A genus of *Xyridaceæ*, containing six or seven species of stemless plants, growing in tufts in the marshes of South America. This genus is nearly allied to *Xyris*, but differs from it in having the ovary and capsule always three-celled, while the predominant form in *Xyris* is one-celled, and, when otherwise, but imperfectly three-celled. The ovules also are attached to the central axis, while in *Xyris* they rise from parietal placentae. [W. G.]

ABORTIVE. Imperfectly developed; as abortive stamens, which consist of a filament only; abortive petals, which are mere bristles or scales.

ABRICOT SAUVAGE. A French name, used in the West Indies for the Mammee apple. Also applied in Cayenne to the fruit of *Couroupita guianensis*.

ABRODICTYUM. A name given by Presl to a very elegant species of *Trichomanes*, differing only in the form and arrangement

of the cells of its tissue. *A. Cumingii* is now generally called *T. Smithii*. Van den Bosch has revived the name under the form of *Habrodietyon*. [T. M.]

ABROMA. The name given to a genus of the Sterculiaceae family. They are small trees, with hairy lobed leaves, and terminal or axillary clusters of yellow or purple flowers. Their fruits are capsular, five-celled, with five membranous wings, and many seeds in each cell. They are natives of India, Java, and the tropical parts of New Holland. Three species are known: one of them, *A. angusta*, is the Wollut Camul, or Wullut Camul, of the Bengalese. Its bark abounds with strong white fibres, which afford a good cordage. The plant grows quickly, and may be so managed as to afford three crops of cuttings in the year. The bark is separated from the shoots by maceration in stagnant water. From four to eight days is sufficient to effect this in hot weather, but in the cold season a much longer time is required. The fibre requires no artificial cleaning. Cord made from it, though not to be compared with that of hemp, is strong, and is not liable to be weakened, as many others are, by exposure to wet. [A. A. B.]

ABRONIA. A small genus of monocotyledonous plants, belonging to the order *Nyctaginaceae*. In this genus the leading peculiarities of structure are a five-leaved involucre, surrounding a close head of many flowers; a coloured corolla-like salver-shaped perigone, having the tube inflated below, and the deciduous limb five lobed, spreading, with obovate lobes; five hypogynous included stamens, connate at the base, and having oblong anthers; a simple style with a club-shaped stigma; and a one-celled ovary containing one erect ovule. There are but few species known, and these natives of N. W. America. *A. umbellata*, one of the best known, is a handsome dwarf trailing perennial herb, producing opposite stalked, bluntly ovate, rather succulent leaves, and, from their axils, long-stalked, close umbels of pretty primula-like flowers, of a purplish rose colour. These flowers consist of a coloured calyx, the corolla being wanting; and they are very deliciously fragrant, especially towards evening. The other species are of similar character. They are not applied to any use. [T. M.]

ABRUPT. Suddenly terminating; as abruptly pinnated, when several pairs of leaflets are formed without any intermediate one at the end.

ABRUS. The name of a genus of Leguminous plants, of which five species are enumerated. *A. precatorius*, the best known, was originally a native of India, but is now found in the W. Indies, the Mauritius, and most tropical regions. It is chiefly remarkable for its small nearly globose seeds, which are of a brilliant scarlet colour, with a black scar indicating the place where they were attached to the pods. These seeds are much used for necklaces and other ornamental purposes, and are employed in India as a standard of

weight under the name of *Rati*. The weight of the famous Koh-i-noor diamond was ascertained in this way. There is a variety with perfectly white seeds. The roots are made use of in the same manner as the roots of the liquorice plant. The *Abrus precatorius* is of twining habit, with pinnate leaves, numerous stalked flowers in axillary clusters, a bell-shaped four-lobed calyx, and a pale purple corolla, succeeded by an oblong compressed pod containing four to six seeds. [M. T. M.]

ARSINTHE. (Fr.) *Artemisia Abrotanum*. — **PETITE.** *Artemisia portica*.

ABUTILÆA. An E. Australian plant, not really distinct from *Abutilon*. [A. A. B.]

ABUTILON. A genus of *Malvaceae* (Malvaceae family), known by having a cup shaped calyx without an involucre, an ovary of five or more carpels, which are divergent at the apex, and naked within, containing three or more ovules, and inseparably adherent by their inner angles. They are annual or shrubby plants, often very ornamental, inhabiting the W. Indies, Siberia, and even Piedmont. The flowers of one species, *A. esculentum*, are used as a vegetable in Brazil. *A. indicum* and *polyandrum*, Indian shrubs, furnish fibre fit for the manufacture of ropes. Their leaves contain a large quantity of mucilage. [M. T. M.]

A. striatum, *venosum*, *insigne*, and some other species, are favourite plants, often seen in our gardens and greenhouses. They have palmately-divided or heart-shaped leaves, and axillary pendulous flowers, the petals of which converge so as to give them a semi-globular bell-shaped outline. They are of considerable size, yellow or white, beautifully veined with red. [T. M.]

ACACALLIS cyncea. Under this name Lindley describes a handsome Brazilian Orchid with the habit of a *Hustleria* and large light blue flowers. It is distinguished from that genus by having a long narrow hypochil with a deep sac at its point, surrounded by a five-lobed border. It was found by Spruce, on trees near the Rio Negro.

ACACIA. A genus of shrubs or trees belonging to the *Mimosa* tribe of the Leguminous family. Its principal points of distinction are the calyx, which is provided with four or five teeth, the corolla of four or five petals, the numerous stamens, and the pod, which is not divided into joints, and which does not contain a pulp. The great number of the stamens and the nature of the pod particularly distinguish this genus from the allied genus *Mimosa*. The flowers, which are small, are collected in large numbers in globular heads, or in long spikes. The true leaves are twice or thrice pinnated, and the small leaflets, being very numerous, confer a very elegant feathery appearance on the plants, but in many of the species, particularly those found wild in New Holland, the true leaves are seldom or never developed, but, to compensate for their absence, the leaf-stalk, which is usu-



VEGETATION OF NEW HOLLAND AND AN ACASTA SCRUB
(After Mitchell)

ally more or less cylindrical, and of small dimensions, becomes flattened out, and assumes a leaf-like appearance; these dilated leaf-stalks, or, as they are technically termed, *phylloides*, fulfil the functions of the leaves, and are of very varied form in the different species. They are always so placed that their edges look upwards and downwards, so that by this means, as well as by the arrangement



Acacia argyrophylla (with phylloides).

of the veins, they may be distinguished from true leaves, which have their surfaces looking upwards and downwards. It results from the singular position of these organs that the trees possessing them give but little shade, as the light is not intercepted in its passage to so great an extent as it is by the leaves of ordinary trees. This peculiar direction of the leaf is not confined to the acacias, but is also found in other Australian trees: e. g. *Eucalyptus*. At the base of the leaf-stalk of the acacias, where it joins the branch, are two small stipules, which are sometimes represented by spines.

The species of acacia are very numerous, and widely diffused in the warmer regions of the globe. *A. gummiifera* is found in Mogador. *A. Nemu* is abundant in the environs of Nagasaki, Japan. *A. glandulosa* and *A. brachyloba* adorn the banks of the Mississippi. Some of the species are of great importance, as furnishing gum; others contain an abundance of tannin, which renders them useful for tanning purposes, and in medicine as astringent drugs. Gum arabic, or gum acacia, is an exudation from various species of acacia, such as *A. Verck*, *A. arabica*, *A. vera*, *A. Adansoni*, and others, for the most part natives of Arabia, Barbary, and the East Indies. Gum Senegal is a similar product from other species of the genus. Some Australian kinds called Wattle trees furnish gum. The drug known as catechu is prepared from various trees, but especially from *Acacia Catechu*, the wood of which is boiled down, and the de-

coction subsequently evaporated, so as to form an extract much used in medicine as an astringent. The bark of *A. arabica* is used in India for tanning leather, under the name of Babul bark; that of *A. Melanocylon* is used for the same purposes in Australia. The pods of other species are likewise similarly employed in Egypt and Nubia. Many furnish excellent timber, and the flowers of one species, *A. Farnesiana*, yield a delicious perfume. The pods of *A. concinna* are used in India like those of the soap-nut for washing the head; the leaves also are acid, and used in cookery like those of tamarinds. The pounded seeds of *A. Niopo* are employed by certain of the Indian tribes on the river Amazon as the basis of a snuff, into the composition of which lime and the juice of a species of *Cocculus* also enter; its effects are to produce a kind of intoxication and invigoration of spirits. Many kinds are cultivated in greenhouses in this country, for the beauty of their flowers or for their foliage; some few even, such as *A. Julibrissin* and *A. lophantha*, will succeed out of doors in warm situations. The name *Acacia* is also commonly given to the Locust-tree of North America, a very different plant. See ROBINIA, and MIMOSA. The aspect of an *Acacia* scrub, which is one of the characteristic features of Australian vegetation, is shown in Plate 15

[M. T. M.]

ACACIA BLANC. (Fr.) *Robinia Pseud-Acacia*. —BOULE *Robinia umbraculifera*. —DE CONSTANTINOPLE. *Acacia Julibrissin*. —DE SAINTE-HELENE. *Acacia vestita*. —DE SIBERIE. *Caragana frutescens*. —PARASOL. *Robinia umbraculifera*.

ACACIA, BASTARD or FALSE. *Robinia Pseud-Acacia*, sometimes called the Locust-tree. —ROSE. *Robinia hispida*.

ACENA. A genus of the *Sanguisorbaceæ*. They are small herbs, mostly with woody stems. The leaves are unequally pinnate, the flowers small, white or purple, borne on scapes and arranged in terminal balls, or sometimes in spikes. Their calyces are often beset with slender spines which are furnished at their apex with reflexed bristles. *A. ovina* is a common weed in S. Australia and Tasmania, and is troublesome in grazing districts from the bristles of the fruit getting entangled in the wool of the sheep; it is also a pest to housewives from their adhering to linen exposed to dry on the grass; and, as well as many of the species, a common annoyance to travellers by catching their dress. A decoction of the leaves of *A. Sanguisorba* is used in New Zealand as tea and as a medicine. It is the Piri Piri of the natives. There are upwards of forty species in the genus, chiefly natives of the temperate regions of S. America; commencing in California, they extend through the Andes (where some of them reach the elevation of 15,000 feet) to Cape Horn, and attain their maximum in Chili. [A. A. B.]

ACALYPHA. A large genus of Spurge-worts (*Euphorbiaceæ*), comprising upwards

of a hundred species, which are more or less distributed over all tropical and subtropical regions, attaining their maximum, however, in S. America. A goodly number are annual, but the great mass perennial shrubby plants, having much the appearance of nettles, and readily known in the family from their nettle-like leaves and the disposition of their flowers, which, usually of a green or reddish colour, and inconspicuous, are disposed generally in erect or drooping bracted spikes, which arise singly from the axils of the leaves or the end of the shoot, and vary in length from an inch to a foot, the upper portion of the spike bearing sterile, the lower fertile flowers, or the entire spike devoted to the one or the other. The sterile have a calyx of four triangular lobes, enclosing eight to sixteen stamens, whose curious flexuose anther cells are quite distinct from each other, and stand out nearly at right angles to their stalk. The fertile flowers have a calyx of three to five divisions, and a three-branched style, the branches deeply ramifying, crowning a three-lobed ovary, which, when ripe, is a three-celled and three-sided capsule of the size of a small pea. The Stringwood of St. Helena (*A. rubra*) is interesting as being one of a comparatively small number of plants now known to be extinct. It formed a beautiful small tree, and got its name of stringwood from the long spikes of reddish-coloured sterile flowers which hung in great profusion from the twigs. *A. indica*, an annual Indian weed, one to two feet high, with nettle-like leaves, and flower-spikes having toothed leafy bracts, has, according to Nimmo, roots which attract cats quite as much as do those of Valerian. This plant is the Cupament of Rhedeo, who says the root bruised in hot water is cathartic, and a decoction of the leaves laxative.

[A. A. B.]

ACAMPE. Under this genus Lindley collects a few Indian and Chinese epiphytal orchids, formerly referred to *Vanda*, from which they differ in having small brittle flowers with a lip adnate to the edges of the column. They are of no interest except to botanists. The handsomest is *Acampe* (formerly *Vanda*) *longifolia*, a fine-looking species with small yellow flowers, occasionally met with in gardens.

ACANTHACEÆ. An order of monopetalous exogens, belonging to Lindley's Bignonioid Alliance, and nearly related to Scrophulariads. In tropical regions they are extremely common, constituting a large part of the herbage. Nevertheless the genus *Acanthus* is found in Greece, and one species inhabits the United States. In a majority of cases *Acanthaceæ* are to be recognised by the presence of large leafy bracts, in the axils of which the flowers are partly concealed, and also by their calyx being composed of deeply imbricated sepals forming a broken whorl. But their most exact difference from other orders of the Bignonioid Alliance consists in the singular structure of their placenta, which expands into hard pro-

cesses, which are most commonly hooked. In the form of their embryo they agree with bignoniads. They are of little importance to man. The greater part are mere weeds, but some are plants of great beauty, especially the species of *Justicia*, *Aphelandra*, and *Ruellia*. For the most part they are mucilaginous and slightly bitter; occasionally the bitterness increases, and they become pectoral medicines; some are dyers' plants. The genuine Acanths, formerly called Branc-uraines, are emollients, as



capitulum in Arabiæ etc.

also is *Anisotes trisulcus*, an Egyptian plant. About 1500 species are mentioned in books.

ACANTHE D'ALLEMAGNE. (Fr.) Heracleum Sphondylium.

ACANTHODIUM. A genus of Acanthaceous plants, distinguished by Delle from the genus *Acanthus* by reason of its two-celled pod, each cell of which contains one compressed seed, the radicle or young root of which is placed near the scar of the seed, or that part where it is attached to the pod, whereas in *Acanthus* the rootlet is placed at a distance from the scar. The only species, *A. spicatum*, is a native of Egypt. It is provided with a very short stem, from which proceed three or four spikes of flowers, each provided with very spiny bracts. [M. T. M.]

ACANTHOGLOSSUM. An epiphytal orchid from Java, now merged in *Pholidota*.

ACANTHOLIMON. A genus of *Plumbaginaceæ* containing about forty species, most of which are natives of Persia, Asia Minor, and Greece. The technical characters are the union of the five styles at the base, and the capitate stigmas; but they are readily distinguished from their allies by their rigid, sharp-pointed leaves, which resemble those of juniper. The stems are very short, and much branched, so that the plants form dense prickly cushions on the rocks on which they grow; the flower-stalks are simple or forked; the spikelets in

a spike which is generally lax; the calyx white, its limb surrounding the rose-coloured corolla like a frill. *A. glumaceum* is a very pretty garden rock plant. [J. T. S.]

ACANTHOPHIPPIUM. A genus of terrestrial Orchids allied to *Bletia*, with large, fleshy tubular flowers, growing almost at the base of the leaves. These flowers are white or pink, and occasionally streaked with a deeper colour. The few species that are known come from the tropical regions of Asia.

ACANTHUS. The genus from which the order *Acanthaceae* derives its name. The species are all especially remarkable for the beauty of their foliage. The calyx consists of four unequal pieces, the two side ones being much smaller than the other two; the corolla is also irregular, and has but one lip; the stamens are four in number, one pair longer than the other; the anthers are one-celled, and covered with hairs; the capsule is two-celled, each cell containing two rounded seeds. *A. mollis* and *A. spinosus* both grow in Italy, Spain, and



Acanthus spinosus.

south of France, &c. The leaves of the latter plant are supposed to have furnished to Callimachus the model for the decoration of the capital of the columns in the Corinthian style of architecture. Several species are cultivated in this country, but are ill adapted to resist frost. [M. T. M.]

ACARPHÆA. A genus of the Composite family (*Compositæ*) containing but one species, *A. artemisiifolia*, a native of California. It is an herb with ragwort-like leaves three to four inches long, glandular above, and hoary beneath; the flower-heads few and stalked, the florets yellow. The name has reference to the absence of the chaffy pappus of *Chamaetis*, and the chaffy receptacle of *Madia*, to both of which it is allied. The name has been by mistake printed *Acicaphæa*, instead of *Acarphæa*, in some books. [A. A. B.]

ACAULIS. Having a very short stem:

literally stemless, but a plant without a stem cannot exist, unless it is a mere vesicle.

ACAULOSIA. A diseased condition of plants, in which the stem is imperfectly developed or wholly wanting. Its formation may moreover be retarded by the main powers of vegetation being directed to some other quarter, as in turnips to the formation of an enormous root. There may moreover be stemless varieties of some particular species; the primrose representing, for instance, a form of the cowslip in which the axis is reduced to little more than a point. The common hyacinth sometimes flowers imperfectly without any elongation of the stem, a state which arises from injury or decay of the roots; and from similar affections a like condition may be produced by heat. The stem of *Oniscus asculis* is not developed in poor dry pastures, though it occasionally acquires a foot or more in length. The stunted growth of trees also may arise from a like cause, but is more frequently produced by actual injury, intentional or otherwise.

[M. J. B.]

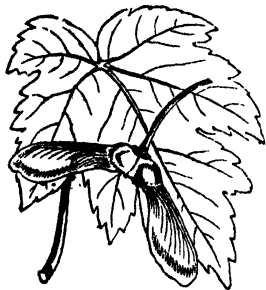
ACCRESCENT. Growing larger after flowering. The calyx of *Melanorrhæa*, which is small and green when in flower, becomes large and leafy when the fruit is ripe, and is therefore accrescent.

ACCUMBENT. Lying against anything; used in opposition to incumbent, or lying upon something; a term employed in describing the embryo of Crucifers.

ACER. This name includes the Sycamore and the Maples, Aceraceous trees indigenous to the temperate regions of both the Old and New World. They are mostly of rapid growth, and easily propagated. For these qualities, and for the beauty and variety of their foliage, the species are much planted in England for ornamental purposes, while in America one species has great economic value, being employed in the manufacture of sugar, a substance which is found more or less in the sap of all. The flowers, though they display no striking colours, attract the attention from their number, graceful arrangement, or the multitude of winged insects which, at a season when flowers are scarce, resort to them for food. The leaves are mostly lobed and toothed, in some species very large; and the seed-vessels (called *samarae* by botanists), which are winged capsules, each containing a single seed, and united by their bases into pairs, are strongly characteristic of the family.

The common Sycamore, *A. Pseudo-Platanus*, abundant as it is in England, and readily though it propagates itself by seed, is, on good grounds, supposed not to be indigenous, but to have been introduced from the European continent in the fourteenth century. Of a tree so well known it is unnecessary to give any description. Its uses are numerous. The wood is used for various articles of domestic furniture, musical instruments, and toys; as fuel it is

said to be the most valuable of all woods, and it may be converted into excellent charcoal. From the sap collected in early



Acer Pseudo-Tataricus.

spring, sugar may be made, but not in remunerating quantities. In Scotland it is popularly known as the Plane. The name *Sycamore* was given to it at an early period, from a supposition that it was the tree mentioned in the New Testament, which, however, as the etymology indicates, is a species of *fig* (*sykom*, a *fig*, and *mora*, a mulberry-tree, resembling the former in its fruit, and the latter in its leaf), *Ficus Syco-*

The Maple (*A. campestre*) is a low hedge tree most conspicuous for the golden and purple tints of its foliage in autumn. The gnarled stems and knotted roots of this species have long been prized by turners and cabinet-makers for making choice articles of furniture. The wood also makes excellent fuel, and the best of charcoal. But the most important species of this family is the Sugar Maple (*A. saccharinum*), a native of North America. This tree forms extensive forests in Canada, New Brunswick, and Nova Scotia, and yields a saccharine juice in such abundance that maple-sugar is an important article of manufacture. It has been computed that in the northern parts of the two States of New York and Pennsylvania there are ten millions of acres which produce these trees, in the proportion of thirty to an acre. The season for tapping is in February and March, while the cold continues intense and the snow is still on the ground. A tree of ordinary size yields from fifteen to thirty gallons of sap, from which are made from two to four pounds of sugar. The tree is not at all injured by the operation, but continues to flourish after having been annually tapped for forty years without interruption. Greater facilities of intercommunication and the decreased cost of cane-sugar, which is far superior, have tended of late years greatly to check the manufacture of sugar from the maple. Old trees of this species

are liable to a peculiarity of growth which gives to their timber the knotted structure known by the name of bird's-eye maple. The common Maple is the badge of the clan O'plant.

The wood called 'curled maple' is obtained from old distorted trunks of *A. rubrum*, a native of America. There are several remarkably ornamental Maples now in our gardens which have been introduced from Japan; these have small leaves, often deeply lobed, the lobes much dissected, and beautifully variegated with white, pink, or purple: they are chit-fy varieties of *A. palmatum* (*p. polymorphum*). For an enumeration of other species, see *Lowson's Arboretum*. See also *Nipundo*. [C.A.J.]

ACERACEÆ (*Acer*; *Acerineæ*; the order of *Maples*). A natural order of trees and shrubs inhabiting Europe, the temperate parts of Asia, the north of India, and North America. The order is unknown in Africa and the southern hemisphere. The most important product is the sweet sap of some species, from which sugar is extracted. It is said, however, that their juices become acrid as the season advances. They yield a light useful timber. The bark of some is astringent, and yields reddish brown and yellow colours. The order only contains three genera, and rather more than fifty species.

ACERANTHUS. A genus of *Berberidaceæ* containing a single species from Japan, a slender plant nearly allied to *Epimedium*, but having plain or spurless and not spurred petals. [W.C.]

ACERAS. An *Orchis* without a spur, there being no other difference between the two genera, except that *Aceras* has only one pollen gland instead of two. The *Man Orchis*, *Aceras anthrophophora*, so called because of a fancied resemblance between its lip and the body of a man hung by the head, is common in meadows and grassy slopes all over Europe. It has greenish yellow flowers bordered with red, a pair of oblong knobs or tubercles for its roots, and a heavy rather unpleasant odour. *Aceras hircina*, the Lizard Orchis, is a much finer and rarer plant with long spikes of dirty rose-coloured flowers, the middle lobe of whose lip has the form of a long, twisted strap; they emit an unpleasant odour like that of a goat. This species is occasionally found in chalky districts all over the temperate regions of Europe. Haller says that the bruised root increases the flow of milk in milk cattle. Other species occur in Asia, reaching as far as Gossain Than in the Himalayas; and one (*A. secundiflora*) found in Barbary and Madeira, is occasionally seen living in the gardens of curious collectors.

ACEROSE. Needle shaped; as in the leaves of beeches and pine trees.

ACETABULARIA. A beautiful genus of calcareous green-spored *Algae*, the species of which resemble little umbrellas or such delicate gill-bearing fungi as *Coprinus pilcantia*. An erect articulated stem bears above a whorl of threads which are united laterally so as to form an umbilicate orbicular disk, from the centre of which arises a bunch of delicate branched threads. The

most remarkable species is not uncommon in the Mediterranean, but none has yet been observed on our own coasts. [M. J. B.]

ACETABULUM. The receptacle of certain fungals.

ACHÆNE or **ACHENE.** Any small, brittle, seed-like fruit, such as *Linnæus* called a naked seed.

ACHANIA. The name given to genus *Mateuæa*.

Mexico, the West Indies, &c. The calyx is double, the outer of many pieces, the inner tubular and five-toothed; there are five petals with appendages at their base; the filaments are united into a spirally twisted tube, bearing the anthers on the summit; and the flowers are succeeded by a five-celled fruit. *A. Malvastrum* is remarkable for the beauty of its scarlet axillary flowers, and its green, heart-shaped, sharply-pointed leaves. [M. T. M.]

ACHARIA. A genus of erect, slender, glaucous Cape herbs, belonging to the *Papayaceæ*. The only species, *A. trugida*, has alternate deeply trifid leaves, and axillary unisexual flowers, with a three-leaved involucre, and a campanulate trifid calyx. The male flowers have three stamens, alternating with three scales. In the females three scales surround the one-celled stipitate ovary. [W. C.]

ACHE. (Fr.) *Apium*. —**DE MONTAGNE.** *Levisticum officinale*. —**DES CHIENS.** *Ethusa Cynapium*.

ACHE'E. (Fr.) *Polygonum aviculare*.

ACHIAI. An Eastern condiment, formed of the young shoots of *Bambusa arundinaria*.

ACHILLEA. A name anciently given to a plant 'wherewith Achilles cured the wounds of his soldiers.' It is now applied to a family of plants belonging to the natural order of Composite flowers. Most of the species have deeply divided woolly leaves, and bear their flower heads, which are white, yellow, or purple, in flat clusters (corymbs) at the extremity of the stem. Two species only are native in Great Britain:—*A. Farnesæ*, Sneezewort, an herbaceous plant, a foot high or more, bearing heads rather less in size than a daisy, which have the disk, as well as the ray, white. This is frequent in moist meadows, especially in the hill countries. It derives its name from its alleged property of exciting sneezing when pulverised, a virtue which it probably possesses, though not to an extent beyond that of many other plants undistinguished by special names. *A. Millefolium*, Milfoil or common Yarrow, is an herbaceous perennial, with tough upright stems, more or less woolly deeply-cut jagged leaves, and flat corymbs of flower heads, containing very few florets, which are either white, pink, or, rarely, deep purple. Its properties are highly astringent, and it was anciently much prized as a vulne-

rary. The older English botanists called it Nose-bleed, 'because the leaves being put into the nose caused it to bleed.' Several foreign species are cultivated as border plants, and are conspicuous either by their flowers or hoary foliage. [C. A. J.]

ACHIMENES. An extensive genus of very handsome tropical and sub-tropical herbs, furnished with scaly underground tubers, by which they are perpetuated. They

are to be found in the original kinds, have been obtained in the cultivated state. They belong to the order *Gesneraceæ*, and their most obvious peculiarities consist in a five-parted sub-equal calyx, the tube of which is joined with the ovary at its base; a funnel-shaped corolla, of which the tube is somewhat oblique, and gibbous behind at the base, and the limb spreading five-lobed and nearly equal; four didynamous included stamens inserted on the tube of the corolla, with the rudiment of a fifth; a simple style with a subcapitate obsoletely two-lobed stigma; and an ovary coherent with the base of the calyx, bordered by an annular or ring-formed glandular disk, one-celled, containing many ovules, which are attached to a pair of parietal placentae. They have fleshy erect stems; opposite, serrated, often hairy leaves, and axillary flowers, the pedicels of which are not unfrequently accompanied by little scaly, bulbiform tubers, like those produced at the base of the stem beneath the surface of the ground. The genus has been divided into several by modern botanists, but few of the proposed groups have been generally received. The principal of these new genera, in addition to *Achimenes* itself,—which is made to consist of erect herbs with axillary flowers, having a membranaceous entire glandular ring, and a two-cleft stigma,—are the following:

Kolkieria: dwarf herbs with a terminal racemose inflorescence, a membranaceous nearly entire glandular ring, and a stomatomorphous stigma.

Locheria: erect herbs, with axillary or sub-paucicled flowers, a thickened fleshy nearly entire five-angled glandular ring, and a two-cleft stigma.

Guthnickia: erect herbs, with axillary flowers, a thickened fleshy nearly entire five-angled glandular ring, and a stomatomorphous stigma.

Scheeria: erect herbs, with large axillary flowers, a thick fleshy subentire glandular ring, and stomatomorphous stigma.

Mandrola: erect herbs, with axillary or sometimes panicled flowers, having the glandular ring membranaceous, and composed of five crenatures or lobes, and a two-lobed stigma.

Tydaea: erect herbs, with axillary or somewhat panicled flowers, having the glandular ring composed of five distinct glands, and a two-cleft stigma.

Of these new genera *Tydaea* is the most distinct and the most generally accepted.

Achimenes as above restricted, consists of two distinct series, one of which is well represented by *A. socranea*, a species found in Jamaica and Central America. This plant has slender, erect, branching stems a foot or rather more in height, furnished with small ovate, acute, serrated leaves, and axillary one- or few-flowered peduncles bearing small scarlet, somewhat salver-shaped flowers, having a broadish cylindrical or somewhat swollen tube, nearly equal at the base, and a spreading limb of five rounded segments. The other series is represented by the Mexican and Central American *A. longiflora*, in which the stems are also erect, about a foot and a half in height, with ovate, acute, serrated leaves, and axillary peduncles supporting one large flower, of which the tube is elongated, slender, curved, and deflexed, saccate at the base, and the limb very broad, plane, and lying in a direction oblique to the tube. The species are for the most part natives of Central America. They are not applied to any use, but are much prized for their ornamental properties. The mode of increase from the scaly tubers is very curious, each one of the scales, when separated, being capable of forming a new plant. The name *Achimenes* is also a synonym of *Aritanema*, a genus of the order *Borophyllaceae*. [T. M.]

ACHILAMYDEOUS. Having neither calyx nor corolla, so that the essential parts of the flower are without a covering.

ACHOTE. The seeds of the Arnotto, *Bixa Orellana*.

ACH-ROOT. The root of *Morinda tinctoria*, used in India as a dye.

ACHYRACHAENA. The generic name of a Californian annual of the Composite family (*Compositae*), nearly related to the better known and much prettier genera *Callichroa* and *Oxyura*, but differing from them in the nature of the pappus which crowns the cylindrical achenes, and consists of about ten very thin and membranous silvery scales, each about half an inch in length. The whole plant is clothed with soft white hairs, whence its specific name of *mollis*. The stems are seldom more than eight inches high, branched or simple, furnished with grassy leaves one to two inches long, and terminate in a single head of flowers half an inch across, with purple inconspicuous florets. The plant has also been called *Lepidostephanus madioides*. It has been cultivated at Kew. [A. A. B.]

ACHYRANTHES. A genus of *Amaranthaceae*, found in the tropical and sub-tropical districts of the Old World and consisting of erect, procumbent, or sometimes climbing trees and shrubs, many of them being troublesome weeds in cultivated grounds. The flowers are in loose spikes, hermaphrodite, and have three spinous bracts. The calyx consists of five, rarely four, sepals. The stamens, the same in number as the sepals, are united at their bases into a cup. The one-celled ovary contains a single

ovule, and has a simple style, and capitate stigma. The leaves are opposite. *A. aspera* and *fruticosa* are administered in India in cases of dropsy; *A. globulifera* is used in Madagascar as a remedy for syphilis. Upwards of thirty species have been described. Though natives of the Old World, three or four species have been accidentally carried to the United States, where they have rapidly spread, becoming perfectly naturalised. [W. C.]

ACHYROPHORUS. A genus of annual or perennial herbs belonging to the Chicory group of the Composite family, and only distinguished from *Hypochaeris* by the feathery pappus-hairs being in a single instead of a double series. Of about twenty-five species four are S. European and Altasian; and one of these, *A. maculatus* is also common to Britain, but usually placed in *Hypochaeris* in our floras. The remainder are entirely S. American, and chiefly extend from Chili southwards. A few, found in the Andes at elevations of 10,000 feet and upwards, are neat little stemless plants, with a rosette of linear or lance-shaped toothed or entire leaves, and nestling in their midst a large and handsome yellow flower-head often more than an inch across. One of this set, *A. sessiliflorus*, is called in N. Granada *Chicoria de la Tierra Caliente*; and, according to Purdie, a decoction of its thick white tapering roots is employed in affections of the chest. In those species found at low elevations, the root-leaves are spreading, entire and grassy, or pinnatifid like those of our hawkbits (*Leontodon*), their surface smooth or hairy; the yellow flower-heads single on the ends of unbranched stalks, or the stalks branching and furnished with leaves at the points of forking. *A. apargioides* and *A. Scorzonera* are known in Chili as *Escorzonera*, and their tapering roots are eaten for their refreshing and purifying qualities, as those of the Spanish *Scorzonera* (*Scorzonera hispanica*) are in this country. [A. A. B.]

ACIANTHUS. A genus of Australian terrestrial Orchids with solitary heart-shaped leaves and erect racemes of small green or dull purple flowers. They inhabit shady or damp places, and represent in the southern hemisphere the *Malaxis* and *Liparis* of the northern.

ACICARPHA. A genus of *Calyceae*, comprising seven species, all of them found in the provinces bordering on the river Plate. They are small herbs with toothed or entire leaves, and lateral or terminal heads of flowers which are enclosed in a spiny involucre. In general they are found in saline or rocky soils, and may be considered as mere weeds. They do not appear to be applied to any useful purpose. *Acicarpha* embraces most of the members of the family found on the eastern side of the Cordillera. A name very similar to this, *Acicarpa*, has by mis-spelling been given to *Acarpha* in some books. [A. A. B.]

ACICULA. A bristle. The bristle-like abortive flower of a grass.

ACICULAR. Shaped like a needle.

ACICULATED. Marked by fine impressed lines, as if produced by the point of a needle.

ACIES. The edge of anything. The angles of certain stems.

ACINACIFORM. Scimitar-shaped; that is, curved, rounded towards the point; thick on the straighter side, thin on the convexity.

ACINETA. Noble epiphytal Orchids from Central America, with angular pseudo-bulbs, membranous ribbed leaves, and large fragrant fleshy flowers in pendulous or occasionally erect racemes: some brownish-purple, others more or less yellow. The genus was founded upon the *Anguloa superba* of Humboldt and Bonpland, whose artist imagined the great drooping raceme to be erect, and otherwise misunderstood the true structure. Several species are known, but they are not very well distinguished; in all the lip is united to the column by a solid immovable concave base, is three-lobed in various ways, and is furnished with a singular fleshy appendage rising from the middle in the form of a truncated body or of a mere horn. The species mentioned in books are *A. Humboldtii*, *Barkert*, *chrysantha* (alias *densa*), *Warczewiczii*, *erythroxantha* (alias *chamaecynoches*), *sella turcica*, and *cryptodonta*, all line plants, and, with the exception of *sella turcica*, all in cultivation.

ACINODENDRON. A genus of Gronovius now reduced to *Sagraea*, and supposed by De Candolle to be the same as *S. guadalupensis*.

ACINUS. A bunch of fleshy fruits, as of currants or grapes. Now confined to the berries of such bunches.

ACIS. A small genus of bulbous plants, belonging to the order *Amaryllidaceae*, and separated from *Leucojum*, from which they are distinguished by having a filiform style, and fleshy angular seeds. Both have a bell-shaped perianth, consisting of six nearly equal divisions, six stamens inserted in the epigynous disk, and an inferior three-celled ovary, containing numerous ovules. The species referred to *Acis* are plants of Southern Europe and Northern Africa, and are pretty subjects for bulb gardens. *A. rosea*, one of the neatest species, has a small round bulb, narrow blunt linear green leaves, and from one to three one-flowered scapes, blooming in succession. The flowers pendent, pale rose-coloured. The other species are *A. autumnalis* and *A. grandiflora*. [T.M.]

ACKAWAI NUTMEG. The fruit of *Acrodictidium Camara*.

ACKROOT or **AKROOT.** An Indian name for the Walnut.

ACLINIA. A supposed genus of Indian

Orchids founded by Griffith upon monsters of certain species of *Dendrobium*, in which regularity in the parts of the flower is substituted for their customary irregularity; the lip resembling the sepals and petals, and the column being triandrous, or nearly so. Five cases of the kind are recorded by Lindley, in the *Journal of the Linnean Society* (August 1856).

ACOCANTHERA. *Lycium cinereum*.

ACONIOPTERIS. A group of the *Acrosticheae*, in which the parallel veins of the fronds are angularly united near the margin. It is now included in *Olfersia*. [T.M.]

ACONITE. *Aconitum*. — WINTER. *Eranthis hyemalis*.

ACONITUM. An important genus belonging to the order *Ranunculaceae*, and botanically characterised by the calyx being not of a green colour, but blue or yellow, of five pieces, the upper of which is convex, and in form like a helmet. Within this are concealed two singularly shaped petals, formerly considered to be nectaries: the form of these bodies is somewhat like that of a hammer. There are also three other petals, very small and inconspicuous, though occasionally they also become hammer-shaped, like the two upper ones. The stamens are numerous; and the fruit consists of from three to five follicles. The plants constituting this genus are found in Europe and Northern Asia, and a few are natives of North America. One species, *A. Napellus*, is said to have been found wild in Britain, but this is open to grave doubts. All the plants of this genus possess virulently poisonous properties; the roots of some of the Indian species produce the Bikh poison of Nepal, one of the most dangerous of poisons. The roots of *A. ferox* (supposed to be a variety of *A. Napellus*) are used in the northern parts of Hindostan for poisoning arrows, with which tigers are destroyed. A tiger shot from a bow in Assam was found dead at only sixty yards from the spot, so soon did the poison take effect. Several kinds are commonly cultivated in gardens, especially *A. Napellus*, the fleshy roots of which have been occasionally used by mistake for horse-radish, and produced fatal results. This plant has a stem about three feet in height, with dark green glossy leaves, deeply divided in a palmate manner; the flowers are placed in erect clusters, and are of a dull blue colour. The roots, or more properly rootstocks, are of a tapering form, of a dark brown colour externally, and white internally; the younger roots, which are placed on either side of the older one, are of a lighter colour. The taste is bitter at first, but after a time numbness and tingling of the lips and tongue are perceived. The root has none of the acidity or pungency that fresh horse-radish possesses. The two plants are so dissimilar that it would seem impossible so terrible a mistake should be made, but it has generally arisen from taking the root of the

aconite when the leaves and flowers, which are so unmistakable, have died away. The rootstock of the horse-radish is much larger than that of the aconite, not of a tapering form, dirty yellow externally, and the top or crown marked with transverse scars, indicating the position of the old leaves; its



Aconitum Napellus.

odour and taste are at first pungent and acrid. The venom of the aconite appears to depend upon the presence of an alkaloid called Aconitina, which is so extremely poisonous that so small a dose as one-fiftieth part of a grain has wellnigh produced fatal results. A tincture of aconite root, or a solution of the alkaloid, is occasionally used with much success as an application to relieve rheumatic pains, but it should be employed with the greatest caution.

Aconitum variegatum is also commonly cultivated; it has, as its name implies, flowers variegated with white and blue.

Aconitum Lycoctonum, or Wolfshane, is a common plant in the Alps of Switzerland and Styria. Its leaves are palmate and



Aconitum Lycoctonum (flower).

hairy, of a dull yellowish green. Its flowers, which are borne in slightly branching clusters, are of a dull yellowish colour, and the shape of the upper sepal is that of an extinguisher, with a thick rounded

knob at the extremity. This species does not possess such virulent properties as the others. [M. T. M.]

ACONTIAS. A genus of plants so named in allusion to the spots on the stem, which resemble those of a species of serpent so called. The genus belongs to the *Caladium* tribe of the *Arum* family, and has tuberous rootstocks, lobed pedate leaves, green erect spathes, enclosing a spadix or fleshy spike, with female flowers at the lower portion, and male flowers at the upper. The species inhabit Brazil. [M. T. M.]

ACORE ODORANT. (Fr.) *Acorus Calamus*.

ACORIDIUM. A genus of caespitose plants, natives of Manilla. They have slender stems, sheathed at the base, and bear dioecious flowers in a linear spike. They are too little known to refer them satisfactorily to their position, although they seem to be allied to *Burmanniaceae* and *Xyridaceae*. [W. C.]

ACORN. The fruit of the Oak or *Quercus* family. —, **SWEET.** The fruit of *Quercus Ballota*.

ACORUS. The name of a genus of plants referred by some to the *Araceae*, and by others to the *Orontiaceae*. The most interesting plant of the genus is *Acorus Calamus*,



Acorus Calamus.

or Sweet Flag, a plant apparently known to the Greeks, though not to be confounded with the *Calamus aromaticus*, which, according to Royle, was a species of grass. The Sweet Flag grows in ponds, by the banks of rivers, and other wet places in England

It is also found in the cooler parts of Europe, of India, and of North America. From the lower part of the thick jointed stem or rhizome, the plant sends down numerous roots, while from the upper surface it pushes upwards a number of lance-shaped leaves from two to three feet in length, sheathing at the base, also a long leaf-like stalk, from one edge of which, a foot or more above the rootstock, issues a spike of densely packed greenish flowers, each provided with a perianth of six pieces, enclosing six stamens and a three-celled ovary with a sessile stigma. All parts of the plant, but especially the rhizome, have a strong, aromatic, and slightly acid taste; hence it has been used as a stimulant and mild tonic in medical practice, especially in some kinds of indigestion, and is said to be useful in ague. The rhizome is also used by confectioners as a candy, and by perfumers in the preparation of aromatic vinegar and other perfumed articles. *A. gramineus*, a much smaller plant, is sometimes cultivated in gardens. The Hindustani name is Butch; the Tamil name Vasambha. [M. T. M.]

The *Acorus Calamus* imparts at once an aromatic taste, and an agreeable bouquet, to liquids in which it is infused. Professor Johnston states, in his *Chemistry of Common Life*, that it is used by the rectifiers to improve the flavour of gin, and is largely employed to give a peculiar taste to certain varieties of beer. According to the same authority, the London market used to be principally supplied from the rivers of Norfolk: as much as 400, having been sometimes obtained for the year's crop of a single acre of riverside land, on which it naturally grows. [T. M.]

ACOTYLEDONS. A name often applied to *Cryptogams*, or flowerless plants, in consequence of their reproductive organs or spores, when germinating, having no seed-leaves or cotyledons. There is, however, no rule without an exception, and some Lycopods present when young something very like cotyledons. Though *Cryptogams* have no true cotyledons, their spores produce, mostly by cell-division, a mass of threads, a leafy expansion, or a solid body, to which the name of false cotyledons pseudo cotyledons has been given, and such productions, as the false cotyledons of mosses for example, have often been considered as distinct plants, belonging to a distinct natural order from the parent plant. Under this name are included all those plants called by Linnaeus *Cryptogamia*, because he was unable to discover their organs of fertilisation, if they had any. They comprehend Sea-weeds, Fungi, Lichens, Mosses, Ferns, and their allies: which see. It is now known that all are multiplied by a sexual apparatus in structure wholly different from that of phanogamous plants, but in function the same. One very great peculiarity is that in the majority of the orders a true locomotive action is observable in the matter emitted by the male organs; and that in the higher orders, that is to

say in Ferns, Lycopods, and Horsetails, the plant, properly so called, does not proceed directly from the spore or seed, but from a rudimentary intermediate organ, called prothallium, on which the organs of fertilisation are formed, these organs not producing a spore or seed, but the very plant itself.

ACOTYLEDONOUS. Having no cotyledons, as in *Cuscuta*. In systematical botany, applied to spore-bearing plants which do not produce cotyledons; also to spores themselves, which are embryos without cotyledons.

ACOUCHI RESIN. The inspissated juice of *Icteu heterophylla*.

ACRADFNIA. A plant found wild in the neighbourhood of Macquarrie Harbour, Tasmania, is the type of this genus of Rutaceous plants of the tribe *Boronia*, the distinguishing characters of which are the following:—parts of the flower in fives; stamens five, not united together, perfectly smooth; anthers smooth, not provided with any appendage; ovaries adhering closely together, and everywhere clothed with a dense woolly covering, except that each bears at its summit a small gland, whence the name of the genus. The endocarp has been described as not separating, but the only fruits known are open, and have already shed their seed; and on comparing them with other genera in a similar state, Mr Benham concludes that, as usual in the tribe, the endocarp has been cast with the seed. *A. franklinia*, the only species, named after Lady Franklin, is a shrub now in cultivation at Kew, with opposite terete leaves, which are thick, very rough and harsh on the upper surface, smooth on the under surface, and fragrant. [M. T. M.]

ACRÆA. A small genus of terrestrial Orchids with fleshy fasciculate roots, and close racemes of yellowish, downy flowers. In general aspect the species resemble the European *Spiranthes*. The three or four that are described come from Central America.

ACRAMPHIBRYA. Plants that grow both at the point and along the sides, as endogens and exogens.

ACRIOPSIS. In Burmah, Borneo, and the Malay Archipelago, are found several epiphytal Orchids with small reddish paniculate flowers, having their lip united firmly to the front of the column, from which it projects at right angles, in addition to which the column has two glandular arms, and is extended behind into a hood covering the anther. They belong to the vanaceous sub-class, and are nearly related to the South American genus *Aspasia*. Three or four species are known, of which two, *A. densiflora* and *picta*, have been cultivated. Beyond the very curious structure of the parts of fructification, they have little to recommend them to notice.

ACROBRYA. A term used by Endlicher, synonymous with *ACROGNA*. [M. J. B.]

ACROCARP. A division of mosses containing those species in which the female fruit terminates the branches. Unfortunately even in the same genus, as *Fissidens*, species with lateral and terminal fruit occur, so that the distinction is not without grave exceptions. [M. J. B.]

ACRÓGARPIDIUM. The plants constituting this group of *Piperaceæ* are now, by Casimir De Candolle, included in the genus *Peperomia*, from which they differ in habit and in the pseudo-pedicellate fruit. They are for the most part creeping plants, growing upon trunks of trees or mossy banks, with hairy or smooth, alternate roundish or kidney-shaped leaves, which have three or five prominent nerves; the flowers are placed in rings on long-stalked catkins with somewhat fleshy bracts; they have two distinct stamens, a simple stigma crowning the stalkless ovary, which latter ripens into a fruit so contracted at its base as to give an appearance as if it were placed on a stalk. They are natives of tropical America and the West Indies, and partake in some degree of the general cordial properties of the family to which they belong. *A. hispidulum* is made use of in the West Indies as a bitter and stomachic. Several kinds are cultivated in stoves as objects of curiosity or of botanical interest rather than for their beauty. They are best known under the old name of *Peperomia*. [M. T. M.]

ACROCHÆNE punctata. An epiphytal orchid from the Sikkim Himalaya, where it was found by Dr. Hooker at the height of 4,000 feet above the sea. It has an ovate pseudo bulb, a long solitary coriaceous leaf, and an erect radical inflorescence. The flowers are straw-coloured, dotted with crimson. It is nearly related to *Simpia*, with which it agrees in having a couple of long taper caudicles for the pollen masses.

ACROOLINIUM. A beautiful genus of annual Composites, at present represented in our gardens by the *A. roseum*, a species introduced from the Champion Bay district, Western Australia. Its flower-heads resemble those of the well-known *Rhodanthe Manglesii*, but are larger, and the habit of the plant is entirely distinct. It produces numerous erect unbranched stems a foot or more high, the primary one emitting two opposite shoots from its base, each of which in its turn throws out two additional ones, which again become the parents of others, until the plant assumes a bushy character. The stems are clothed with numerous linear, smooth, pointed leaves, and bear at the summit a single handsome flower-head an inch and a half in diameter, consisting of a bright yellow disk of tubular florets, surrounded by a many-leaved, imbricated involucre, the innermost leaflets of which have spreading rose-coloured tips, presenting, as in *Rhodanthe*, *Helichrysum*, and other allied genera, the appearance of ray florets. The fruit, or, as it is popularly but incorrectly termed, the seed, is clothed with

snow-white silky down, and is surmounted by a pappus of from fifteen to twenty feathery hairs or scales, flattened and connected at their base, and tipped with a yellow tassell-like brush, by which characters the genus is chiefly distinguished. The yellow colour of the disk is due less to the colour of the florets themselves than to the brush-like tips of the pappus hairs, which under a lens are very interesting objects. Four other species occur in the same locality, but do not appear to have been yet introduced. [W. T.]

ACROCOMIA. The name given to a genus of Palms, in allusion to the elegant tufts of leaves at the summit of the stem. One species, *A. sclerocarpa*, grows almost all over South America, occurring in dry soil, rarely in woods. The tree belongs to the same tribe as the Cocoa-nut Palm; its trunk rises to twenty or thirty feet in height, and is sometimes swollen in the middle; the leaves are from ten to fifteen feet in length, pinnate, with from seventy to eighty leaflets on each side. The young leaves are eaten as a vegetable. It is cultivated in our hothouses. [M. T. M.]

ACROGENS. A large and most important division of **CRYPTOGAMS**, distinguished for the most part from **THALLOGENS**, as **FUNGUSES**, **SEAWEEDS**, and **LICHENS**, by their herbaceous growth, the presence of leafy appendages which are frequently furnished with stomates, the different mode of impregnation, and the presence of vascular tissue. A few acrogenous Liverworts have the habit of Lichens, but differ totally in structure.

The most important distinction, however, undoubtedly is that the impregnation takes place somewhat after the manner of **PHÆNOGAMS**, by an impression made upon the contents of the embryonic sac, and not upon the spore itself, as is decidedly the case amongst **Thallogens** where the mode of impregnation has been ascertained, as in *Alga*. In *Characeæ* alone the spore seems to be immediately impregnated, though even in this case it is uncertain whether impregnation does not take place before the spore is perfected.

In Mosses, Liverworts, and Ferns, the spore after germination produces at first either a web of threads, a solid mass, or a membranous expansion (*prothallium*). In the two former a distinct plant arises from the threads, with frequently symmetrical leaves, and on these plants urn-shaped organs are produced (called *archegones*) analogous to pistils, which contain at their base a cell which, after impregnation, produces the proper fruit. In perennial species a fresh crop of archegones may be produced in two or three successive years, which require a distinct act of impregnation for the development of the capsules. In Ferns and their allies, on the contrary, the archegones give rise to a new plant, which for one or for many successive years produces a fresh crop of fruit without further impregnation. The result of impregnation in the two cases, then, is quite

different. In Mosses the whole plant is, as to function, a prothallium; in ferns, merely the membranous expansion immediately produced on the germination of the spores. Further details may be reserved for each successive group. In those species of Fungi, as *Puccinia*, *Podisma*, &c., where a prothallium is produced, it has the nature of a spore, and germinates in the same manner.

As regards the tissues, it may be observed that the stem of many acrogens contains distinct vascular tissue. In *Jungermannia*, where such tissue is rare elsewhere, it almost universally accompanies the spores. In Mosses, as in *Sphagnum*, there are sometimes distinct spirals in the cells of the leaves. The vascular tissue in most of the higher cryptogams is scalariform; but in *Isaetes* and *Equisetum* it is annular, with transitions to short spirals, while in *Selaginella* and *Lycopodium* there is a transition from short spiral and reticulated cells to elongated cells, which may be called spiral vessels. In the stem of *Sphagnum* there is tissue closely resembling the glandular tissue of conifers. The spiral coats of the spores in *Equisetum* will be noticed hereafter. The impregnating bodies or spermatozooids have always flagelliform appendages, sometimes much more highly developed than in the spermatozoa of animals. The principal divisions of acrogens are:

1. CHARACEÆ. Spores solitary.
2. RHOCHACEÆ. Capsules valveless, without spiral cells or elaters.
3. MARCHANTACEÆ. Capsules dependent, containing elaters.
4. JUNGERMANNIACEÆ. Capsules erect, containing elaters.
5. MUSCI. Capsules mostly valveless, without elaters.

In these five orders the archegones give rise to the capsule.

6. FILICES. Capsules mostly with an elastic ring, but sometimes densely crowded and ringless.
7. OPHIOGLOSSACEÆ. Capsules ringless, bivalvate.
8. EQUISETACEÆ. Capsules dependent. Coat of spores spiral.
9. MARILLACEÆ. Capsules multilocular.
10. LYCOPODIACEÆ. Capsules axillary, unilocular.

In these five orders the spores produce a prothallium bearing archegones which yield new plants and not capsules. For further details see *Berkeley's Cryptogamic Botany*, p. 481. [M. J. B.]

ACROGLOCHIN. A genus containing only a single species, *A. chenopodioides*, from Nepal. It has been referred by some to *Salsolaceæ*, because of the horizontal position of the seed, as in *Chenopodium*; but the dehiscence of the utricle seems to separate it from the true *Salsolaceæ* and join it to the *Amaranthaceæ*, with which, however, it does not perfectly agree, for in this order the seeds are vertical. It in fact occupies

a position equally related to both these orders. The flowers are small, sessile, in axillary cymes. The calyx consists of five equal erect sepals. There are two stamens, and a unilocular ovary with a single ovule. The leaves are alternate, unequally dentate, and strongly reticulated below. [W. C.]

ACROLASIA. A genus of Chilian *Loasaceæ*, now referred to *Mentzelia*, from which it differs in having a definite number of stamens (ten), white flowers, and alternate-pinnatifid leaves, which are opposite below and alternate above. [W. C.]

ACRONIA. A spurious genus of Orchids, now reduced to *Pleurothallis*. The only species was *A. phalangifera*, which proves to be identical with *Pleurothallis Mathesonii*.

ACRONYCHIA. A genus of rue-like plants (*Rutaceæ*), distinguished by a short four-parted calyx, four petals, eight stamens inserted on a disk; style short; stigma capitate, four-lobed; fruit berry-like, four-celled, each cell containing one seed. As recently defined, it includes De Candolle's genus *Cyminoxena* (which see), and contains about fifteen species, extending over tropical Asia, and the islands of the S. Pacific, to New Caledonia and New Zealand. The flowers of *A. Cunninghamii* have a perfume like those of the orange. [M. T. M.]

ACROPERA. A genus of Mexican and Central American Orchidaceous plants, consisting of about four species, growing on the bark of trees. They have the habit of *Maxillaria*, with fleshy pseudo-bulbs and a drooping radical inflorescence. Their name, which signifies a pouch at the point, was given them in consequence of there being a sac at the end of their labellum. The flowers are of some dull yellowish colour, with very small misshapen petals. The genus is very near *Gongora*, to which it is reduced by Reichenbach.

ACROPHORUS. A genus of polypodiaceous Ferns of the group *Cystopteridaceæ*, distinguished by having its globose patches of fructification, situated mostly at the tips, rarely axillary in the forks of the veins, these sori being covered by suborbicular indusia affixed by their posterior side. They form a small genus, serving to unite the *Davallia* with the *Cystopteridaceæ*. The plants have creeping rhizomes, and very elegant membranaceous, pinnate or decompound, free-veined fronds, of which the divisions are either equal-sided or dimidiate. There are about a score of species, including those referred sometimes to *Leucostegia* and *Odontoloma*. The larger proportion of these are natives of India and the East. [T. M.]

ACROPHYLLUM. A genus of *Cumelaceæ*, founded upon a Tasmanian plant allied to *Weinmannia*, but distinguished by the absence of a disk in the flowers. *A. venosum* is a small erect shrub with evergreen leaves placed in whorls of three; they are nearly sessile, oblong, cordate, acute, serrated, and smooth; the stipules are small and membranous; and the flowers are small, white tinged with red, in dense

axillary clusters on the upper part of the stem and branches. Above the flowers there is a terminal tuft of leaves, from which the genus takes its name. The sepals and petals are five each, and stamens ten. It was introduced into this country in 1836, and forms a very striking and handsome greenhouse shrub. [J. T. S.]

ACROPTERIS. A name sometimes given to *Asplenium septentrionale*, and a few other asplenoid ferns. [T. M.]

ACROSPIRE. The first leaf that appears when corn sprouts. It is a developed plumule.

ACROSTICHEÆ. A section of polypodiaceous ferns, in which the sori occupy almost or quite the whole fructiferous surface, and are not confined to distinct and determinate points of the veins. [T. M.]

ACROSTICHUM. A genus of polypodiaceous ferns, typical of the group *Acrosticheæ*, with which, in the wider sense, it is synonymous. As restricted by modern pteridologists, the name is chiefly confined to a somewhat variable subaquatic tropical fern found in different parts of the world, which is distinguished by having the veins of its fronds uniting everywhere in a close network of small meshes, and by the lowermost leaflets or pinnae being sterile, and the upper ones fertile. The fertile parts, both in this genus and the rest of the *Acrosticheæ*, are entirely occupied by the densely packed spore-cases, which thus form universal or shapeless masases, without any special covering or indusium. The typical species is *A. aureum*, which, in one or other of its forms, is found in the West Indies, South America, Australia, the Pacific Islands and Eastern Archipelago, India, Mascaren Islands, Madagascar, South Africa, and Tropical Western Africa. It is a tall-growing plant, eight to ten feet high, with a thick rhizome or rootstock, and bold pinnated fronds, the upper pinnae of which are smaller, and clothed with the dense mass of confluent spore-cases. The plant is generally found near the sea, in morasses or moist situations. There are very few other species retained in the genus, and these mostly of doubtful character. [T. M.]

ACROTOME. A genus of *Labiata*, containing three species, natives of Southern Africa. They are shrubs or herbaceous plants, with small opposite leaves. The flowers are in dense verticillasters in the axils on the upper portion of the stem. The calyx consists of a campanulate tube with ten nerves and five or ten teeth. The tube of the corolla is scarcely longer than the calyx; its upper lip is erect, entire, and slightly arching, the lower tri-lobed, the middle lobe being largest. The stamens and style are included. This genus is nearly related on the one hand to *Leucas*, and on the other to *Marrubium* and *Sideritis*, but it is distinguished from all of them by its distinctly one-celled anthers. [W. G.]

ACROTRICHE. A genus of *Euphorbiaceæ*, found in the eastern and southern portions

of Australia and Tasmania, and distinguished by having a bi-bracteate calyx; a funnel-shaped corolla, the segments of which are clothed at the apex with deflexed hairs, and five slightly exserted stamens, which are shorter than the lobes of the corolla. The fruit is a depressed globose berry. They are shrubs of dwarfish habit, the branches usually divaricate, and clothed with scattered ovate or lanceolate leaves. The flowers grow in short lateral or axillary spikes, and are white or paler. The name of *Fraxelia fasciculiflora* has been proposed for *Acrotriche ramiflora*. [R. H.]

ACTÆA. A genus of Ranunculaceous plants so called from the resemblance borne by their leaves and fruit to those of the elder, in Greek *akte*. The British species, *A. spicata* Baneberry, is rare, being found only in bushy, mountainous limestone districts in the north of England. It bears its flowers, which are white slightly tinged with blush, in a spike. The berries are black and poisonous. The root has been used in nervous disorders, but is said to be a precarious remedy. It is sometimes called Herb Christopher, a name also formerly given to the flowering fern, *Osmunda regalis*. It is indigenous to the greater part of Europe. Two American species are occasionally to be found in the gardens of the curious, introduced from their native country, where they are abundant in rocky mountainous districts, from Canada to Virginia, particularly about Lake Huron. These are considered valuable medicines by the natives, especially as a remedy against the bite of the rattlesnake; hence they are, with several other plants, sometimes known as the Rattlesnake herbs. [C. A. J.]

ACTINIOPTERIS. A genus of polypodiaceous ferns of the section *Asplenium*, and consisting of curious little plants like miniature fan-palms, by which appearance they may be known. The technical peculiarities of the genus among the *Asplenium*, consist in the simple, distinct indusia, free veins, and linear elongate sori, which are marginal on the contracted rachiform segments of the small labeliform fronds. One of the species, *A. radiata*, is plentiful in Southern India; and both this and its ally, *A. australis*, occur in Africa. The former grows three to six inches high, and produces an erect tuft of fronds which have a roundish outline, and are divided inwards from the margin very much indeed like what occurs in the fan-palms. [T. M.]

ACTINODAPHNE. A name derived from Greek words signifying ray laurel, and applied to a genus of the Laurel family (*Lauracæ*). The plants are Indian trees with alternate leaves, sometimes clustered or whorled, feather-nerved or somewhat palm-nerved. Flowers in clusters or tufts, the male and female sexes on different plants. The male flowers have nine fertile stamens, in three rows, those of the inner row having a gland on either side of its base. The style is thick, the stigma

disk-shaped, the fruit berry-like, placed in the cup-shaped tube of the calyx. [M. T. M.]

ACTINOMERIS. A genus of perennial N. American and Mexican herbs of the Composite family, closely allied to Sun-flowers (*Helianthus*), but differing in the compressed and winged,—instead of 4-sided and wingless,—achenes, which have a pappus of two smooth bristles. There are about eight known species, most of them tall branching herbs, with alternate or opposite ovate or lance-shaped serrate leaves, which are smooth or rough, often tapering to the base, and decurrent on the stem, thus giving it a winged appearance. The rayed flower-heads, disposed usually in a corymbose manner, are white or yellow, sometimes $\frac{1}{2}$ inches across, and not unlike those of some species of *Coreopsis*. The generic name alludes to the fewness or irregularity of the rays. A number of the species is cultivated in collections of herbaceous plants. [A. A. B.]

ACTINOPHLEBIA. A small group of cyathaceous Ferns, now included in *Hemitelia*. [T. M.]

ACTINOSTROBUS pyramidalis. A small shrub from Swan River, belonging to the Coniferous order. The branches are three-cornered, and jointed like a *Callitris*, from which genus it differs in having six equal valves to its cones, and three winged seeds. It inhabits salt marshes.

ACTINOTUS. A genus of *Umbelliferae*, containing seven species, natives of the eastern districts of New Holland. It is nearly related to *Samolus*, but differs from that and allied genera in having no petals. It is characterised also by a one-ovuled ovary, crowned by two styles; the fruit is ovate, villous, and marked with fine striæ. The leaves are alternate, petiolate, and deeply trisected. The umbels are simple and many-flowered, the flowers on short pedicels, and surrounded by a many-leaved large involucre, which gives the genus somewhat the appearance of belonging to the *Compositæ*. [W. C.]

ACULEUS. A prickle; a conical elevation of the skin of a plant, becoming hard and sharp-pointed: as in the rose.

ACUMINATE. A term applied to leaves or other flat bodies which narrow gradually till they form a long termination; if the narrowing takes place towards the base, it is so stated, e.g. acuminate at the base; if towards the point, the term is used without qualification.

ACUYARI WOOD. The aromatic wood of *Ischa altissima*.

ADA aurantiaca. Under this name has been published a New Grenada epiphytal Orchid from the neighbourhood of Pamplona, at 8,500 feet above the sea. It has closely packed bright orange-coloured flowers, with much the same structure as *Brassia*, except that the lip is firmly consolidated with the base of the column.

ADAM and EVE. *Aplectrum hyemale*.

ADAMS NEEDLE. The vulgar name for *Fucca*.

ADAMIA. A genus of the order *Sarifragaceæ*, related to *Hydrangea*, found in India, China, and other eastern countries. It has a short five-toothed calyx, a five to seven-petaled corolla, ten to twenty stamens, and a half-inferior ovary becoming a berry, which is many-seeded. *A. versicolor*, one of the most beautiful of the reputed species, is a native of China, and forms a dwarf smooth-branched shrub, furnished with largish opposite leaves, and flowers collected into a pyramidal panicle, nearly a foot in diameter; they are each six or seven-petaled, forming a pointed star, and while in bud are whitish, but they gradually change to purple and violet; they have twenty stamens. The berries are blue. Mr. Benthams unhesitatingly unites, as slight varieties only, the three supposed species of this genus. [T. M.]

ADANSONIA. This genus belongs to the natural family *Bombacææ*. The *Adansonia* has been considered the largest tree in the world, but it must now give place to the Mammoth tree of California, and the Australian Eucalypts. Its height is from 40 to 70 feet, and not at all in proportion to the size of its trunk, which sometimes attains the great diameter of 30 feet. It soon divides into branches of great size, which bear a dense mass of deciduous leaves, somewhat like those of the horse-chestnut. The flowers are large, white, solitary, and pendent on long stalks, and when expanded are about 6 inches across. The fruit is an oblong woody capsule, covered with a short down, and from 8 inches to a foot and a half long, in appearance somewhat like a gourd; internally, it is divided into 8 or 10 cells, each cell filled with a pulpy substance in which the seeds are immersed.

A. digitata, the Daobab, Ethiopian Sour Gourd, or Monkey-bread, is a native of many parts of Africa. It has been found in Senegal and Abyssinia, as well as on the west coast, extending to Angola, and from thence across the country to Lake Ngami. It is cultivated in many of the warm parts of the world. It has been called 'the tree of a thousand years,' and Humboldt speaks of it as 'the oldest organic monument of our planet.' Adanson, whose name the genus bears, and who travelled in Senegal in 1794, has given an account of this tree. He made a calculation to show that one of them, 30 feet in diameter, must be 5,150 years old!! He saw two trees, from 5 to 6 feet in diameter, on the bark of which were cut to a considerable depth a number of European names; two of these were dated, the one in the 14th, the other in the 15th century. In 1555, the same trees were seen by Thevet, another French traveller, who mentions them in the account of his voyage. Livingstone says of the tree, 'I would back a true *Mowana* (the name given to it in the neighbourhood of Lake Ngami) against a dozen floods, provided you do not boil it in

salt water; but I cannot believe that any of those now alive had a chance of being subjected to the experiment of even the Noachian deluge.'

The bark of the Baobab furnishes a fibre which is made into ropes, and in Senegal woven into cloth. The fibre is so strong as to give rise to a common saying in Bengal: 'As secure as an elephant bound with a baobab rope.' The wood is soft, and subject to the attacks of a fungus which destroys its life, and renders the part affected easily hollowed out. This is done by the negroes, and within these hollows they suspend the dead bodies of those who are refused the honour of burial. There they become mummies, perfectly dry and well preserved, without any further preparation or embalmment.' Livingsstone speaks of a hollow trunk, within which 20 to 30 men could lie down with ease. The leaves pounded constitute *Lalo*, which the Africans mix with their soups, sauces, &c., not as a relish, but to diminish the excessive perspiration, and keep the blood in a healthy state. 'The pulp of the fruit is slightly acid, agreeable, and often eaten; and the juice expressed from it constitutes a drink which is valued as a specific in putrid and pestilential fevers. Owing to this circumstance it forms an article of commerce.' The ashes of the fruit and bark boiled in rancid palm oil are used as a soap by the negroes.

The only other species of the genus is *A. Gregorii*. It is a native of the sandy plains of N. Australia, and is known as Sour gourd and Cream of tartar tree. It dif-



Adansonia Gregorii.

fers chiefly from *A. digitata* in its smaller fruit with a shorter foot stalk. The largest tree seen in Gregory's expedition was 85 feet in girth at 2 feet from the ground. The pulp of its fruit 'has an agreeable acid taste, like cream of tartar, and is peculiarly refreshing in the sultry climates where the tree is found. It consists of gum, starch, sugary matter, and malic acid.' [A. A. B.]

ADDER'S MOUTH. An American name for *Microstylis*.

ADDER'S TONGUE. The English name for *Ophioglossum*. — **YELLOW.** *Erythronium americanum*.

ADECTUM. A synonym of *Dennstaedtia*, a handsome free-growing genus of ferns, related to *Dicksonia*. [T. M.]

ADELASTER (*Gr.* like something unknown). A name proposed for those garden plants which, having come into cultivation without their flowers being known, cannot be definitively referred to their proper genus. All *Adelasters* are therefore provisional names, to be abandoned as soon as the true names of the plants so called can be ascertained.

ADENANDRA. A genus of Rutaceous or rue like plants, so named on account of the presence of a small gland on the top of the stamens. They consist of small shrubs, natives of the Cape of Good Hope, and some of them are cultivated for the sake of their pink-coloured flowers. The genus is principally distinguished by its 5 sterile stamens, which are in form like the 5 fertile ones, but longer: both kinds tipped with a gland. The leaves are used for the same purposes as those of *Diosma* at the Cape. [M. T. M.]

ADENANTHERA. A genus of the *Poa* family (*Leguminosae*). The species are chiefly found in eastern India and the Malayan Islands, and one is wild in Madagascar. They are trees or shrubs, with bipinnate or compound leaves and spikes of small yellow flowers, the anthers of which are tipped with a stalked gland; and these gland-tipped anthers give rise to the generic name. *A. pavonina* grows to a great size in the East Indies, and yields a solid useful timber, called Red Sandal wood, a name which is also given to the wood of *Pterocarpus santalinus*. A dye is obtained by simply rubbing the wood against a wet stone; and this is used by the Brahmans for marking their foreheads after religious bathing. The seeds are of a bright scarlet colour, and are used by the jewellers in the East as weights, each seed weighing uniformly four grains. Pounded and mixed with borax, they form an adhesive substance. They are sometimes used as an article of food, and are frequently made into ornaments, such as bracelets, necklaces, &c. [A. A. B.]

ADENOCALYMNA. The name given to a genus of *Dignonaceae*. The species are large climbers, and all of them natives of Brazil, where they scramble over trees, enlivening the forests with their clusters of bright-coloured yellow, orange, or pink flowers. Their stems are slender and often rough. Their leaves are ternate, or sometimes only binate; when this latter is the case, a tendril-like appendage takes the place of the third leaflet. Numbers of depressed circular glands are found on their surface, as well as on the calyx; and from this circumstance the genus receives

its name *Adenocalymna*, which is composed of Greek words signifying gland and covering. The flowers are borne on long racemes; they are trumpet-shaped, and, intermixed with them, are large bracts, which fall off early. Some of the species are cultivated in our stoves for their beauty. [A. A. B.]

ADENOCARPUS. This is a genus of the Pea family (*Leguminosae*), composed of plants which are most of them extremely handsome, from their bearing profuse racemes of yellow flowers. The genus only differs from that of the common English broom (*Genista*) in having pods covered with glands: whence its name *Adenocarpus*, which is derived from two Greek words signifying gland and fruit. They are found in the Pyrenees, the Sierra Nevada, and in other parts of southern Europe, but chiefly at high elevations. One species is found in Madeira, and a few in the Canaries. Mr. Bunbury, in writing on the botany of the Peak of Teneriffe, says: 'To the region of the heath succeeds, as we ascend, that of the Codoso del Pico (*Adenocarpus frankenioides*). The limit of this plant is particularly well marked. For a little space it is intermixed with scattered and stunted bushes of the heath, but this soon thins out and disappears, and for miles the whole slope is covered with the *Adenocarpus* alone, as some of our commons and wastes in England are covered with furze. It is in general a low compact rigid bush, peculiar in its multitude of short lateral branches, and the minute closely-crowded grey-green leaves; by no means a handsome plant when out of flower; but here and there, in sheltered spots, it assumes the character of a little tree. It is one of the most eminently social plants in the world.' Several species are cultivated in gardens. [A. A. B.]

ADENOPHORA. A genus of plants allied to *Campanula*, and like it bearing bell-shaped flowers, the chief mark of distinction being that the style of the present plant is surrounded by a cylindrical gland, whence its name (from the Greek *aden*, a gland, and *phero*, to bear). The plants of this family are perennial, rarely biennial herbs, with erect stems, alternate or somewhat whorled leaves, which below are broad and stalked, but gradually becoming narrower as they ascend the stem. The flowers are blue, stalked and drooping, and for the most part are situated towards the top of the stem, where, in some instances, they form a spike or cluster, while in others they are few in number. Most of the species are natives of Siberia, China, and Japan. One species, *A. liliifolia*, or *A. suaveolens*, is found in many countries of eastern Europe, and occurs also in France, Hungary, and Candia. In this the flowers are numerous, sweet-scented, and disposed in a loose pyramidal panicle. The root is thick and esculent, as are those of some of the other species. All are elegant border flowers, and are, therefore, worth cultivating in gardens. [C. A. J.]

ADENOPHORUS. A small group of ferns, in which the sori are terminal on the free veins, the receptacle at the apex of the simple costa-like or central veins being dilated or obovate. The fronds are small, very elegant in character, and bear glands over their surface. The species are now referred to *Polypodium*. [T. M.]

ADFNOPUS. A dioecious scandent genus of *Cucurbitacea*, of four species, natives of Sierra Leone, Abyssinia, and West Tropical Africa. The leaves are three to five-lobed, with two glands at the apex of the petiole, except in *A. glandulosus*. The male flowers are racemose, have a tubular five-lobed calyx, a five-lobed rotate corolla, filaments free, inserted within the calyx tube, and three included anthers cohering in a cylindric column. The female flowers are solitary, large, white, and fragrant; the calyx-tube is not produced beyond the ovary, which is subglobose, with a short style, terminated by three broad stigmas. The fruit is many-seeded, spherical or broadly ovoid. [J. Br.]

ADENOSMA. A genus of *Acanthaceae*, containing eight or nine species, natives of Asia. They are annual herbaceous plants, having the odour of the Mints, with opposite leaves, and sessile flowers in the axils of the small leaves on the upper portion of the stem, so aggregated as to form a leafy spike. The genus is characterised by a five-partite calyx, a gaping corolla, four didynamous stamens, with anthers composed of two parallel cells. The long capsule is many-seeded. It differs from the allied genus *Libermaiera* in the gaping corolla, and in the structure of the anthers. [W. C.]

ADENOSTYLIS. A genus of the composite family, comprising but few species. They are perennial mountain herbs, with alternate stalked, cordate, or reniform leaves, which are smooth, or covered with a loose white cotton. Their flower-heads are numerous in terminal compact corymbs, with florets of a purple or white colour. In appearance these plants are much like the common coltsfoot (*Tussilago Farfara*), but they differ from the coltsfoot in having all their florets fertile. They are all natives of mountain districts in southern Europe, the greater part of them being found in the Pyrenees, where they grow luxuriantly in stony places beside alpine rivulets. The leaves of *A. glabra* have been recommended in coughs. [A. A. B.]

ADESMIA. A large genus of the Pea family (*Leguminosae*), confined to the temperate parts of S. America. Commencing in the Bolivian Andes, they extend southward to Cape Horn; but are found in greatest numbers in Chili. They are annual or perennial; some of them shrubs four or five feet high, and most of them with alternate equally pinnate leaves terminated by a bristle. Their flowers are disposed in racemes at the apex of the branches, or solitary in the axils of the leaves, and are generally yellow with purple stripes. The pods are jointed, rough on

the surface, and sometimes beset with feathery bristles. One of the species, *A. apophylla*, has its leaves reduced to mere scales; and in another, *A. trifoliata*, they are not unlike those of the common wood sorrel. *A. balsamifera*, a Chilian species called Jarilla, is a plant of great beauty when in flower; it yields a balsam which has a very pleasant odour, perceptible at a great distance. This balsam is said to be of great efficacy in healing wounds. A few of the species have their abortive flower-stalks converted into forked spines. There are upwards of fifty species. [A. A. B.]

ADHATODA. A genus of Acanthaceous plants, consisting of herbs or shrubs with opposite leaves, and axillary spikes of flowers, each flower furnished with three bracts, the outer one of which is large and persistent, covering the calyx; the two inner ones smaller. The calyx is five-parted; the corolla two-lipped; the four stamens are inserted on the throat of the corolla; the anthers are two-celled, with a large connective, the lobes unequal, and the inferior ones often spurred; the filaments compressed, bent downwards; the style thread-shaped, bent downwards; and the capsule stalked, two-celled, four-seeded, bursting by two valves. *A. vasica*, the *Justicia Adhatoda* of Linnaeus, is a common plant in India; its wood is soft, and its charcoal is excellent for the manufacture of gunpowder. The flowers, leaves, root, and especially the fruit, are considered as antispasmodic, and are given in cases of asthma and intermittent fever. The word *Adhatoda* is a latinised form of the native Malabar or Cingalese name. [M. T. M.]

ADIANTÆÆ. A section of polypodiaceous Ferns, in which the receptacles to which the spore-cases are attached, are placed on the under surface of the indusium itself, so that the fructification is, as it were, upside down, and is hence said to be resupinate. [T. M.]

ADIANTOPSIS. A small genus of elegant polypodiaceous Ferns, of the section *Cheilanthes*, distinguished partly by their adiantoid aspect, but technically by having marginal punctiform sori terminal on the free veins, and covered by distinct orbicular indusia. The plants bear generally tufted stems, and small elegantly-divided fronds. The species are found in South America, the West Indies, and Africa. *A. radiata*, one of the best known of them, common in the West Indies and South America, grows about a foot high, from a tufted crown, the stipites shining black, and the fronds spreading out at top of the stipites into a radiate tuft of pinnate branches. The species are often seen in cultivation, on account of their small size and elegant character. [T. M.]

ADIANTUM. An extensive and much admired genus of polypodiaceous Ferns, typical of the group *Adiantææ*. The species are scattered nearly over the whole world, but are most abundant in tropical

countries. They have all black shining stipites, and mostly roundish or rhomboidal or lunately-curved pinnules, the fronds being very various in size and general character. The structure is very peculiar, unlike that of any other ferns. The sori are marginal, covered by indusia, which are either roundish and distinct, or become blended into a linear form, these two conditions respectively resembling the fructification seen in *Cheilanthes* and *Pteris*; but it is resemblance only, the fructification (spore-cases) being in the latter genera seated on the frond itself, and covered by the indusium, while in *Adiantum* they are not attached to the frond, but to the under side of the indusium, and are therefore turned upside down on to the surface of the frond. This structural peculiarity distinguishes *Adiantum* from all other ferns except *Hewardia*, which is known by having a reticulated venation, that of *Adiantum* being free. The genus is represented in the British Flora, by *A. Capillus-veneris*, the Maidenhair Fern, a very elegant plant, with a creeping scaly rhizome, and bipinnate fronds, the leaflets of which are between rhomboidal and wedge-shaped, margined with oblong sori, and more or less deeply lobed. This species is very extensively distributed in the temperate or tropical parts of Europe, Asia, Africa, and America, and not very materially varying in form, notwithstanding this wide range. Some species, as the *A. reniforme* of Madeira, have entire fronds; in others, as the *A. lunulatum* of India, they are pinnate; not a few species are, like our native one, bipinnate; and numerous others are tripinnate, or still more divided. *A. pedatum*, a very beautiful North American species, which has the fronds pedate, the divisions pinnate, and the pinnules halved oblong and lunate, incised along the upper edge, is sometimes used in the preparation of capillare. The species are great favourites in bothhouses. [T. M.]

ADLUMIA. A climbing genus of Fumeworts, consisting only of the *A. cirrhosa*, a pretty North American biennial, formerly known as *Corydalis fungosa*. It is distinguished from the other genera of the order by the permanent cohesion of its four spongy petals into one piece, and by a many-seeded pod, splitting, when ripe, into two valves. Its chief attraction consists in its delicate pale green triply pinnate foliage, the twining footstalks of which act as tendrils; the small flesh-coloured blossoms are freely produced, but possess little beauty. The plant neither climbs nor flowers till the second year. [W. T.]

ADNATE. Grown to anything by the whole surface; when an ovary is united to the side of a calyx it is adnate.

ADONIS. A small genus of Ranunculads, mostly European, comprising several popular border flowers, both annual and perennial. It is characterised by the absence of an involucre, and by having five sepals, a corolla of from five to fifteen

petals, and numerous dry ovate carpels, pointed with the style, and grouped in a short spike or head; all the species have the foliage cleft into numerous linear segments, and produce but a single flower at the summit of each stem and branch. Of the annual section, eight or ten species are described, but only two are to be found in general cultivation: *A. autumnale*, and *A. autumnale*, the former imperfectly established in England, both having small, deep crimson flowers, the petals in the latter much longer than the calyx, whilst in the former they scarcely exceed it. They are popularly known as Pheasant's Eye, and Flos Adonis. The perennial species are all showy, dwarf herbaceous plants, with black fasciated roots, and large glossy yellow flowers. The best and most commonly cultivated species is the *A. vernalis*, which is a very effective early or spring bloomer. [W. T.]

ADOKA. A small genus referred by Mr. Benthams to the *Caprifoliaceæ*, consisting of a single species, *A. Moschatellina*, the Tuberous Moschatel, found blooming in spring in woods and on shady banks in many parts of England, and extending through Northern and Central Europe and parts of Asia and North America, far into the Arctic regions. The genus is distinguished by bearing a calyx of two or three spreading lobes; a short-tubed corolla, with four or five spreading divisions; eight or ten stamens in pairs alternating with the divisions of the corolla, and inserted on a little ring at its base; three to five short styles united at the base; a three to five-celled ovary, with one ovule in each cell and maturing into a berry. The plant is a low herb, of four to six inches high, smooth, pale green, forming creeping half-buried runners, the leaves ternately divided, with broad deeply three-lobed segments, and the musky-scented flowers pale green in a little globular head at the top of the short leafy flower-stems. The upper flower in each head has generally a tetramerous arrangement of parts, two calyx lobes, four corolla lobes, and eight stamens; while the lateral ones have three calyx lobes, five corolla lobes, and ten stamens. The *Adoxa* has, until recently, been classed with the *Araliaceæ*. [T. M.]

ADPRESSED. Brought into contact with anything without adhering.

ADELPHIA. A fraternity—a Linnean term denoting a collection of stamens. *Monadelphia* = one such collection; *Dadelphina* = two such collections; and so on.

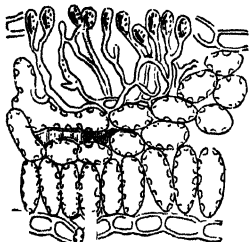
ÆCHMEA. A genus of *Bromeliaceæ*, having six-parted perianth, of which the three outer sepaline divisions are equal, and much shorter than the inner petaloid ones. The flowers have six stamens, and an inferior three-celled ovary containing numerous ovules, and becoming a sub-globose berry. The species are found in tropical America, often epiphytally on the trunks of trees in the dense forests. They have strap-shaped or sword-shaped leaves, some-

times spiny at the margin; and from the centre of these is developed the flower scape, which is branched in a panicled manner and bears numerous flowers. *Æ. discolor*, one of the most striking of the species, has broad recurved leaves, which are dull green above and purplish beneath. The panicle is longer than the leaves, of a scarlet colour in the upper part, bearing the flowers distantly spiked along the branches. The flowers are without bracteoles, in which respect it is peculiar. The calycine segments are oblique and obtuse, coral-red below, blackish above, the petaline ones twisted, purplish. The unexpanded buds have a most striking resemblance to the seeds of *Abrus precatorius*, commonly called crab's eyes, and sometimes strung as beads. [T. M.]

ÆCHMOLEPIS. A genus of *Asclepiadaceæ*, containing a single species, a native of Angola. It is a shrub with teriæ leaves, glabrous above, hoary and reticulated beneath. It is characterised by its filaments being connate at their base and distinct above, by having its anthers cohering at the apex, though free from the stigma, and by its twenty granular pollen masses. [W. G.]

ÆCIDIDIUM. A genus of *Fungi*, comprising a large number of parasites, which grow upon the living parts of plants. The reproductive organs or spores are nearly globose, arranged in little necklaces, which radiate from a thin cellular base, and, as they easily break off, form a little dust-like heap, which is white, yellow, orange, &c., according to the species. The whole mass is surrounded by a membranous coat or peridium, which sometimes bursts irregularly at the tip, but more frequently splits into a number of nearly equal lobes, which curl back, and have a very pretty appearance under the microscope. They grow on the leaves, petioles, fruit, or young shoots, sometimes producing but little constitutional derangement, but occasionally causing the adjacent parts to swell, or producing great distortion, as in a species which attacks the shoots of elder in North America. Sometimes the whole appearance of the plant is altered, as in one which commonly attacks species of *Epilobium*; while, again, at times, particular leaves only are affected, as in the garden and wood anemone, where the outline is somewhat changed, and the substance is greatly thickened. Where the plant is only partially affected, the general health is not much impaired; but where the parasite is very vigorous, death may ultimately ensue. We are not aware that any species attacks our cereals. There has, however, been a very unjust charge brought against *Æcidium berberidis*, a beautiful species, which attacks the leaves, flowers, and young fruit of the berberry, as if it were the cause of mildew in wheat. Great, however, as are the changes which *Fungi* undergo occasionally in passing from one condition to another, there is not the slightest reason

for imagining that the *Æcidium* is a transitional state of wheat mildew. It has its own mode of propagation, and passes through nearly the same phases of vege-



Æcidium tussilaginis

tation as the mildew, without affording a suspicion that it is not a perfect plant. The whole story has no doubt arisen from the *Æcidium* being common on the berberry in hedges surrounding wheat fields; and there is reason to believe the report is true, that wheat has been especially mildewed in the neighbourhood of the *Æcidium*. The peculiar situation, however, may be equally favourable to either parasite; and it is to be observed, that mildew is peculiarly prevalent in districts where the berberry is unknown, except as a garden plant. *Æcidia* attack phanogamous plants of various kinds, but they are far less frequent on endogens than exogens. Species occur in all parts of the world, but are more common in temperate regions. See also *Barberi*. [M. J. B.]

ÆGIALITIS. A genus of *Plumbaginaceæ*, containing a small number of Australian and Indian undershrubs, with thick articulated stems, and alternate-stalked ovate or roundish leaves of leathery texture; flowers in spikelets, arranged in branched spikes; calyx tubular-cylindrical; petals small and white; styles quite free and glabrous with awl-shaped stigmas. The seeds of *A. annulosa*, which grows in mangrove swamps, are said to germinate while on the plant. [J. T. S.]

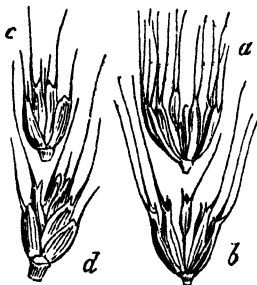
ÆGICERACEÆ. This name has been given by Blume to *Ægiceras*, viewed as the representative of a natural order containing no other genus than itself. It is, however, generally included in *MYRSINACEÆ*, which see.

ÆGICERAS. A genus of *Myrsinaceæ*, differing from all the other genera in that family by its follicular fruit. The species, of which there are five, consist of small trees, inhabiting swampy shores in the tropical parts of India, the Indian Archipelago, and Australia, where they form impenetrable thickets like the mangroves (*Rhizophora*), in consequence of their seeds

germinating while yet in the fruit, and sending down strong perpendicular roots into the mud, without separating from their parents. They have obovate entire dotted leaves, the upper surface of which is often covered with a saline incrustation, which, according to Blume, they secrete. Their flowers are white, fragrant, in terminal or axillary umbels; the flower-stalks articulated at the base. *A. majus* is the only vegetation to be seen for miles along the coast of Sumatra. [A. A. B.]

ÆGILOPS. A genus of Grasses allied to *Triticum*, or Wheat grass. It occurs wild in the south of Europe and parts of Asia. Botanists have recognised as many as three species; but from recent experiments in the culture of *Ægilops*, there is reason to believe, not only that all the so-called species are referable to one, namely, *Æ. ovata*, but that the *Ægilops* is, in reality, the plant from which has originated our cereal wheats. Upon this subject will be found an interesting paper, translated from the French, in the *Journal of the Royal Agricultural Society* (vol. xv), from which it would appear that M. Esprit Fabre, of Ayde, has made the *Æ. ovata* the subject of experiment, and that from it he obtained the form known as *Æ. triticoides*, the continued cultivation of which latter, for six years, resulted in the production of very respectable ears of wheat. The changes that occurred were a lessening in the numbers of the awns, and a gradual conforming of the chaff scales to those of wheat, a greater length and regularity of growth in the ear, an enlargement of the seed to that of the wheat, and a taller and more upright habit of growth of the whole plant. Both the experimental results, and the conclusions of M. Fabre have been doubted by some of the specific botanists, and we are, therefore, glad to have an opportunity of recording the result of our own experiments in this interesting matter. In 1834, we planted a plot with seed of *Æ. ovata*, from which was gathered seed for a second plot in 1855, leaving the rest of the first plot to seed itself, which it did, and came up spontaneously. This plot has since continued to bring forth its annual crop in a wild state, in which the spikes are short, and so brittle that they fall to pieces below each spikelet the moment the seed is at all ripe. The produce of the 1855 crop has, in the same manner, been cultivated year by year in different parts of the experimental garden of the Royal Agricultural College, and our crop for 1860 had many specimens upwards of two feet high, and with spikes of flowers containing as many as twelve spikelets. Our conclusions then are, that with us the *Ægilops* is steadily advancing; and we fully expect, in three or four years, to arrive at a true variety of cereal wheat. What too is confirmatory of this matter, is that the bruised foliage of the wild grass, and the cultivated wheat, emits the same peculiar odour, and, besides the *Ægilops*, is subject to attacks of the same species of parasites (blights),

our examples of this year being much affected with the rust (*Uredo rubigo*), mildew (*E. cinis graminis*), and others. These, it



Eglisora: — a *E. ovata*; b *E. ovata* triticoidea; c the same after four years' cultivation; d the same after five years' cultivation

would seem, are the effects of civilization; and it is not a little remarkable, that in this respect this grass should be so much like our field crops, which were particularly liable to blight in the straw and foliage during 1860. [J. B.]

ÆGINETIA. A genus of the Broomrape family (*Orobanchaceae*), found in India and the Islands of the Indian Archipelago. They are annual, leafless, parasitical herbs, growing on the roots of various grasses, their stems from three inches to a foot high, bearing a solitary terminal flower, and having at their base a few scales. The whole plant is of a brown colour, except the flower, which is large and tubular: the tube white, and the limb rose, or altogether purple outside, and the throat yellow. The calyx is one-leaved and cleft in front. A *radix*, 'prepared with sugar and nutmeg, is considered an antiscorbutic.' [A. A. B.]

ÆGLE. The name of a genus of plants belonging to the Orange family (*Aurantiacae*). The fruit, known in India as the Bhel fruit, is the product of *E. Marmelos*. In appearance it is much like the orange. The thick rind of the unripe fruit possesses astringent properties, on which account it is used in India in cases of dysentery and diarrhoea. The ripe fruit has an exquisite flavour and perfume. Not only the fruit, but other portions of the plant are used for medicinal purposes, and a yellow dye is prepared from the rind of the fruit. The genus is distinguished by its numerous distinct stamens from the Orange (*Citrus*), to which, in other particulars, it is closely allied. [M. T. M.]

ÆGOCHLOA. A group of dwarf, hardy annuals of the *Polemonium* family, chiefly Californian. Their tubular calyx, with unequal, rigid, multifid segments, and corolla with salver shaped limb, distinguish them from their near allies. The species have, for

the most part, pinnate or pinnatifid clammy foliage, more or less spinous, and small-clustered gills like flowers. None of them are remarkable for their beauty, and with the exception of *E. pungens*, are not known in British gardens. The species are referred by Dr Asa Gray to the section *Novaeboracensis* of the genus *Gilia*. By some authors they are classed under the genus *Novaeboracensis*, which is sometimes regarded as distinct. [W. T.]

ÆGOPODIUM. An Umbelliferous plant with smooth thrice-ternate leaves, unattractive white flowers, and an unpleasant odour when bruised: a common pest of orchards, shrubberies, and ill-kept gardens, where, by means of its creeping roots, or rather subterraneous stems, which are of rapid growth and singularly vivacious, it soon establishes itself when once admitted, and defies eradication, smothering all vegetation less rampant than its own, and disfiguring where it finds nothing to choke. Its old English names were Gout-wort or Gout-weed, Herb Gerard, Ash-weed, and English Master-wort. It was, at one time, accounted a specific for the gout, hence its specific name *Podagraria*; but though, like the rest of the umbelliferous tribe, partaking of aromatic properties, it is really of no more value in the pharmacopoeia than in the garden. Linnæus says it is eaten in Sweden, boiled for greens when tender in the spring. It is a native of the whole of Europe to Caucasus and Siberia. Gerard says of it: 'Herb Gerard's growth of itself in gardens without setting or sowing, and is so fruitful in its increase, that when it hath once taken root, it will hardly be gotten out again, spoiling and getting every year more ground, to the annoying of better herbs.' An Alpine species, which appears to possess all the bad properties of its congener, is found in Aala. [C. A. J.]

ÆGOTOXICUM or EATOXICUM. A genus doubtfully placed in *Euphorbiaceae*, and more recently in *Monniaceae*. The species, *E. punctatum*, a native of Chili, is described as a sombre-looking tree, forming immense woods. The leaves are opposite, shortly stalked, oblong, and entire, the upper surface smooth, the under covered with rusty scales. The flowers are male and female, the males alone on one tree, and the females on another; they are disposed in axillary racemes. The fruit is a one-seeded drupe, about the size of a pea. Planks and beams are made of the wood; and the fruits are said to be a powerful poison to goats. [A. A. B.]

ÆONIUM. The plants that are comprised in this genus of *Cyrtaceae* are much more generally known as species of *Sempervivum*, from which, however, they differ in their seed-vessels being partially sunk in the receptacle, and not regularly opening by their ventral suture, but only at the base and back by an irregular tearing. *E. arborescens* is well known to gardeners as the Tree Houseleek; its loose panicles, with a profusion of clammy yellow

low blossoms, are very elegant. *Æ. tabulariformis*, as well as others of the genus, is remarkable for the stem being so contracted that the leaves are closely packed in flat rosettes. Like other succulent plants, their tenacity of life is remarkable. They are natives of the Levant, Madeira, the Canaries, &c. [M. T. M.]

ÆQUALIS. This term signifies equality or similarity in size, and is also used in the sense of uniformity; thus, an equal umbel, is an umbel of which the florets are all alike.

ÆRANTHUS grandiflora, is a Madagascar epiphytal orchid with distichous leaves, and large green solitary flowers at the end of weak, flexible scapes. It is sometimes seen in cultivation. From *Angreecum* it differs in having a lip articulated with the foot of the column.

ÆRIDES. A large genus of tropical Orchids, with distichous leaves, mostly channelled and unequally truncate, but sometimes terete. All the species inhabit the warmer parts of Asia. The flowers are usually among the largest of the order, of all tints except blue, and frequently extremely sweet. One of them, with small flowers, clings to the branches of trees in Sylhet with such long flat roots, resembling bands of a tape-worm, that it has gained the name of *Ærides tantale*. This is not in cultivation.

ÆROCYSTS. The air-cells of algals.

ÆROPHYTES. Plants growing wholly in the air; such as epiphytal orchids, many lichens, bromeliads.

ÆRUA, or ARVA, a genus of *Amaranthaceæ*, consisting of shrubs and herbaceous plants from Africa, tropical Asia, and probably Central America. The plants have a more or less white tomentose appearance. The leaves are alternate. The minute flowers are in dense terminal or axillary spikes, and are hermaphrodite, with three concave persistent bracts. The calyx consists of five nearly equal, erect, and hairy sepals; the five stamens are united into a cup at their base; the ovary is one-celled, with a single ovule in each cell; The fruit is a roundish utricle. Nineteen or twenty species have been described. The flowers of *Æ. tomentosa* are used in Egypt, under the name of Toor, for stuffing mattresses. [W. C.]

ÆRUGINOUS. Verdigris-coloured.

ÆSCHYNANTHUS. A beautiful genus of tropical plants of epiphytal habit, belonging to the cyrtandrous group of the *Gesneraceæ*. The peculiarities of structure are a tubulous five-cleft equal calyx, a monopetalous corolla with a curved tube dilated at the throat, and a two-lipped spreading five-lobed limb; there are four didynamous stamens, and the ovary is surrounded by a fleshy hypogynous glandular ring. The species inhabit the tropical parts of Asia, and are among the most

gorgeous ornaments of hothouses in this country, many of them having been introduced to cultivation. They have mostly pendent stems, opposite fleshy leaves, and scarlet or orange-scarlet flowers. One of the finest species, *Æ. speciosus*, is of sub-erect habit, with ovate lanceolate acuminate fleshy leaves, and a terminal fascicle of from ten to twenty erect long-tubed flowers, of a rich orange-yellow below, passing into scarlet at the top, and marked on the face of the limb with yellow and black; the corolla tube in this species is narrow club-shaped, slightly curving towards the top, and the rich yellow of the throat, surrounded by a black band or zone, contrasting with the scarlet of the outer portion of the limb, produces a fine effect. This is a native of Java, as also is *Æ. longiflorus*, which has flowers of a similar shape, but of a deep crimson. The calyx, in these species, consists of narrow segments cut down nearly to the base; but in some other kinds, the calyx forms a deep vase-shaped tube, with a short slightly spreading limb. *Æ. Lobbianus* is one of these, with short elliptic leaves, and a large conspicuous purple calyx, covering half the length of the scarlet flower tube. Another, *Æ. javanicus*, has the long tubular calyx green edged with red, and the flowers bright red, marked with yellow rays from the throat; these are both natives of Java. A still different form is met with in *Æ. tricolor*, a slender drooping Bornean plant, with ovate leaves, in which the calyx is cup-shaped with five short rounded lobes, and the flowers have a much shorter tube than in the foregoing. There are many other species, nearly all of ornamental character. [T. M.]

ÆSCHYNOMENE. A genus of the *Pea* family (*Leguminosæ*), of which between thirty and forty species are known. They are herbs or small shrubs, with unequally pinnate leaves, and half arrow-headed stipules. The flowers are disposed in axillary or terminal racemes, and are often of a bright yellow colour. The pods are jointed. The species are found in the greatest numbers in Brazil, but they are to be met with in most tropical countries. The pith-like stem of *Æ. aspera* is, on account of its extreme lightness, used in India (where it is called Solah) for making hats, bottle-cases, swimming jackets, and for many other purposes where elasticity and lightness are required. To construct some of these articles, the wood is cut into thin slices and pasted together. It is sold in the bazaars of Calcutta, being brought from the neighbouring marshy places, where it grows to a great size. This substance is purchased by the natives, who use it for floats for fishing nets, and make fancy articles, as model temples, &c., from it. *Æ. montivideris* is called the 'Humming-bird bush' at Buenos Ayres, because that bird seems to take more delight in it than in any other flower. *Æ. viscidula*, a native of Florida, has sensitive leaves; and so also, as its name implies, has *Æ.*

sensitive, which is common in the West Indies. [A. A. B.]

ÆSCULUS. The Horse Chestnut. The name *Æsculus* (from *æscā*, food) was applied originally to a species of oak which, according to Pliny, was highly prized for its acorns; but how it came to be transferred to the horse chestnut is very uncertain: perhaps, as Loudon suggests, it was given ironically, because its nuts bear a great resemblance, externally, to those of the sweet chestnut, but are unfit for food. *Hippocastanum* (the specific name of the common sort) is a translation of the modern name, which was given, Evelyn tells us, 'from its curing horses broken-winded and other cattle of coughs.' The Horse Chestnut is a tree of large size, frequently reaching a height of fifty or sixty feet, with an erect trunk and a broad pyramidal outline. It may be readily distinguished, even in the depth of winter, by its unusually large buds, set on the extremities of thick and heavy-looking branches, which are evidently destined to bear a weighty tuft of foliage and leaves. These buds are covered thickly with a gummy substance, which protects the tender interior from the cold and wet. As the sun gains power, the gummy covering melts and yields to the expanding pressure from within, and then the scales on which it is overlaid fall off, and the delicate green leaves are rapidly unfolded, encircling a conical mass of embryo flowers. In this stage the leaves present a singular appearance, drooping with their points towards the ground, as if not strong enough to assume a horizontal position. The buds expand very early in spring, but not prematurely, for within three or four weeks of their first unfolding they have attained their full length, amounting sometimes to eighteen inches. The leaves and flower-buds continue to increase in size until May, when the latter expand; and now the tree, having reached the meridian of its glory, stands forth prominently in all the gorgeousness of leaf and blossom. The downy covering, which was observable on the leaves in their early stage, has disappeared, and they have assumed instead a rich full green. Each leaf is composed of seven broad leaflets, unequal in size, which radiate from a common centre, a character of foliage different from that of any other British tree. The flowers, which grow in long cone-shaped clusters, are snowy white, dashed with pink and yellow, destitute of perfume, but attractive to insects, and, as long as they continue in perfection, very beautiful. They soon, however, become tarnished, and the tree consequently loses much of its grace; yet it is still a fine tree, readily distinguished at a considerable distance by its tiers of large and massive foliage. Out of the numerous flowers contained in every bunch, a few only mature their fruit; the rest drop off soon after they have begun to lose their beauty. The seed-vessels, which are set with short

rigid prickles, attain their full size in October, when they fall off, and, splitting with even valves, disclose three cells, in each of which is contained a roundish polished nut, resembling the sweet chestnut in colour, but not, like it, terminating in a point. It rarely happens that all three nuts are perfected; frequently only two are developed, but the rudiments of all may be discovered. The nuts abound in farinaceous matter, but are too bitter to be fit for human food. They serve, however, as food for goats, sheep, and deer, and are sometimes boiled and given to poultry. Reduced to powder, and mixed with a third part of flour, they are said to make better paste than that composed of flour alone. The timber, owing to its rapid growth, is soft and of loose fibre, and is consequently of little value. The Horse Chestnut is supposed to be a native of Asia, probably of northern India, whence it was introduced into Europe about the middle of the sixteenth century. There is a very fine variety with deep rose-coloured blossoms; and in North America is found another species, the *A. ohioensis* or Buckeye, which is far inferior to the common sort in the beauty of its flowers. The Scarlet Horse Chestnut belongs to a closely allied genus, *PAVIA*, which see. They belong to the order *Sapindaceæ*. [C. A. J.]

ÆSTIVAL. Of or belonging to the summer.

ÆSTIVATION. The manner in which the parts of a flower are folded up before the flower expands.

ÆTHALIMUM. A genus of myxogastrous Fungus, inhabiting more especially stoves and garden-frames where a strong heat is kept up, and doing much damage, by first involving everything in a slimy mass, and then contaminating what it has not overrun, by its myriads of dust-like spores. The principal species, *Æthaliumparvum* (if, indeed, the others are not mere varieties, differing only in colour), appears first under the form of a yellow cream-like mass, which is found to consist, when closely examined, of little wavy viscid strings; this at length swells, and produces abundant dark spores, collected in little heaps separated from each other by thin irregular yellow partitions; the outer surface is rough and scurfy. It sometimes occurs on leaves and rotten wood, in groves and forests, and is found in various parts of the world. The best way of getting rid of it, is dusting the plant, as soon as it appears, with quicklime or salt. This treatment must, however, be followed up perseveringly, as the growth is so rapid that the dusty stage, in which the lime or salt is of little use, may recur before a second application is made. [M. J. B.]

ÆTHERIA. A genus of terrestrial Orchids found in the tropics of Central Asia, and nearly allied to *Goodyera*, from which it differs, indeed, in little except the presence of two callosities at the base of the lip. Five or six species are known.

ÆTHIONEMA. A genus of *Cruciferae*, containing fifteen or sixteen species, chiefly natives of southern Europe and Central Asia, closely allied to the cress (*Lepidium*), but differing from it, as well as from *Thlaspi* and *Hutchinsia*, by having its four longer stamens winged and with a tooth; also from *Teesdalia*, by having the placentas dilated at the base, and all the seeds attached to their lateral portions; and from *Iberis* by the petals being all equal. Some of the species, when in fruit, present a curious appearance, as the large dorsally-compressed and concave fringed pods are so closely imbricated, that the fruiting raceme resembles the fruit catkin of the hop, the individual pods representing the scale-like bracts. [J. T. S.]

ÆTHUSA. Under the name of Fool's Parsley, this plant is well known even to cottage gardeners. It is a common weed in cultivated ground, and is consequently likely to spring up uninvited in the parsley bed. When this happens, it runs a risk of being mistaken for true parsley, since it belongs to the same natural order, *Umbelliferae*: this, however, could never occur if curled parsley only were cultivated. It may also be distinguished by the bluish-green tint of its leaves, and by their fine subdivision. Being an annual, it comes into flower before parsley shows any indication of sending up a flowering stalk. By this unfailing criterion it may be discriminated when growing with the favourite pot-herb which it is supposed to simulate. By equally certain marks it may be distinguished from any other umbelliferous plant which approaches it in habit: each partial umbel, which helps to compose the general umbel of flowers termi-

floral leaves, which hang down vertically. Its flavour and odour are unpleasant, and the seeds are very nauseous. The whole plant is said to be poisonous, and there are instances on record of persons having been made ill by eating it, even in the small quantities in which it is likely to have been present when mixed with parsley. Of its two names, *Æthusa Cynapium*, the former is derived from the Greek *aithe*, to burn, from its acrid properties; the latter, *kynos apion*, 'dog's parsley,' would seem to denote its worthlessness. [C. A. J.]

EXTOXICUM. See *Agotoxicum*.

AFFINITY. A term in systematic botany, signifying that one thing resembles another in the principal part of its structure, as is the case with Crowfoots and Poppywort.

AGALLOCHUM. The fragrant resinous heart-wood of *Agallaria*; also called *Agila* wood, *Aloes* wood, and *Eagle* wood.

AGALMYLA. A small genus of *Generacea* allied to *Archynanthus*, having creeping stems, alternate leaves, and fascicles of axillary flowers. It differs in having the oblique five-lobed limb of the corolla scarcely two-lipped, and in having but two anther-bearing stamens. The species are tropical, inhabiting the islands of the Eastern Archipelago. *A. staminea* is a very handsome plant, epiphytal in habit, creeping and rooting on the trunks of trees, having robust stems, large fleshy gloxinia-like leaves, and axillary fascicles of from twelve to fifteen flowers, which are a couple of inches long, curved tubular, bright scarlet. The stamens are very much exerted. [T. M.]

AGAMÆ. A name sometimes given to cryptogams, resting on the supposition that they are asexual plants. [M. J. B.]

AGANISIA pulchella is an Orchid with a creeping stem, throwing off at intervals rib-leaved pseudo-bulbs, from the base of which arise spikes of white or cream-coloured flowers. A native of Demerara.

AGANOSMA. A genus of *Apocynaceae*, separated from *Echites*, with which it agrees, except that the coronet is cup-shaped or cylindrical, having its five parts so united that they appear only as lobes round the mouth of the cup, while in *Echites* the scales of the coronet are free or but slightly connate. The restricted genus contains eight or nine species, which are shrubs or creepers in the woods of India. Their large panicles of flowers have a showy appearance, and several have a fragrant smell. [W. C.]

AGAPANTHUS (literally Love-flower). A small genus of ornamental Liliaceous plants, natives of South Africa, and long cultivated as ornaments of our greenhouses and terrace-gardens. The perianth in this family is tubular, with a short tube and six-parted spreading equal limb; there are six stamens inserted at the base of the limb, with somewhat declinate filaments;



Æthusa Cynapium.

nating the stalk, has at its base three approximate narrow pointed bracts or

the ovary is three-celled, with many ovules arranged in two series. The species form strong growing perennial herbs, with thick fleshy roots, and linear or somewhat lorate arching radical leaves, from among which springs the scape terminated by a large umbel of bright blue flowers. The species differ chiefly in size, in the breadth of their leaves, and in the intensity of colour in the flowers. The common one is called *A. umbellatus*. [T. M.]

AGAR-AGAR (or Agal-agah). The native name of the Ceylon Moss, *Gracilaria lichenoides*, a seaweed which is largely used in the East for soups and jellies. Another alga of equal excellence, *Gigartina speciosa*, is abundant on the coasts of the Swan River. The far-famed swallows' nests were formerly supposed to be formed of some seaweed abounding in gelatine; but it is now ascertained that they are formed from a peculiar secretion derived from the birds themselves. [M. J. B.]

AGARIC BLANC, (Fr.) *Polyporus officinalis*. — **CHAMPÊTRE**. *Agaricus campestris*.

AGARICINI. A group of *Fungi* agreeing with each other in having the hymenium or fructifying surface formed into distinct gill-like plates, the modifications of which, in combination with other circumstances, serve to distinguish the genera. The Mushrooms and Toadstools are familiar examples, in which the gills are highly developed. The *Chantarelle*, on the contrary, presents a case in which they are reduced to mere veins. Sometimes the gills become hard and corky, as in *Lenzites*, of which a common species, *Lenzites betulina*, grows on old rails. [M. J. B.]

AGARICUS (*Agarici*). One of the largest and most important genera of *Fungi*, containing some of the highest forms which these plants are capable of attaining, of which the Common Mushroom is one of the most familiar examples. It is distinguished by the more or less fleshy substance of the hat-shaped receptacle, by being furnished on the under surface, whether supported by a stem or not, with gill-like plates, easily separable in the centre, as if composed of two membranes, the central substance consisting, not of subglobosæ cells, but of delicate filaments, and being immediately derived from the flesh of the cap or pileus.

The pileus may be either central or lateral, and, in a few instances, where the stem becomes at length obsolete, or is wholly wanting, it is attached to the substance on which it grows by the upper surface, in which case the gills become superior instead of inferior; directed, that is, towards the light, and not, as is usually the case, away from it. Where there is originally a very short stem, the pileus is at first in the usual position, but gradually turns over, so as to bring the gills towards the light. Sometimes the border of the pileus, which was at first resupinate, or having the gills on the upper side, turns

over, so as to bring them into their normal position; in a very few instances alone, the whole plant is permanently resupinate.

The genus *Agaricus* is divided into five natural groups, according as the colour of the spores is white, pink, ferruginous, purple-brown, or black. These divisions, though presenting a few exceptional cases, are on the whole satisfactory, and, after a little experience, easy of determination. These groups are divided into sub-genera, according as they have a common wrapper or volva surrounding the whole plant, or a partial veil attached to the margin or forming a ring upon the stem; and then from various conditions of the stem and gills. Considering the fact that there are at least a thousand good species, it may readily be expected that some difficulties exist in the arrangement, and that the species are not always easily determined. Though, however, as in other parts of the vegetable kingdom, the limits of species are not easily defined, it may be asserted that no more certain species exist in the vegetable world, and that they are not to be considered as mere creatures of chance, without any stability. Many of them are of great beauty and elegance of form and colour, and are attractive from a thousand differences of sculpture, clothing, &c. They occur in all parts of the world, but abound most where the air is moist, with a tolerable degree of warmth. Some species afford the most delicious articles of food, while others are deleterious even when taken in small quantities. It is probable that the number of esculent species is far more numerous than is usually supposed; but as accidents are not unfrequent from confounding species altogether, or mixing poisonous kinds with those which are wholesome, they are far more neglected in this country than they deserve. It is impossible to give any positive rules for distinguishing those which are wholesome; but in general, where the taste of the raw agaric is not decidedly unpleasant, there is little danger, though even this is not without grave exceptions. With proper caution, the real useful kinds may readily be determined without the slightest risk. The common mushroom, however, is said to be poisonous in Italy, and as the bad properties depend upon the which the poisonous alkali is developed—a circumstance which varies with climate, and situation—even those species which are usually wholesome may at times prove deleterious.

Agarics grow in various situations. A vast variety affect dead wood, fallen leaves, and other matters when passing into a state of decay. Some affect the half-dead roots of grass, or large herbaceous plants, as the *Eryngo*. Many grow in pastures, or on the naked ground. Several occur only on dung or in highly-manured land; while a few inhabit principally stoves and structures where the temperature is artificially kept up. Occasionally they appear

under curious circumstances. In Naples, for instance, the grounds of coffee are placed in a heap in some subterranean place of moderate temperature, and an esculent species almost invariably makes its appearance. It is not, however, to be supposed that species which appear under such exceptional cases are creatures of spontaneous growth. They are generally mere altered forms of species which have usually a different habitat.

The word *Agaric*, amongst the old herbalists, had a wider signification than it has now, and was applied to many of the corky funguses. [M. J. B.]

AGARUM. A genus of olive-seeded *Algae*, distinguished from *Laminaria* principally by the frond being always perforated with roundish holes. These plants are peculiar to the northern parts of the Atlantic and Pacific Oceans, on the American and Asiatic shores. [M. J. B.]

AGASTACHEY. A Tasmanian genus of *Proteaceæ*, containing only a single species, *A. odorata*, which has yellow apetalous flowers of four sepals and four stamens, one of which is attached by a short filament to the middle of each sepal; the style is filiform, rather shorter than the stamens, and bearing a two-lobed stigma. The flower-spikes are numerous, and, as the name implies, very handsome, from four to five inches in length, and crowded with flowers. The leaves are about two inches long, obtusely lanceolate, occasionally notched at the apex, with a smooth plane surface, subsessile, and rather thick in substance. [H. H.]

AGASYLLIS. A genus belonging to the Umbelliferous order, and consisting of a single species, found in the Caucasus. It is a stout perennial herb, about three feet high, furnished with ternately decompound, slightly downy leaves, having lanceolate, decurrent, serrate leaflets. The stems terminate in many-rayed umbels, without general, but with partial involucre of narrow leaflets. The flowers are small and white. The chief characters of the genus are an obsolete calyx margin, compressed oval fruit, with five primary obtuse ribs to each carpel, the two lateral ones shorter than the others, and the number of vittæ eight to ten on the back, and five to six on the face of each carpel. [A. A. B.]

AGATHÆA. A genus of the Compositæ family (*Compositæ*), comprising twenty species, one of them, *A. abyssinica*, found, as its name implies, in Abyssinia, the others all natives of E. Africa. They are herbs or shrubs, with opposite, toothed or entire leaves, and solitary terminal flower-heads; the ray florets blue and pistilliferous, those of the disk yellow, and having both stamens and pistils. They are nearly allied to the well-known *Michaëlis* *Daisy* (*Aster*), from which they differ chiefly in the pappus of their achenes consisting of one series of bristles. [A. A. B.]

AGATHELPIS. A genus of Cape under-

shrubs, with alternate linear-filiform leaves and terminal flower-spikes, belonging to the natural order *Selaginæ*. The genus is characterised by having a five-toothed tubular calyx, an elongated tubular corolla, two included stamens, and a bilocular ovary with a single ovule. By the abortion of one of the cells of the ovary, the fruit is a simple achene, covered by the persistent calyx. [W. C.]

AGATHOPHYLLUM. A name intended to express the good qualities of the leaves of the plants to which it is applied. The genus belongs to the Laurel family, among which it may be known by its persistent calyx enclosing the fruit, and by its possessing nine stamens in three rows. The innermost stamens have, on either side of their base, a sessile awl-shaped gland or abortive stamen. The anthers are four-celled. One species, *A. aromaticum*, grows in Madagascar, where the natives use the leaves for a condiment. The fruit is aromatic, but encloses a kernel of an acrid caustic taste, known as Madagascar Clove Nutmegs. [M. T. M.]

AGATHOSMA. A genus of Rutaceous plants, so named from their fragrance. They are natives of the Cape, and have regular flowers. The petals are divided, with long claws. They have ten stamens, five of which are fertile, with the anthers tipped by a small gland, and five sterile, dilated above into a petal-like mass, thread-shaped below. The fruit is two to three-celled, each cell containing two ovules placed side by side. *A. pulchella* is said to be made use of by the Hottentots to anoint their bodies, a process very distasteful to European noses. Some of the species are cultivated for their pretty white or purplish flowers. [M. T. M.]

AGATHOTES. A genus of plants of the Gentian family, principally distinguished by its corolla, which is divided above into four pieces, while at the base are a number of small glandular pits, each protected by a fringed scale; and by the stamens, which are four in number, slightly connected together at the base. The dried stems of *A. Chirayta*, a native of the north of India, furnish a pure bitter, very similar in its properties to gentian, and used for like purposes under the name of Chiretta. By most authors this genus is included in *Ophelia*. [M. T. M.]

AGATI. A genus of the Pea family (*Leguminosæ*). *A. grandiflora* is the only species. It is a native of the East Indies and tropical Australia, but is commonly cultivated in tropical countries for the beauty of its flowers. It is a small slender tree twenty or thirty feet high, of rapid growth and short duration; its leaves alternate, abruptly-pinnate, with from eight to ten pairs of small leaflets. Flower stalks axillary, bearing from two to four large pea-like red or white flowers. The pods are about eighteen inches long, and as thick as a common quill. In India the flowers, pods, and young leaves are used

by the natives in their curries; a juice is pressed from the flowers and used in curing dimness of vision; and the seeds are eagerly sought after by birds. The bark is powerfully tonic and bitter, and considered effective in small-pox. The wood is useless except for fuel. The tree, being a fast grower and sparingly clad with leaves, is used for the purpose of training the Betel (*Piper Betle*). [A. A. B.]

AGAVE. A noble genus of *Amaryllidacea*, principally found in Mexico and other parts of South America. The species, of which several are known, are mostly of large size, with massive spiny-toothed fleshy leaves, forming a large spreading tuft, from the centre of which rises the tall flower scape, supporting a large compound inflorescence. The perianth is funnel-shaped, persistent, parted into a limb of six nearly equal divisions; the stamens are six in number, inserted in the tube of the perianth, and becoming exerted after the expansion of the flowers; the ovary is inferior, three-celled, with many ovules in two rows in the central angle of each cell. Some of the species become caulescent, and they are mostly long-lived plants, making comparatively slow progress in growth until the appearance of the flower stem, which, on the other hand, shoots up very rapidly. The best known species, *A. americana*, commonly called the American Aloe, affords a very good illustration of the family. This species is almost stemless: that is to say, its tuft of massive leaves is seated close to the ground, and they spread out on all sides so as to occupy considerable space. These leaves are very thick and fleshy, consisting of hard, firm pulpy matter intermixed with fibres; they are from three to six feet long, furnished with hard spines, both along the margins and at the point. These leaves are very durable, continuing to exist for many years. The plants are long in arriving at a mature or flowering age; indeed, so slow is their progress, under the artificial conditions in which they are placed in our gardens, as to have led to a popular though erroneous notion that they flower once only in a century. In reality they flower but once, the mature condition being attained in a longer or shorter period, ten to fifty or seventy years or more, according to the accelerating or retarding influences under which they are placed. Having, however, acquired full growth, the plant produces its giant flower-stem from the centre of the leaves, after which it perishes. New plants are formed around the base of the old one in the form of suckers. After the first appearance of the stem, it grows very rapidly, until a height of from fifteen to twenty or even forty feet is reached; and, towards the top, many symmetrically-disposed horizontal branches are produced, at the ends of which other branches are crowded bearing the numerous erect yellowish-green flowers, by which a sweetish liquid is secreted. The flowering plant re-

mains for some weeks an object of interest, the flowers being durable and produced in succession.

The American Aloe appears to have been first introduced to Europe in 1561, at which date it is recorded as being in the possession of Cortusus. Parkinson, in 1640, relates that it was first brought into Spain, and from thence spread into all quarters, but is silent as to its being in England. A plant flowered in Paris in 1663. Mr. Verspitt, of Lambeth, flowered one, twelve to fifteen feet high, about 1698, it being then a great rarity. Two were bloomed at Hampton Court about 1714. There is a wood engraving extant with the inscription '*Aloe americana quæ Sonderbusæ floruit 1662*.' A plant flowered at Leipzig in 1700. Mr. Cowell, in 1729, flowered one at his garden in Hoxton; and this, he asserts, was the first seen in England, the others, mentioned above, not being the true American Aloe. There is a plate of this plant, by Kirkal, in mezzotinto, dated September 23, 1729. Another flowered at Eaton Hall, in 1737; a plate of it, engraved by Toms from a drawing by Badeslade, bearing date November of that year. This plant opened the crown for flowering on June 5th; the stem-bud appeared on the 15th, and grew five inches a day for some weeks; the flower branches were perfected in twelve weeks, and then it stood for a month while the buds were forming; the number of flowers was about 1,050. Two plants, about fifty years of age, flowered at Hampton Court in 1743, their respective heights being twenty-seven feet and twenty-four feet. The flower stems appeared on June 3rd, were in perfection in the middle of August, and continued blooming till the middle of October. A plant which flowered near Carlsbad in 1754 was twenty-six feet high, and produced twenty-eight branches, which bore above 3,000 flowers. Another flowered at Leyden in 1760, and a third at Friedrichsberg, in Denmark, twenty-two feet high, with nineteen branches and more than 4,000 flowers. The tallest of which we have any account, was one that bloomed in the King of Prussia's garden, and this reached forty feet in height.

The species of *Agave* are not only ornamental in character, but are important on account of their uses and products. The plants themselves, with their hard, unyielding spiny leaves, form impenetrable fences, and they are used for this purpose in many parts. The roots as well as the leaves of *A. americana* and some allied species, especially the *Pita* plant, furnish a fibre (*pita* thread) which is extremely tough, and is useful for making twine and rope, and for various other purposes, such as paper-making. Humboldt describes a bridge of upwards of 130 feet span, over the Chinbo in Quito, of which the main ropes, four inches in diameter, were made of agave fibre. The fibre is separated by bruising the leaves, steeping them in water, and afterwards beating them.

The juice of the *Agave* leaves yields a

very useful succedaneum for soap. For this purpose the juice is expressed, and then the watery part is evaporated, either by artificial heat or exposure to the sun, until it is reduced to a thick consistence, when it may be made up into balls with the help of lye ashes. This soap lathers with salt water as well as fresh. A gallon of the juice yields about a pound of the soft extract. The roots of *A. saponaria*, a powerful detergent, are employed in Mexico for a similar purpose.

The most important product, however, of the *Agave*, and especially of *A. americana*, is the sap, which continues to flow for some time upon cutting out the inner leaves just before the flower scape is ready to burst forth. The plant is called Metl by the Mexicans, and Maguay de Coriiza in Caracas. Pittes, Acameti, Sequameti, and Maguay-meti, are varieties of this species, which is stated to be common everywhere in Equinoctial America, from the plains even to elevations of 9,000 to 10,000 feet. *A. mexicana*, a closely allied species, is sometimes called Maguay-meti, and also Mangual. According to Humboldt, the plant is extensively cultivated in the interior table-land of Mexico, and, indeed, extends as far as the Aster language. *A. vivipara* is Theo-meti or Manguel divinum, and in Cumana and Caracas, *A. cubensis* is called Maguay de Cocay.

The sap above referred to is of a sourish taste, and easily ferments, on account of the mucilage and sugar it contains, and in the fermented state is called Pulque by the Spaniards. This vinous beverage, which resembles cider, has an odour of putrid meat, extremely disagreeable, but Europeans who have been able to overcome the aversion which the foetid odour inspires, prefer the pulque to every other liquor. A very intoxicating brandy, called Mexican or Aguardiente de Maguay, is formed from the pulque. Royle states that the Government drew from the agave juice a net revenue of 166,497*l.* in three cities. The fresh leaves of *A. americana*, cut into slices, are occasionally used as fodder for cattle; and the centre of the flowering stem, split lengthways, is said to form no bad substitute for a European razor-strop, on account of the minute particles of silica in its composition. The leaves are also said to be used for scouring pewter. [T. M.]

AGDESTIS. A Mexican twining plant originally described by De Candolle, from a drawing of Mocino and Sease's collection, and which has till lately been very little understood. Specimens recently examined have, however, shown that it forms a very distinct and somewhat anomalous genus of *Phytolaccaceae*.

AGERATUM. A genus of Compositae, belonging to the *Eupatorium* tribe of the order, of which the *A. mexicanum*, a well-known occupant of the flower-border, with densely clustered lavender-blue capitules, may be taken as the type. Botanically,

it may be distinguished by its cup-shaped involucre of numerous imbricated linear leaflets, its naked receptacle, and its elongated angular fruit, crowned by a pappus of several awned scales, which are dilated at the base. The genus includes some other annual species in addition to the *A. mexicanum*, but none of them exceed, and few equal it in value for gardening purposes. The *A. conyzoides* very closely resembles it, and has recently appeared in gardens under the name of *Phalacroca caelestina*. The *A. angustifolium* and *A. latifolium* have white flowers, but are probably not in cultivation. There is a so-called white variety of *A. mexicanum*, but its flowers are really of a bluish cast. A few perennial species are comprised in the genus; they possess, however, but little general interest. The *Caelestina ageratoides*, a half-hardy perennial, with blue ageratium-like flower heads, much employed in bedding, must not be confounded with the true *Ageratum*. [W. T.]

AGGLOMERATE. Heaped up; as the stamens in *Anona* and *Magnolia*, or the male flowers in a pine tree.

AGGREGATE. Several things collected together into one body; as the achenes in the fruit of a strawberry; the flowers of *Cuscuda*.

AGILA WOOD. The fragrant wood of *Aquilaria evata*, and *A. agallochum*.

AGLANDEAU. (Fr.) A kind of Olive.

AGLAOMORPHA. A genus of poly-podiaceous Ferns, of the group *Polypodium*, distinguished by having the veins of the fronds reticulated, with free included veinlets in the areoles, combined with the following peculiarities:—the free veinlets are divaricated; the fronds are naked, that is, not clothed with scales; they are articulated with the rhizome, and dimorphous, that is, certain sterile dwarfed oak-leaf-like fronds are produced as well as the larger fertile ones; and, finally, the fertile ones have the fertile segments, which are the upper ones, much narrower than the lower sterile ones. There is but one species, *A. Meyeniana*, a native of the Philippine Islands. [T. M.]

AGNOSTUS. A synonym of *Stenocarpus*.

AGNUS CASTUS. *Vitis Agnus-castus*.

AGRAPHIS. "The poets feign that the boy Hyacinthus, who was unfortunately killed by Apollo, was changed by that deity into a Hyacinth, which, therefore, was marked with the letters AI, alas! to express Apollo's grief. It is also feigned, that the same flower arose from the blood of Ajax when he slew himself: those letters being half the hero's name."—*Note in Martin's Virgil*. The flower referred to is now supposed to be the Martagon lily, the spots on the petals of which sometimes run together so as to assume the required form; but the name *Hyacinthus*

was given by the earlier botanists to a very different family, of which our common woodland plant, the wild Hyacinth or Blue-bell, was one. This, presenting no tracing of letters on its petals, even to the most imaginative eye, was named by Linnaeus *H. non-scriptus*, or uninscribed Hyacinth. It has now been removed by Link into a distinct genus and named *Agraphis*, a Greek compound bearing the same meaning as *non-scriptus*. The wild Hyacinth, as it continues to be popularly called, is a liliaceous plant common in woods, and too well known to need any description. The Blue-bell of Scotland, the Hare-bell in poetry, is a totally different plant, *Campanula rotundifolia*. [C. A. J.]

AGRIMONIA. A family of herbaceous perennial plants with yellow flowers, belonging to the natural order *Rosaceae*, among which they are distinguished by bearing their enclosed seeds in the hardened calyx, which is furnished on the outside with a circle of hooked bristles. The British representative of the genus, *A. Eupatoria*, is a common way-side plant, with interruptedly pinnate leaves, a scarcely branched stem about a foot and a half high, and an elongated spike of starry yellow flowers. When in fruit the calyx becomes inverted. The foliage is astringent and aromatic, and is an ingredient in several 'herb teas.' Its medicinal virtues, though far inferior to what they were anciently supposed to be, have retained for it a place in the repertory of herb collectors, who recommend it as tonic and astringent. It contains tannin, and will dye wool of a murren colour. A Canadian species is said to be used with success as a febrifuge. [C. A. J.]

AGRIMONY. *Agrimonia*. — **HEMP.** *Eupatorium cannabinum*. — **WATER HEMP.** An old English name for *Bidens cernua* and *B. tripartita*.

AGRIOPHYLLUM. A small genus of *Salsolaceae*, containing two species, natives of Caucasian Siberia. They are annual plants, with alternate, sessile, entire leaves, and sessile axillary flowers in short squarrose spikes. The calyx, when present, consists of a single membranaceous sepal. There are three to five stamens, and two filiform styles. The fruit is a vesicular compressed capsule. [W. C.]

AGRIPAUME. (Fr.) *Leonurus Cardiac.*

AGROSTEMMA. A genus of *Caryophyllaceae*, of the tribe *Sileneae*, founded by Linnaeus, but now generally regarded as a section of the genus *Lychnis*, from which it only differs in the elongated segments of the calyx limb, in the petals being without a prominent scale at the base of the expanded portion, and in the capsule opening by valves alternate with and not opposite to the calyx segments. *Lychnis (Agrostemma) Githago*, the well-known weed Corn Cockle,

with large, entire, purple petals, is the only species belonging to the section as it is now limited; the rest of the Linnean species being referred to the section *Coronaria*. [J. T. S.]

AGROSTIS. A genus of Grasses, typical of the tribe *Agrostideae*, and known by the English name of Bent grasses. The principal characters, which serve to distinguish this genus from its allies, are the flowers being single within the calyx glumes, and having short hairs at their base, and the upper glume being smaller than the lower. The species are numerous, no fewer than 171 being described in *Steudel's Synopsis Plantarum Graminearum*, and their range over the surface of the globe is also very extensive. The Falkland Islands, Nootka Sound, and Tasmania may be quoted as some of the outlying stations for this species of *Agrostis*. In the British Isles, the Bent grasses are of general occurrence on all damp pastures, as well as on dry waste ground. The Marsh Bent, *Agrostis alba*, is the once famous Florin grass of the late Dr. Richardson, who, by his writings on the subject, brought it prominently before the agricultural public, and caused it to be cultivated on a rather extensive scale, particularly in Ireland. It has not, however, been found to realise the expectations held concerning its worth, and, consequently, is not extensively grown at the present time. It is remarkable for having the long stems lying prostrate on the surface of the ground, and throwing out roots at their nodes or joints, by which means they frequently extend four feet or more from the main root of the plant without flowering. The Dog Bent, *Agrostis canina*, is the grass which sick dogs, and even cats, sometimes chew, for the purpose, it is supposed, of causing them to vomit. This species wants the inner glume or pale to the flower. *Agrostis pulchella*, a native of Quito, is cultivated in gardens, for the beauty of its elegant panicles of flowers, which, on being cut before they are fully ripe, remain a long time in a dry state without much alteration in their appearance. Some of the foreign species of this genus are valuable as pasture grasses in the parts of the world where they grow spontaneously. [D. M.]

AGROSTOPHYLLUM. A genus of *Jaya* Orchids with fleshy stems, narrow leaves, and small flowers packed closely in terminal heads. Two or three united species are known to botanists.

AGUILBOQUIL. A Chilian name for the berries of *Lardizabala intermedia*.

AIAULT. (Fr.) *Narcissus Pseudo-Narcissus*.

AIGLANTINE. (Fr.) *Aquilegia vulgaris*.

AIGLE-IMPÉRIAL. (Fr.) *Pteris aquilina*.

AIGRELIER. (Fr.) *Pyrus torminalis*.

AIGREMOINE. (Fr.) *Agrimonia*; also *Aremonia agrimonoides*.

AIGUILLE DE BERGER. (Fr.) *Scandix Pecten-Veneris*.

AIL. (Fr.) *Allium sativum*. — À TOUT-PET. *Muscari comosum*. — DES BOIS. *Allium ursinum*. — D'ESPAGNE. *Allium Scorodoprasum*. — DORE'. *Allium Moly*. — D'ORIENT. *Allium Ampeloprasum*.

AILANTUS. The *Vernis du Japon* of the French, *A. glandulosa* of botanists, is in its native countries, China and India, where it is called *Ailanto*, a tree of large size and handsome appearance, bearing numerous pinnate leaves from one to two feet long or more, and clusters of greenish flowers of a disagreeable odour. It is of rapid growth, making, when favourably situated, annual shoots from three to six feet in length. Its German name, *Götterbaum*, 'Tree of the gods,' is said to be a translation of *Ailanto*. French arboriculturists recommend that its lateral branches should be annually lopped off, when the main trunk will ascend perpendicularly and sustain a symmetrical spreading canopy. In France and Italy, it is



Ailanthus glandulosa.

much valued as a tree for shading public walks, and is planted for that purpose along with the tulip-tree, horse-chestnut, plane, &c. Its leaves are not liable to be attacked by insects, which is a great recommendation; nevertheless they are the favourite food of the silk moth, *Bombyx Cynthia*; and they continue on the tree and retain their green colour till the first frosts of November, when the leaflets suddenly drop off, the leaf-stalks remaining on often a week or two longer. The wood is yellowish-white, satiny, and well suited for the purposes of the cabinet-maker. There

specimens, both in England and of the Continent, exceeding sixty feet in height. The name 'Japan varnish,' seems to have been applied to it through some mistake. The genus belongs to the *Amarabaceæ*. Other species are stove-plants. [O. A. J.]

AINSWORTHIA. A genus of *Umbelliferae*, containing three species, natives of Palestine, having the habit of and usually referred to *Tordylium*, from which, however, it differs in the absence of the calyx teeth, and in having the margin of the fruit smooth. This genus was separated from *Hasselquistia* by Boissier, because of the breadth of the oleiferous vittæ in the fruit, and also from the characters of the calyx and fruit, which are the same in *Hasselquistia* as in *Tordylium*. [W. C.]

AIR PLANTS. A common name for *Aerides*. The name is also applied to Epiphytes, or plants which grow on trees and other elevated objects, not in the earth, and derive their nutriment from atmospheric moisture. They are to be distinguished from terrestrial plants, or those growing in earth, and from parasites, which derive nourishment directly from other plants on which they grow. [T. M.]

AIRA. A genus of *Crassææ*, belonging to the tribe *Avneræ*, distinguished by having two perfect florets and frequently the rudiment of a third floret within the glumes. The pales are notched at the point, and bear short awns on the back, the awns being in most instances kneed or bent. The species are numerous, and have an extensive range of localities over the surface of the earth. Those that are natives of the British Isles are not held in great estimation for agricultural purposes, being of a coarse wiry nature.

The tufted Hair-grass, *Aira cæspitosa*, is one of the tallest-growing British grasses: indeed, under favourable circumstances, the culms, or stems frequently attain a height of six feet. In boggy land, the close growing tufts form what are called tussocks, which are found extremely useful for stepping on when walking over soft watery places. [D. M.]

AIRELLE. (Fr.) *Vaccinium*. — RAISIN D'OURS. *Vaccinium Arctostaphylos*. — ROUGE. *Vaccinium Vitis idæa*.

AIROCHLOA. A name given to certain festucaeous Grasses, now generally referred to *Koeleria*. [T. M.]

AIROPSIS. A genus of Grasses belonging to the tribe *Avneræ*, distinguished from the genus *Aira* by the pales being partly attached, or adnate to the corn or seed. The majority of authors do not, however, consider this character, along with some others of minor importance, sufficient to separate it permanently from *Aira*, and, consequently, retain the species which Fries included under it, as a section of the genus *Aira*. The two British species, namely, *Airopsis coryophyllæ* and

A. præcox, are small elegant grasses, which flower in spring and the early part of summer, neither of them of much value as agricultural grasses, being only of annual duration, and loving to grow on dry barren sandy spots which produce little else besides them. [D. M.]

AITONIA. This name is applied to certain plants (usually referred, but with some doubt, to the family of *Rapinidaceæ*), in honour of Mr. Aiton, the former superintendent of Kew Gardens. The calyx is deeply divided into four divisions; the petals are four; the stamens eight, projecting from the corolla, their filaments united into a tube arising from beneath the ovary, which latter is surmounted by a thread-shaped style, terminated by an obtuse stigma. The fruit is membranous and triangular, of one cell, with several seeds attached to a central receptacle. *A. capensis* is a small shrub sometimes cultivated in this country. [M. T. M.]

AIZOON. A genus of plants referred by Endlicher to *Portulacææ*, but separated from that order by Lindley on account of their want of petals and the small number of stamens, and formed, with some allied genera, into a distinct order, *Tetragoniaceæ*. The calyx is five-partite, and coloured on the inner surface. The stamens, about twenty in number, are inserted singly or in from three to five bundles in the base of the calyx. There are five subclavate stigmas; the ovary has five cells, each containing from two to ten ovules. The genus contains more than twenty species of prostrate herbaceous plants, very abundant in Southern Africa, and found sparingly also in Southern Europe, Northern Africa, and Arabia. The ashes of *A. canariensis* and *A. hispanicum* abound in soda. [W. C.]

AJAX. A subdivision of the genus *Narcissus*, including the common Daffodil, and other species having a long trumpet-shaped coronet to the flowers. [T. M.]

AJONC, or AJONG MARIN. (Fr.) *Ulex europæus*.

AJOWAINS. The carminative fruits of some Indian species of *Ptychotis*. Also called *Ajwaina*.

AJUGA. A genus of plants belonging to the Labiate fam^{ly}, presenting nothing remarkable in appearance, nor possessing any properties which render it valuable. The species are all herbaceous, and the majority are annuals. The flowers either grow in whorls of six or more, or singly in the axils of the opposite leaves: sometimes contracted so as to resemble a spike, in other species more loosely, but in all cases accompanied by leaves or leaf-like bracts. Several species are furnished with stolons or runners. Of the three British species, the commonest is *A. reptans* (common Bugle), a woodland and hedge-side plant, rendered noticeable by the dull purple tinge of its upper leaves

and bracts. A section of the family, named Ground Pine, is represented in Britain by *A. Chamæpitys*, a tufted spreading herb with three-cleft, very narrow hairy leaves, and yellow flowers dotted with red. Bugle was formerly held in high esteem for its vulnerary properties. 'Ruellius writeth that they commonly said in France, howe he needeth neither phisician nor surgeon that hath Bugle and Saniclle, for it doth not onely cure woundes, being inwardly taken, but also applied to them outwardly.'—*Gerarde*. Other medical virtues assigned to the Bugle have as little foundation, in fact, as the above. [C. A. J.]

AKEBIA. A small genus of *Lardisabalaceæ*, distinguished by having separate male and female flowers; the former consisting of a three-leaved calyx of ovate-lanceolate, concave, nearly equal segments, six subequal free stamens in two rows, and the rudiments of six ovaries; the latter formed of three large roundish concave sepals, six to nine dwarfed abortive stamens, and from three to nine distinct oblong-cylindrical ovaries, crowned by a short peltate stigma. The species are climbing plants of Japan and China, commonly cultivated in gardens, and also forming welcome half-hardy climbers in those of our own country. One of them, *A. quinata*, has its freely running stems furnished with very pretty leaves, consisting of three to five ovate or obovate entire obtuse emarginate leaflets; and from the axils of these leaves grow the racemes of dull red-purple fragrant flowers, of which the upper are smaller and sterile, the lower larger and fertile. Mr. Fortune found this plant in Chusan, growing on the lower sides of the hills in hedges; when climbing on other trees, its branches hung down in graceful festoons, attracting attention by the delightful fragrance of their flowers, the colour of which, a dark purplish brown, is not particularly showy. [T. M.]

AKA. The New Zealand *Metrosideros scandens*.

AKEE TREE. *Blighia* (or *Cupania*) *sapida*.

AKHEROUT, INDIAN. *Aleurites triloba*.

AKRA. The name, in India, of the fodder Vetch, *Vicia sativa*.

AKUND. The *Calotropis gigantea* of India.

ALA. One of the lateral petals of a papilionaceous flower. Also a membranous expansion of any kind; as that round the seed of a bignoniad, from the summit or side of a seed-vessel, or on the angles of a stem. Formerly, the axil, but not now employed in that sense. The word is generally used in the plural form, *alæ*.

ALABASTRUS. A flower-bud.

ALAMANIA punicea. A little creeping Mexican Orchid, scarcely distinct from *Epidendrum*. It has crimson flowers, with a small bar across the lip.

ALANGIACEÆ (*Alangiads*). A natural order of plants inhabiting tropical Asia. With the exception of the genus *Nyssa*, which is found in the United States, all are trees or shrubs with inconspicuous flowers, structurally similar to those of certain myrtles. Their fruit is succulent and eatable, but not agreeable to European tastes. The principal genera are *Alangium* and *Nyssa*. Eight or nine species are all that are known.

ALANGIUM. A genus of Indian trees, containing two, or perhaps three species, and belonging to the natural order *Alangiaceæ*. The leaves are alternate, exstipulate, entire, and reticulated on the under surface with transverse veins. The calyx is campanulate, five to ten-toothed; the petals, equal in number to the segments of the calyx, are linear and reflexed. The stamens are twice or four times as many as the petals, and have filaments which are very hairy towards the base, and bear adnate anthers. The ovary is coherent with the tube of the calyx, and somewhat crowned with its limb; it is one-celled, with one pendulous ovule. The single subulate style is expanded at the base into a coloured thick fleshy disk, covering the top of the ovary. The fruit, a fleshy one-seeded drupe, is edible but not palatable, being mucilaginous and insipid. The roots are aromatic, and the timber good and beautiful. Some of the branches occasionally become spinescent. The Malays believe the species of *Alangium* to have a purgative hydragogic property. De Candolle established the natural order *Alangiacæ* on this genus, separating it from *Myrtaceæ* and other allied orders, because of its more numerous petals, adnate anthers, and one-celled fruit; and from *Combretaceæ*, on account of its adnate anthers, albuminous seeds, and flat cotyledons. [W. C.]

ALARIA. A genus of dark-spored *Algae*, consisting of a very few species, confined to the colder regions of the North Atlantic and Pacific. The frond is from three to twenty feet long, of a membranous substance, but is furnished with a strong central nerve or rib, and is frequently much torn and split by the action of the waves; it is supported below by a short cylindrical stem, from the sides of which finger-shaped processes are given off, in whose outer coat the spore cases are immersed, supported on short peduncles, the contents of which are ultimately divided into four spores. We have a single species only upon our own coasts, *Alaria esculenta*, which is, however, well known by the Scotch under the name of Badderlocks, Henware, Honeyware, and Murlins, and is the best of all the esculent *Algae* when eaten raw, the midrib and fruit-bearing appendages being the parts most in use. The name of Badderlocks, which has puzzled etymologists, is clearly a corruption of Balderlocks, or the locks of Balder, a Scandinavian deity to whom other plants have been dedicated. [M. J. B.]

ALASANDI or **ARRAR**. An Indian name for a common Eastern pulse, *Dolichos Catjang*.

ALATE. Furnished with a thin wing or expansion.

ALATERNUS. The common garden name of *Rhamnus Alaternus*, a well-known evergreen shrub.

ALBEFACTIO. A condition of plants induced by absence of light, commonly called Blanching, in which little or no chlorophyll is formed, the peculiar secretions are diminished, and the tissues are tender and unnaturally drawn out; and thus plants, which in a state of health are tough, unwholesome, and unfit for food, become palatable and wholesome. If light be restored, the plant may gradually recover its tone, but if it is absent for any great length of time death is sure to ensue. Some succulent plants, and those which have tubers, will sometimes survive the first season, but in general the confinement of a few months at the time of active growth is fatal. Flowers, when bleached, as of the phyllanthoid *Cacti*, sometimes recover their colour when exposed to light, but liliacs which are blanched for ornamental purposes remain white, though their leaves acquire a yellowish-green tinge. [M. J. B.]

ALBERTINIA. A genus of the Composite family, containing about a dozen species. They are shrubs or small trees, with alternate, stalked, entire leaves attenuated at both ends, and either covered with short white hairs, or entirely smooth. Their flower-heads are arranged in compact globular bunches at the ends of the branches, each head containing from one to three florets. The hairs of the pappus are filiform, arranged in two or many series, and often rose-coloured. All of them are natives of Brazil. Their uses, if any, are not known. [A. A. B.]

ALBIZZIA. A genus of the Leguminous family, related to *Acacia*. The name *Besenna* was given by M. Richard to an Abyssinian tree, of which the flowers and fruits were unknown to him. Since then the plant has been found in flower, and proves to be a species of *Albizzia*. This plant, the *Albizzia anthelmintica*, is a small tree, with bipinnate leaves made up of one or two pinnae, each of which bears three or four pairs of obovate, unequal-sided leaflets, about an inch long and half an inch broad. The flowers are in axillary stalked heads. The Abyssinian name of the plant is *Besenna* or *Mesenna*, and its bark is much used in that country in the treatment of tapeworm (*Tania solium*), a pest to which the Abyssinians are much subject from their eating raw meat. [A. A. B.]

ALBUCA. A genus of African *Liliaceæ*, chiefly from the Cape of Good Hope, closely resembling *Ornithogalum*, but having the three inner segments of the perianth closed over the stamens, while the three outer ones are spreading; three of the

six stamens are often sterile. They are bulbous plants, easily cultivated in the greenhouse when grown in pots with sandy peat earth; but they are not very ornamental, having green or yellowish flowers striped with white, and leaves more or less like those of the hyacinth. Seventeen or eighteen species have been in cultivation in this country. [J. T. S.]

ALBUMEN. The matter that is interposed between the skin of a seed and the embryo, or the vitellus, if there is one. It is, in reality, whatever substance is deposited in the cells of the nucleus during the growth of the seed.

ALBUMINOUS. Furnished with albumen when perfectly ripe. A term exclusively applied to seeds.

ALBURNITAS. A tendency to remain like albumen. A disease of trees, when white rings of wood are interposed among heart-wood.

ALBURNUM. The sap wood of a tree; the younger wood, not choked up by sedimentary deposit, and therefore permeable to fluids.

ALCAMPHORA. A remedial preparation from *Croton perdicipes*.

ALCÉE DE LA FLORIDE. (Fr.) *Gordonia Lasianthus*.

ALCHEMILLA. A genus of herbaceous annual or perennial plants, belonging to the natural order *Rosaceæ*. All the species have lobed leaves, and inconspicuous yellow or greenish flowers. *A. vulgaris*, the common Lady's Mantle, is frequent in wet pastures and the borders of woods: the leaves are rather large, roundish, seven to nine lobed, plaited, and notched at the edges; the flowers, though small, are numerous, of a golden green colour, and collected into forked clusters. It often occurs in gardens, where it is valued more for the pleasant green of its foliage than for any showiness while in flower. Its properties are astringent, and slightly tonic; hence it comes within the province of the 'stomper.' *A. alpina* is a mountain species, found on the banks of rivulets in Scotland and the North of England. The leaves of this species are deeply divided into five oblong leaflets, and are thickly covered with lustrous silky hair. A form of this plant in which the leaflets are connate for one-third of their length is known as *A. conynata*. *A. arvensis* (Parsley-Piert) is a small annual plant, a few inches long, with jagged leaves, and tufts of minute green flowers growing in their axils. It grows abundantly in cultivated fields, and on hedge banks. *A. alpina*, and some of the foreign species, are well adapted for rock-wood. [C. A. J.]

ALCORNOCO, or ALCORNOQUE BARK. The bark of several species of *Syreenma*. The Alcornoque of Spain is the bark of the cork-tree.

ALDER. The common name for *Alnus*. — **BERRY-BEARING.** *Rhamnus Frangula*. —, **BLACK.** An old English name for *Rhamnus Frangula*; also applied in America to *Prinos verticillatus*. —, **RED.** A name given at the Cape of Good Hope to *Cunonia capensis*. —, **WHITE.** A name given to *Platylaphus trifolius* in South Africa; also to *Clethra alnifolia* in North America.

ALDROVANDA. A genus of *Droseraceæ*, containing a single species found in Southern Europe, growing in still water. This plant, *A. vesiculosa*, is remarkable for its curious leaves, which are in whorls of six to nine; they are pellucid, and inflated at the extremity, so as to form a vesicle, which acts as a float; the leaf-stalk is flat (not inflated), with four or five bristles at the extremity; the stems are only a few inches long, generally simple, with the whorls of leaves approximate; the flowers are white, and rather small and solitary, borne on longish slender peduncles, springing from the axils of the leaves. [J. T. S.]

ALE-COST. An old English name for *Pyrethrum Tanacetum*, commonly known as *Balsamita vulgaris*, the Costmary of gardens.

ALE-HOOF. An old English name for *Nepeta Glechoma*, the Ground Ivy.

ALEPYRUM. A genus of *Droseraceæ*, containing three species of small tufted herbaceous plants, natives of the shores of New Holland. They have solitary or few terminal flowers, with two bracts; a single stamen; and six or eight ovaries, with simple styles to each. The genus differs from *Centrolepis* in wanting bracteoles, and in the spathe consisting of one or very few flowers. [W. C.]

ALETRIS. A genus of North American herbaceous *Hamodoraceæ*, distinguished by the following features:—The perianth is half-inferior, tubular, with a six-cleft spreading or funnel-shaped limb; the six stamens are inserted into the base of the perianth segments, and have flat filaments and somewhat arrow-shaped anthers; the ovary is three-lobed, pyramidal, with a style composed of three connate bristles, distinct at the base, but joined at the top into a simple stigma; the capsule is pyramidal, three-celled, trilocular, enclosed in the perianth, and opening at the point in three directions; and the seeds are numerous, minute, striated. *A. farinosa*, called Colic root and Star grass, is a dwarf perennial with somewhat distichous radical leaves, which are lance-shaped, ribbed, and sessile or somewhat sheathing at the base. The stem is simple, invested with remote scales, one to three feet high, terminating in a spiked raceme of short-stalked, white, oblong, bell-shaped flowers, the outer surface of which has a roughish frosted or mealy appearance. It is one of the most intense bitters known, and is used both as a tonic and a stomachic. [T. M.]

ALEURITES. A genus of the Spurge-
wort family (*Euphorbiaceæ*). The only
species, *A. triloba*, called the Candleberry
tree, forms a tree of considerable magni-
tude, attaining the height of thirty to forty
feet, and, though originally a native of
the Moluccas and the S. Pacific Isles, is
commonly cultivated in tropical countries
for the sake of its nuts. The leaves are al-
ternate, four to eight inches long, stalked,
and without stipules, either oval acute and
entire, or from three to five lobed, and,
like all the young parts, covered with a
whitish starry pubescence. The flowers
are small and white, growing in clusters
at the apex of the branches, the males and
females together in the same cluster, the
former being the most numerous. The
fruit is two-celled, fleshy, roundish, and
when ripe of an olive colour, its greatest
diameter about two and a half inches; each
cell contains one seed, in form something
like a small walnut, the outer shell of which
is very hard. The kernels, when dried and
stuck on a reed, are used by the Polynesian
islanders as a substitute for candles; and
as an article of food in New Georgia. They
are said to taste like walnuts. When
pressed they yield a large proportion of
pure palatable oil, used as a drying oil for
paint, and known as Country Walnut Oil
and Artists' Oil. In Ceylon it is called Ke-
kune Oil, and in the Sandwich Islands,
where it is used as a mordant for their
vegetable dyes, Kukui Oil. In these is-
lands alone about 10,000 gallons are annu-
ally produced. It has been imported to this
country, but not to any considerable extent,
and fetches about 20¢ per imperial ton. The
cake, after the oil has been expressed, is
esteemed as a food for cattle, and also as
manure. 'The root of the tree affords a
brown dye, which is used by the Sandwich
Islanders for their native cloths.' The
plant is known in India under the name of
Indian Akhrout. [A. A. B.]

ALEXANDERS. A common name for
Smyrnium Olusatrum. Sometimes written
Alisanders. — **GOLDEN.** An American
name for *Zizia*.

ALFA. The fibre of *Macrochloa tenacis-
sima*, used in Algeria for paper-making

ALFALFA. The Spanish name of Lu-
cerne, *Medicago sativa*.

ALFREDIA. A genus of the Composite
family, founded on the *Chalcus cernuus* of
old authors, which was cultivated in this
country so long ago as 1760 by Miller in
the Chelsea garden, and was figured by
him in a publication illustrating his re-
nowned *Gardener's Dictionary*. *A. cernua*,
a native of Siberia, is a rank-grow-
ing, thistle-like plant, one to seven feet
high, with stalked heart-shaped root-leaves
nearly a foot long, having their serrate
blades white underneath, and their foot-
stalks crisped and prickly; the stem
leaves are sessile and heart-shaped, except
the uppermost, which are narrow lance-
shaped. Each branch ends in a nodding

yellow thistle-head, rather more than an
inch across, containing numerous tubular
florets, enclosed by an involucre of spiny-
pointed and lacerated scales. From *Ser-
yatula* the genus differs in the pappus
hairs (which crown the obovate streaked
achenes) being bearded instead of rough,
as well as in the long feathery tails of the
anthers. Four species are known, all
Siberian. [A. A. B.]

ALGÆ. A large and important tribe of
Cryptogams, far the greater part of which
live either in salt or fresh water, a few only
deriving their nourishment from the mois-
ture contained in the surrounding air. Though
many of them are confined to particu-
lar kinds of rocks, and have something
resembling a root, it is not probable that
they draw any important part of their
nourishment from the substance on which
they grow.

The higher *Algæ* have a distinct stem,
from which arise variously-shaped expan-
sions, which often assume the semblance
of leaves; but, though these are often
strictly symmetrical, they never follow the
spiral arrangement which is so marked in
phanogams, and which exists even among
mosses. In many the stem is quite ob-
literated, and the whole plant consists of
an expanded membrane, consisting of one
or more strata of cells, as the case may be.
Frequently there is no expansion, and the
whole plant, whether solid or fistulose,
simple or branched, is everywhere more or
less cylindrical. In other cases, again, it
consists of a mere string of articulations;
while in others, the whole is reduced to an
adnate crust or a shapeless jelly, or to
single cells. In one curious division, the
frond, though often much divided, con-
sists of a single cell only, however com-
plicated, filled with endochrome. Whatever
the colour of *Algæ* may be, it appears that
they act upon the atmosphere in the same
way as phanogams, that is to say, that
they absorb carbonic acid and give out
oxygen under the influence of light.

Algæ, whatever may be their outer form,
or whatever their degree of complication,
are cellular plants, in a very few instances
only presenting anything like vessels,
though the cell-walls themselves have fre-
quently a spiral structure. The spores are
often nothing more than the endochromes
of cells, whether terminal, or chained to-
gether like the beads of a necklace, more
consolidated than usual, and occasionally
broken up into four or more distinct re-
productive bodies. There are often two
sorts of fruit upon the same or on different
fronds, the one of which is regularly tetra-
sporous, the other variable in character,
presenting often the appearance of a cap-
sule perforated at the apex. Amongst the
lower *Algæ* the spores are often furnished
with one or more flagelliform processes, or
with vibrating cilia, by means of which
they move from place to place for a greater
or less time, as if endowed with spontane-
ous motion, till they become attached and
germinate. In most of the subdivisions

sexual differences have been observed; the antheridia, or male organs, containing bodies often closely resembling the spermatozoa of animals. In some of the species fructification does not take place till the threads throw out little processes, by means of which a complete union with one another is established, the endochrome of the joint of one thread passing through their lateral tube and uniting with that of an opposite joint, and then forming a perfect spore.

In many of the lower *Algæ*, as indeed in some of the higher, reproduction takes place for an indefinite time by repeated subdivision of the original individual. At times, however, the proper fruit makes its appearance, and sometimes in such an anomalous form as to cause much perplexity.

Algæ are related on the one hand to Funguses, and on the other to Lichens. Distinctive characters are more easily derived from their respective habits than from differences of structure.

The term *Algæ* had formerly a far wider range than at present, and it is now almost entirely confined to aquatic cryptogams. There is no English word which will comprise the whole. The most convenient, perhaps, is that of *Hydrophytes*, which, however, does not apply to the aerial species, and is objectionable because there are many plants with a submerged habit which are not *Algæ*.

Algæ are divided into three great classes, each of which comprises a number of very distinct groups, the more prominent of which will be noticed in their proper order. These three classes are characterized by the colour of their seeds, which correspond for the greater part with the general tint of the plants.

1. MELANOSPERMÆ, or olive-spored
2. RHODOSPERMÆ, or rose-spored.
3. CHLOROSPERMÆ, or green-spored.

The first of these comprises the olive-coloured species, which from their size and abundance are so conspicuous on our shores, or which float in dense masses, sometimes many leagues in extent, on the surface of the ocean. On our own coasts they attain the length occasionally of twenty feet or more, and in the genus *Laminaria* individuals are sometimes large enough to be a load for a man; but this is nothing to the size attained in the southern seas, or even in some parts of the northern hemisphere. Individuals of the genus *Macrocystis* attain a length of a hundred feet or more, and *Lessonia* forms submarine forests, the stems resembling the trunks of trees. Some of the lower species have nothing like leaves, and are reduced to mere articulated threads, or a shapeless mass.

The second class comprises those charming seaweeds, remarkable for their elegance of form, delicacy of texture, and brilliancy of colour, which attract the at-

tention of all wanderers along the coast. These are often very abundant, but they seldom attain any considerable size, and some of them are as delicate as moulds.

The third class contains most of the smaller species, in which the frond seldom assumes the form of a membrane, but is more frequently reduced to a mere thread, or even to single articulations. A few only are conspicuous objects, amongst which the genus *Caulerpa* is most remarkable, affording on warm sandy coasts an abundant supply of nutritive food for turtles. Of the smaller and more obscure species, in which there is often no point of attachment, we have the most exquisite microscopical objects, exhibiting an almost inexhaustible variety of form and sculpture.

In the two latter classes, more especially, many species are so masked by calcareous matter as to present the appearance of corals, with which productions they have accordingly been arranged. A weak solution of hydrochloric acid, however, soon changes the fixed carbonate of lime into soluble chloride of calcium, and the structure and fruit are then unmasked and found to correspond with those of true *Algæ*. In *Diatomacæ* silex instead of lime is imbedded in the substance of the cells.

Amongst the productions which appear upon rocks exposed to the action of the atmosphere, the lower *Algæ* are often the first to make their appearance. Even the cold surface of snow and ice produce the bright red *Alga*, known under the name of Red Snow, while allied species appear on darker grounds. These gradually, by their decomposition, afford soil for higher growths.

The larger species of *Algæ* afford a useful though coarse article of food to men and domestic animals, not to mention the numberless tribes which they support in their own element. The Laver of our southwestern coasts is, however, considered by many an object of luxury, though, like olives, it is not in general relished at first. With use, however, it is esteemed by many a most acceptable condiment. Many of the rose-coloured *Algæ* abound in gelatine, and in consequence they are collected to make a fine kind of glue, or as a substitute for isinglass. Carrageen or Irish Moss, which consists, in great measure, of common species of *Chondrus*, is a most useful article in cattle feeding, when boiled and mixed with other nutritious matters. Amongst the Chlorosperms, besides the Laver above mentioned, a species of *Noctac* is much used as an ingredient in soup by the Chinese; but it seems not to have much to recommend it beyond the quantity of bassorin which it contains. *Durvillaea nitida* is employed for the same purpose in Chili. The siliceous coats of *Diatomacæ*, of which the substance called Tripoli is entirely composed, form a capital substance for polishing, and the close parallel lines of extreme fineness, with which they are frequently grooved, make them very useful in microscopical researches as a test.

The larger *Algae* were formerly much employed in the manufacture of kelp. More advanced chemical knowledge has, however, entirely suspended the practice, carbonate of soda being now obtained from other sources, to the great detriment of many of the proprietors on the sea-coasts of Scotland. They form also a very valuable manure, and it has lately been proposed by the writer of this notice to manufacture a portable manure from *Algae* partially dried and then ground down with conical crushers, the pulpy mass being mixed with peat ashes and dried in strongly ventilated sheds.

Some of the lower *Algae* approach, as before observed, very near to moulds, and in consequence many of these, when submerged and barren, have been assigned to *Algae*. Such productions, however, as yeast, and other matters which occur in fermenting bodies, are now pretty well understood, and are referred to a more befitting place in the vegetable kingdom. It is very doubtful whether any true *algæ* are parasitic on animals, those which have been supposed to be so, as *Sarcina*, &c., being in all probability *Fungi*. The curious productions which grow on fish and other aquatic animals, as *Leptomitris*, &c., are the only exception, if, indeed, these also should not be excluded. *Algae* extend to the utmost limits of vegetation, and some of them are found at great depths in the sea. The limits of the distribution of species are not so extensive as in *Fungi*, though some have a very wide range. Many fossil species are described, but the nature of the greater part is obscure. [M. J. E.]

ALGAROB. The fruit of *Ceratonia siliqua*. —SOUTH AMERICAN. *Prosopis dulcis*, and others. —DU CHILL. *Prosopis Siliquastrum*.

ALGAROVILLA. The seeds and husks of *Prosopis pallida*, a tannin material obtained from Chili.

ALHAGI. An Arabic name applied to a genus of *Leguminosae*, characterised by having papilionaceous flowers in clusters, the pod stalked, woody, contracted between the seeds, but not dividing into separate joints. The plants are shrubby, with simple leaves and spiny flower stalks, and inhabit Southern Asia and Western Africa. A manna-like substance is produced from some of these plants in Persia and Bokhara, and is collected by merely shaking the branches. It is an exudation from the leaves and branches of the plant, only appearing in hot weather in the form of drops which soon harden by exposure to the air. Camels are very fond of it. *A. masurum*, the plant mentioned as producing it, certainly does not do so in India. The secretion is supposed by some to be identical with the manna by which the Israelites were miraculously fed. [M. T. M.]

ALIAKOO An Indian tree, *Mimocylon tinctorium*, whose leaves are used for dyeing yellow.

ALIBOUFIER. (Fr.) *Silyris officinale*.

ALISIER. (Fr.) *Pyrus Aria*. —DE FOR-
TAINBLEAU. *Crataegus* or *Sorbus latifolia*.
—FRANCHANT or DES BOIS. *Pyrus tor-
minalis*.

ALISMA. The typical genus of *Alismaceae*, characterised by the parallel veins of their leaves, and their unimportant flowers of three lilac petals. *A. Plantago* grows commonly in still water, and bears large smooth, taper-pointed root leaves on long stalks. These are thought to have some resemblance to the leaves of the plantain; and hence its name. The stem, which is leafless, is bluntly triangular, from two to three feet high, much branched in its upper part, and bearing numerous flowers in a loose pyramidal panicle or irregular cluster. It is mainly increased from eorm-like tubers given off from the root, which remain dormant during the winter, and contain a store of nutriment to be employed in the development of the new plant the following year. The solid part of the root contains farinaceous matter, and, when deprived of its acrid properties by drying, is eaten by the Kalmucks. From some fanciful notion that the fearful disease hydrophobia could be counteracted by water-plants, *Alisma* was idly pitched on as a specific by empirics, but is now no longer in repute. Two other species occur in Britain: one of these, *A. natans*, is a floating plant, with larger flowers than the common water plantain; the other, *A. ranunculoides*, is smaller in all its parts, and possesses no attractive qualities. [O. A. J.]

ALISMACEÆ (*Alismoides*), a small group of aquatic plants, with tripetaloid flowers and superior ovaries, each containing only one or two seeds. In some respects, although endogens, they much resemble ranunculaceous exogens, *Ranunculus parnassifolius*, having altogether the appearance of an *Alisma*. Although for the most part natives of the northern parts of the world, some species of *Sagittaria* and *Danthonium* inhabit the tropics. *Alisma* and *Sagittaria* have a fleshy rhizome, which is eatable; a species of the latter genus, *S. sinensis*, is cultivated for food in China, although its herbage is acrid. Various Brazilian *Sagittarias* are very astringent; and their expressed juice is even employed in the preparation of ink. The whole number of species does not exceed fifty, divided among the genera *Alisma*, *Sagittaria*, and *Danthonium*, which see.

ALK. A gum-resin obtained in North Africa from *Pistacia Terebinthus*.

ALKANET. The root of *Alkanna tinctoria*, which is used as a dye. Also applied in America to *Lithospermum canescens*.

ALKANNA. A genus of Mediterranean and Oriental *Boraginaceae*, closely allied to *Lithospermum*, of which it perhaps ought

to be considered a section, as it only differs by having the four small nuts which form the fruit contracted at the base. In habit it is, however, more like *Anchusa*, but the absence of scales closing the throat of the corolla, and the nuts not excavated at the base, are distinctive characters. The species are hispid or pubescent herbs, with oblong entire leaves and bracteated racemes, rolled up before the flowers expand. The corolla is rather small, between funnel and salver-shaped; usually purplish blue, but in some species yellow or whitish; the calyx enlarges in fruit. The root, which is often very large in proportion to the size of the plant, yields a red dye from the rind in many of the species. Alkanet, (*A. tinctoria*, *Anchusa tinctoria* of some authors, and *Lithospermum tinctorium* of others) is cultivated in Central and Southern Europe on account of this dye, which is readily extracted by oils and spirit of wine. It is employed in pharmacy to give a red colour to salves, &c., and in staining wood in imitation of rosewood, which is done by rubbing with oil in which the Alkanet root has been soaked. About eight or ten tons are annually imported from France and Germany. It is also said to be used in colouring some of the mixtures called by courtesy port wine; so it is to be feared that the whole quantity grown may not be applied to the legitimate purposes first mentioned. It is, however, perfectly harmless, which is so far satisfactory. [J. T. S.]

ALKE'KENGÉ. (Fr.) *Cardiospermum Halicababum*. — JAUNE DOUË. *Physalis pubescens*.

ALKEKENGÍ. The common Winter Cherry, *Physalis Alkekengi*.

ALLAMANDA. A genus of *Apocynaceæ* consisting of handsome climbing shrubs, found in Brazil and other parts of South America. They are well known in gardens, where they are prized for the gorgeous profusion of their rich golden flowers. The peculiarities of the genus reside in a small five-parted calyx; a large funnel-shaped corolla, having the tube narrow and cylindrical, the limb campanulate, and then spreading out into five obtuse lobes, the throat bearing five ciliated scales; five included stamens inserted in the throat, and a one-celled compressed ovary, containing numerous ovules. There are several species. *A. Aubletii*, one of the commonest found in Guiana, is a shrub with long trailing branches, bearing whorls of oblong-lanceolate leaves, and terminal or interpetiolar many-flowered panicles of large, showy, rich yellow flowers, of which the tube is an inch long or more; and the limb forms an irregular bell, about two inches long. Another still finer species, of similar habit, *A. Schottii*, a native of Brazil, has larger flowers, which are of a full yellow, funnel-formed, the lower half, or rather less, forming a narrow contracted tube, thence suddenly expanding into a cam-

pan (throat), of a deeper yellow; the limb of five rotundate spreading segments, often with a tooth or angle on one side. *A. nerifolia*, another Brazilian species, has a more compact shrubby habit of growth, broader, more oblong leaves, and a panicle of many flowers, which are really terminal, but by and by become lateral, from innovations, or young shoots, which grow past them and terminate also in clusters of flowers. The flowers of this species have a shorter tube and a longer faux or throat, and are deep yellow, streaked with orange. Though generally producing yellow flowers, the family yields, in the *A. violacea* described by Dr. Gardner, a species with flowers of a reddish-violet colour. The genus has, moreover, a medicinal reputation; the leaves of *A. cathartica* (perhaps not different from *A. Aubletii*, already mentioned) being considered a valuable cathartic in moderate doses, especially in the cure of painters' colic, though in over-doses it is said to be violently emetic and purgative. An infusion of the leaves is used in Surinam as a remedy for colic. [T. M.]

ALLANTODIA. A genus of polypodiaceous Ferns, belonging to the *Asplenium*, among which they are distinguished by having the indusia simple and distinct; the veins of the frond reticulated, with free veinlets at the margin; and a vaulted or convex indusium. As thus defined, it includes one Indian species, *A. Brunontana*, with pinnated fronds of large size. With this are sometimes associated various free-veined species, with short tumid sori, which are not distinct from *Asplenium*. [T. M.]

ALLELUIA. (Fr.) *Oxalis Acetosella*.

ALL-GOOD. An old English name for *Chenopodium Bonus Henricus*.

ALL-HEAL. *Valeriana officinalis*. CLOWNS. *Stachys palustris*.

ALLIACEOUS. Having the smell of garlic.

ALLIAIRE. (Fr.) *Sisymbrium Alliaria*, often called *Erysimum Alliaria*, or *Alliaria officinalis*.

ALLIEZ. *Ervum Ervilia*.

ALLIGATOR WOOD. The timber of *Guarea grandifolia*.

ALLIONIA. A name given in honor of Charles Allioni, an Italian botanist, and applied to a genus of plants of the order *Nyctaginaceæ*. Some of them are cultivated as annuals in this country, though natives of central America. They are characterised by their flowers being placed within a three- or four-parted involucre; four free stamens arising from below the ovary, and included within the perianth, not projecting from it. The ovary is superior. [M. T. M.]

ALLIUM. A genus of bulbous plants of the Lily family, remarkable for their pungent odour, having grassy or fistular

leaves, and star-shaped six-parted hexandrous flowers, growing in an umbel at the top of the scape. The species are numerous, very few of them ornamental; but several are cultivated as esculents.

The Onion, *A. Cæpe*, has been known and cultivated as an article of food from the very earliest period. Its native country is unknown, but it is believed to have originated in the East. In the sacred writings (Numbers xi. 5) we find it mentioned as one of the things for which the Israelites longed when in the wilderness, and complained to Moses. To show how much it was esteemed by the ancient Egyptians, we need only mention that Herodotus says in his time there was an inscription on the Great Pyramid, stating that a sum amounting to 1,600 talents had been paid for onions, radishes, and garlic, which had been consumed by the workmen during the progress of its erection. Even at the present day, the people of Western Asia, as well as the inhabitants of cold countries, are all large consumers of Onions, which, for culinary purposes, are more universally cultivated than almost any other vegetable. It is distinguished from other alliaceous plants by its larger fistular leaves, swelling stalk, and coated bulbous root. The uses to which it is applied are very numerous. From the time the plants are as large as an ordinary needle, until they attain the height of five or six inches, they are chopped and mixed in salads, which, according to the witty Sydney Smith, would not be perfect without them—

'Let onions, *atoms*, lurk within the bowl,
And, scarce suspected, animate the whole.'

When bulbing and mature, they form an indispensable component in all soups and stews; at least, Dean Swift says—

'This is every cook's opinion—
No savoury dish without an onion;
But lest your kissing should be spoiled,
Your onions should be thoroughly
boiled.'

The smaller-sized bulbs are highly prized for preserving in vinegar as a pickle. A number of varieties are cultivated, and esteemed in proportion to their being hardy, and good keepers.

The Underground, or Potato Onion, is supposed to be a variety of the common Onion, which it greatly resembles, but has the singular property of multiplying itself by the formation of young bulbs on the parent root, and thus produces an ample crop below the surface. Like the potato, its origin is not exactly known; but, from being sometimes called the Egyptian Onion, it is supposed to have been originally brought from Egypt about the beginning of the present century. In the West of England it is much cultivated, being quite hardy, productive, and as mild in quality as the Spanish onion.

The bulb-bearing Tree-Onion, *A. Cæpe ver. bulbiferum*, was introduced from Canada in 1820, and is considered to be a viviparous

variety of the common Onion, which it resembles in appearance. It differs in its flower-stem being surmounted by a cluster of small green bulbs, instead of bearing flowers and seed. These bulbs are very similar to small Onions, and are said to be excellent in pickles, for which their diminutive size is a great recommendation.

The Welsh Onion is *A. fistulosum*. How this obtained the name of Welsh Onion it is impossible to say, as it is a native of Siberia and certain parts of Russia, where it is known as the Rock Onion, or Stone Leek, and regarded as an article of food. It has been cultivated in this country since 1620. It never forms a bulb like the common Onion, but has long tapering roots and strong fibres. From being very hardy, it is sometimes sown to furnish small green onions for spring salads.

The Leek, *A. Porrum*, is of great antiquity, and, although said to be a native of Switzerland, and to have been introduced in 1563, we think it is far more probable that, like the Onion, it originated in the East, mention being made in the sacred writings of both having been cultivated by the Egyptians in the days of Pharaoh. According to Pliny, Leeks were brought into great notice by the Emperor Nero, and the best were produced at Aricia, in Italy. Tusser and Gerard, two of our earliest writers on gardening, speak of the Leek almost as if it were indigenous and in common use in their time. It is still very generally cultivated, not only in England, but more especially in Scotland and Wales, where it is esteemed as an excellent and wholesome vegetable. The whole plant, except the roots, is used in soups and stews. The stems are blanched by being planted deep for the purpose, and are much used in French cookery. The Leek, from time immemorial, has been regarded as the badge of Welchmen, who continue to wear it on St. David's day, in commemoration of a victory which the Welch obtained over the Saxons in the sixth century, and which they attributed to the Leeks they wore by the order of St. David to distinguish them in the battle.

The Shallot, *A. ascalonicum*, is a hardy bulbous perennial, native of Palestine, and more immediately of the neighbourhood of the once famous city of Ascalon, where Richard the First, King of England, defeated Saladin's army in 1192. It was first brought to this country in 1548. The bulbs are compound, separating into what are termed cloves, like those of garlic. They are used for culinary purposes, like onions, but are considered milder in flavour. In a raw state, they are occasionally cut very small and used to season chops or steaks; or mixed in winter salads. In French cookery, the Shallot is in great request, and several varieties are noticed by French writers, which have scarcely any other difference than that of the bulbs being larger or smaller than the ordinary size. They make an excellent pickle; and, by putting half a dozen cloves

into a quart bottle of vinegar, an agreeable sauce may be formed.

The Garlic, *A. sativum*, is a hardy bulbous perennial, indigenous to the South of France, Sicily, and the South of Europe. It is stated to have been introduced in 1548, but appears to have been well known to the ancients. Homer makes it part of the entertainment which Nestor served up to his guest Machaon; and among the Greeks and Romans we are told it formed a favourite viand of the common people. Even at the present day, in many parts of the Continent the peasantry eat their brown bread with slices of Garlic, which give it a flavour they seem to relish. At Ovar, in Portugal, a great deal of this root is grown for exportation to Brazil. The bulb is compound, being composed of ten or twelve smaller bulbs, called cloves; and, although seldom employed with us, it is much used in Italian cookery for flavouring dishes, and is far more powerful for this purpose than any of the other species.

The common Chive or Clive, *A. Schanoprasum*, is indigenous to Britain, having been found in Oxfordshire, as well as in Argyleshire, in the West of Scotland. It is perennial. The leaves, which rise from small slender bulbs, are about six or eight inches long, erect, awl-shaped and thread-like, and form dense tufts. They are generally cut off close to the ground, and used early in spring for salads, for which purpose they are much milder than onions or scallions—a name usually given to onions which have been sown thick for drawing, without forming bulbs. They are also used for seasoning soups, omelets, &c. In England they are little known; but in Scotland they are to be found in almost every cottage garden.

Rocamboles, *A. Scorodoprasum*, is a native of Denmark and other parts of Europe, whence it was introduced in 1596. It is a hardy, bulbous-rooted perennial, with compound bulbs like garlic, but the cloves are smaller. It is used for nearly the same purposes as the shallot and garlic; and, although its flavour is considered more delicate than either, it is not much cultivated in this country. [W. B. B.]

ALLOBIMUM. A genus of *Viscaceae*, consisting of yellowish-green woody parasites on the branches of trees, with jointed, much-branched stems; thick firm persistent leaves, or only scales in their place; and small axillary spikes of flowers. The flowers are dioecious; the calyx is globular and three-lobed, each lobe in the male flowers bearing a transversely two-celled sessile anther; in the female flowers the calyx tube adheres to the ovary, which has a sessile obtuse stigma. The ovary contains a single pulpy seed, with a small embryo. The species of this genus are natives of America. [W. O.]

ALLOPLECTUS. A genus of *Gesneraceae*, distinguished by having a free, coloured, five-leaved calyx; a funnel-shaped or club-tubulose corolla, with the tube gibbous at

the base behind, and often ventricose in front above, the limb five-toothed or shortly five-cleft; four didynamous included stamens, with the rudiment of a fifth; and a free ovary surrounded by an annular disk. The genus consists of tropical American soft-wooded or sub-shrubby plants, of scandent habit, with opposite, fleshy, often unequal leaves, and axillary flowers which are solitary or aggregated, sessile or racemose. There are several species, most of which form desirable hot-house plants. *A. dichrous* is a Brazilian sub-shrub, of erect habit, with ovate-oblong entire leaves, having several flowers seated in their axils; these flowers consist of a large purple-red calyx of five triangular or cordate lobes, the three outer of which are larger and include the two inner, and of a large club-shaped tubular yellow hairy corolla, the colour of which contrasts strongly with that of the calyx. *A. concolor* is of similar habit, but has rather smaller flowers, of which both calyx and corolla are scarlet. The corolla in this latter plant is inserted at what appears to be the side of the tube near the base, and thus forms a blunt spur, whilst above it is remarkably ventricose on the upper side, with the mouth very oblique, as if the opening were at the side opposite to that by which it is affixed, thus producing a very singularly curved flower. *A. capitatus* is very distinct from the foregoing kinds, having tall stout red stems and large ovate leaves, from which the axils of the uppermost leaves are produced on short stalks, a few dense globular heads or umbels of flowers, having a very large blood-coloured calyx, and a comparatively small yellow tubular corolla. The most remarkable peculiarity of the genus among gesneraceous plants, is the large coloured calyx, which adds much to the beauty of the flowers. [T. M.]

ALLOSORUS. A genus of dwarf elegant polypodiaceous Ferns, variously referred to the *Polypodieae*, the *Chelanthaeae*, and the *Pterideae*. They have punctiform sori at the apices of the free veins, and are without true indusia, the margin of the fronds being folded over the sori cases and somewhat altered in texture, so as to become indusia. Added to this, their fronds are dimorphous, the fertile and sterile being different in character, the former contracted by the involution of their margins, so that the divisions become pod-shaped or siliciform. One of the species, *A. crispus*, is a native of England, and is found also throughout Europe and in North America. This is a pretty dwarf deciduous species, with bipinnate or tripinnate fronds. It is called the Rock Brake. There is another species, *A. Stelleri*, found in Siberia, India, and North America. The genus has a very close affinity with *Cryptogramma*. The name has been applied to various other ferns, especially to certain species which are more correctly referred to *Chelanthaeae* and *Platy-loma*. [T. M.]

ALLOUCHIER. (Fr.) *Pyrus Aria*.

ALLSEED. The common name for *Polycarpon*. Also sometimes applied to *Che-nopodium polyspermum*, and *Radiola Mil-legrana*.

ALLSPICE. The fruit of *Eugenia Pi-mentia*. — CAROLINA. *Calycanthus floridus*. — JAPAN. The common name for *Chimo-nanthus*. — WILD. *Benzoin odoriferum*.

ALLSPICE TREE. The common name for *Calycanthus*.

ALLUBODON, ALUBO. The wood of *Calyptranthes Jambolana*, a common build-ing material in Ceylon.

ALMEIDIA. The founder of this genus of Rutaceous trees has devoted it to a Portuguese nobleman who assisted him in prosecuting his botanical researches in Brazil. The genus is allied to *Diosma*, but is known by its five equal, spoon-shaped petals, five fertile distinct stamens with flattened hairy filaments, an hypogynous cup-shaped disc, and a fruit opening by two valves. *A. rubra* is a handsome shrub with rose-coloured flowers, sometimes seen in hot-houses. [M. T. M.]

ALMOND. The fruit of *Amygdalus com-munis*: the Bitter and Sweet Almonds are the produce of different varieties of this species. — AFRICAN. *Brachyum stellat-foitum*. — COUNTRY. The fruit of *Ter-minalia Catappa*. — JAVA. *Canarium commune*.

ALMOND-WORTS. An English name proposed for the group *Drupaceae*.

ALNUS. A family of trees belonging to the natural order *Betulacea*, and all more or less approaching in character the com-mon Alder, *A. glutinosa*. They inhabit most temperate countries of the northern hemisphere, and delight in a moist soil. The common Alder, in its young state, is a bushy shrub of a pyramidal form, heavily clothed with dark green leaves, which, as well as the young shoots, are covered with a glutinous substance. The leaves are stalked, roundish, blunt, jagged at the edge, shining above, and furnished at the angles of the veins beneath with minute tufts of whitish down. The flowers are of two kinds; the barren are long drooping catkins, which appear in the autumn and hang on the tree all the winter; and the fertile are oval, like little fir-cones, but are not produced till spring. When these ripen, the thick scales of which they are com-posed separate, and allow the seeds to fall, but remain attached to the tree themselves all the winter, and by them the tree may be distinguished when stripped of all its leaves. In young trees the bark is smooth and of a dark purple-brown hue, but in old trees it is rugged and nearly black. When allowed to attain its full growth, it reaches a height of forty or fifty feet, if the situa-tion be favourable; but in the mountains and in high latitudes it does not rise above a shrub. The wood of the Alder is soft

and light; and if exposed alternately to wet and dry, will scarcely last a year; but if kept entirely submerged, or buried in damp earth, no wood is more durable. By lying for a long time in peat bogs, it acquires a black hue, but from its softness will not take a good polish. The young branches are much used for the purpose of filling in drains, and are more durable than any other kind of brushwood. The charcoal is highly valued in the manufacture of gun-powder, for which purpose it is in some places largely planted. The colour of the wood when first cut is white, but by ex-posure it becomes of a bright orange-red, as is shown by the chips which are left about where a tree has been felled. Several varieties are grown which differ from the typical species in having laciniated, lobed, or variegated leaves. Of the other species enumerated by Loudon, *A. cordifolia*, a na-tive of Italy, is well adapted to this cli-mate. It grows with rapidity, and is a most interesting and ornamental tree. The common Alder is the badge of the clan Chis-holm. [C. A. J.]

ALOCASIA. A name applied to a sec-tion of the genus *Colocasia*, by some con-sidered as a distinct genus. The species are natives of India, with petiolate leaves springing from an erect root-stock; spathes glaucous, on short stalks. [M. T. M.]

A. metallica is a magnificent Bornean species, with very large cordate-ovate pe-tolate leaves, having a rich bronze-coloured surface, and is a very conspicuous orna-ment of our hot-houses. The leaves look like great polished metal shields. [T. M.]

ALOE. A Latinised form of an Arabic name given to a genus of succulent plants of the Lily family (*Liliaceae*). The species of the genus vary very much in height, and in the appearance of their leaves and flowers, but are especially distinguished from al-lied genera by their having a stem, some-times a very short one; permanent fleshy leaves; flowers arranged in erect spikes or clusters, each with a cylindrical perianth divided into six pieces, secreting nectar at the base; six stamens arising like the perianth from below the germen; a mem-branous fruit, consisting of three cells, each containing a great number of seeds. The species of Aloe are abundant in all warm countries, especially in the southern part of Africa and the Isle of Socotra, where 'the bristling aloes' give a character of their own to the landscape.

A. vulgaris, a native of the East and West Indies has been introduced into Italy, Sicily, Malta, and the Mediterranean region in general. The most important product of this genus is the drug known as aloes, which is the dried juice derived from the leaves of several species in the East and West Indies, Cape of Good Hope, and elsewhere. The finest kind of aloes is supposed to be derived from *Aloe socotrina*. The bitter resinous juice is stored up in greenish vessels, lying beneath the skin of the leaf, so that when the leaves are cut transversely, the juice exudes and is gradu-

ally evaporated to a firm consistence. The inferior kinds of aloes are prepared by pressing the leaves, when the resinous juice becomes mixed with the mucilaginous fluid from the central part of the leaves, and becomes proportionately deteriorated. In other cases the leaves are cut in pieces and boiled, and the decoction evaporated to a proper consistence.

The drug is imported in chests, in skins of animals, and sometimes in the cavity of large calabash gourds. It is largely used as a purgative, and in small doses as a tonic; the taste is peculiarly bitter and disagreeable, though the perfume of the finer sorts, when breathed on, is aromatic, and by no means so offensive as the taste. What is called aloes fibre seems rather to be the produce of an *Agave*, though it is stated that the negroes of Western Africa make nets and cords of the fibres of various species of *Aloe*.

Many of the species of *Aloe* are cultivated in this country, being extremely easy to grow, if planted in a dry soil and very little if any water supplied to them in the winter season. The thick leathery skin of the leaves prevents the internal moisture from escaping so readily, hence these plants retain their vitality for a long time under apparently adverse circumstances.



Aloe ferax.

Sailors sometimes bring home pieces of Aloe from the West Indies with a tarred cloth tied tightly round the cut end, so as to prevent the escape of the juices. Dr. Pereira mentions having had such a specimen suspended from the ceiling of his room for two years, and it was still living and growing when he wrote.

What is commonly known as the Ame-

rican Aloe is a species of *Agave* much like an *Aloe* in general appearance, but particularly distinguished from it by the perianth being adherent to the ovary, or, as it is called, superior. (M. T. M.)

ALOE, AMERICAN. *Agave americana*.
—**FALSE.** *Agave virginica*.

ALOE'S BEC DE CANNE. (Fr.) *Aloe*, or *Gasteria disticha*. — **CORNE DE BE'LIER.** *Aloe arborescens*. — **LANGUE-DE-CHAT.** *Aloe* or *Gasteria lingua* and *angulata*. — **POUCE-E-CRASE.** *Aloe retusa*.

ALOES-WOOD. The wood of *Alcockylon Agallochum*.

ALOEXYLON. The name of a genus described by Loureiro, and doubtfully referred to *Leguminosae*, which is said to grow on the high mountains of Cochin China. There is but one species, *A. Agallochum*, which is described as being a tree of about sixty feet in height, with simple, alternate, stalked, entire, lanceolate leaves, and terminal panicles of small flowers. The wood of this tree is one of the two woods known as Calambae, Lign-aloes or Eagle-wood. It yields the perfume the most esteemed by Orientals, who apply it to their clothes and apartments, and use it in medicine, in the treatment of paralytic affections. The perfume by some is said to originate by the concoction of oily particles into a resin; which action takes place in the centre of the trunk, and is occasioned by a disease which ultimately causes the death of the tree. This is, however, questioned by others. The wood is very valuable—selling at about 80¢ per cwt. in Sumatra. It is sometimes used for inlaying in cabinet work. Some of the most precious jewels of East Indian manufacture are set in it; and, so highly is it prized, that it is considered equal to gold in point of value. The perfume derived from it is thought by some to be alluded to in the Bible, where it is said (Psalm xiv. 8), 'All thy garments smell of myrrh, aloes, and cassia.' The wood is said to retain its fragrance for years. Many conflicting statements have been published about this tree, and the *Agularia Agallocha*, which is also called Eagle-wood, and belongs to a very different family; and it is possible that some of the statements above given may apply to the *Agularia* rather than to the plant under consideration, which is, botanically almost unknown. [A. A. B.]

ALONA. A small genus of South American *Nolamaceae*, separated from *Nolana* by having several ovaries, with from one to six cells (not five, each of them four-celled, as in *Nolana*). Mr. Miens restricts the genus *Alona* to the species with woody stems and fasciculate terete or trigonous leaves, as he finds that, in the allied genus *Sorema*, the way in which the carpels are combined varies in the same genus, and therefore cannot by itself be sufficient to make a generic distinction. The species have large handsome flowers, resembling those of the bindweeds. *A. coccinea* is cultivated

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ALOE. A Latinised form of an Arabic name given to a genus of succulent plants of the Lily family (*Liliaceae*). The species of the genus vary very much in height, and in the appearance of their leaves and flowers, but are especially distinguished from allied genera by their having a stem, sometimes a very short one; permanent fleshy leaves; flowers arranged in erect spikes or clusters, each with a cylindrical perianth divided into six pieces, secreting nectar at the base; six stamens arising like the perianth from below the germen; a membranous fruit, consisting of three cells, each containing a great number of seeds. The species of Aloe are abundant in all warm countries, especially in the southern part of Africa and the Isle of Socotra, where 'the bristling aloes' give a character of their own to the landscape.

A. vulgaris, a native of the East and West Indies has been introduced into Italy, Sicily, Malta, and the Mediterranean region in general. The most important product of this genus is the drug known as aloes, which is the dried juice derived from the leaves of several species in the East and West Indies, Cape of Good Hope, and elsewhere. The finest kind of aloes is supposed to be derived from *Aloe spicata*. The bitter resinous juice is stored up in greenish vessels, lying beneath the skin of the leaf, so that when the leaves are cut transversely, the juice exudes and is gradu-

ally evaporated to a firm consistence. The inferior kinds of aloes are prepared by pressing the leaves, when the resinous juice becomes mixed with the mucilaginous fluid from the central part of the leaves, and becomes proportionately deteriorated. In other cases the leaves are cut in pieces and boiled, and the decoction evaporated to a proper consistence.

The drug is imported in chests, in skins of animals, and sometimes in the cavity of large calabash gourds. It is largely used as a purgative, and in small doses as a tonic; the taste is peculiarly bitter and disagreeable, though the perfume of the finer sorts, when breathed on, is aromatic, and by no means so offensive as the taste. What is called aloes fibre seems rather to be the produce of an *Agave*, though it is stated that the negroes of Western Africa make nets and cords of the fibres of various species of *Aloe*.

Many of the species of *Aloe* are cultivated in this country, being extremely easy to grow, if planted in a dry soil and very little if any water supplied to them in the winter season. The thick leathery skin of the leaves prevents the internal moisture from escaping so readily, hence these plants retain their vitality for a long time under apparently adverse circumstances.



Aloe ferox.

Sailors sometimes bring home pieces of Aloe from the West Indies with a tarred cloth tied tightly round the cut end, so as to prevent the escape of the juices. Dr. Pereira mentions having had such a specimen suspended from the ceiling of his room for two years, and it was still living and growing when he wrote.

What is commonly known as the Ame-

rican Aloe is a species of *Agave* much like an *Aloe* in general appearance, but particularly distinguished from it by the perianth being adherent to the ovary, or, as it is called, superior. (M. T. M.)

ALOE, AMERICAN. *Agave americana*.
—**FALSE.** *Agave virginica*.

ALOE'S BEC DE CANNE. (Fr.) *Aloe*, or *Gasteria disticha*. — **CORNE DE BE'LIER.** *Aloe arborescens*. — **LANGUE-DE-CHAT.** *Aloe* or *Gasteria linguata* and *angulata*. — **POUCE-CORASE.** *Aloe retusa*.

ALOE-WOOD. The wood of *Alcockia gallocha*.

ALOEXYLON. The name of a genus described by Loureiro, and doubtfully referred to *Leguminosae*, which is said to grow on the high mountains of Cochin China. There is but one species, *A. Agallochum*, which is described as being a tree of about sixty feet in height, with simple, alternate, stalked, entire, lanceolate leaves, and terminal panicles of small flowers. The wood of this tree is one of the two woods known as Calambac, Lign-aloes or Eagle-wood. It yields the perfume the most esteemed by Orientals, who apply it to their clothes and apartments, and use it in medicine, in the treatment of paralytic affections. The perfume by some is said to originate by the concoction of oily particles into a resin; which action takes place in the centre of the trunk, and is occasioned by a disease which ultimately causes the death of the tree. This is, however, questioned by others. The wood is very valuable—selling at about 30*l.* per cwt. in Sumatra. It is sometimes used for inlaying in cabinet work. Some of the most precious jewels of East Indian manufacture are set in it; and, so highly is it prized, that it is considered equal to gold in point of value. The perfume derived from it is thought by some to be alluded to in the Bible, where it is said (Psalm xiv. 8), 'All thy garments smell of myrrh, aloes, and cassia.' The wood is said to retain its fragrance for years. Many conflicting statements have been published about this tree, and the *Aquilaria Agallocha*, which is also called Eagle-wood, and belongs to a very different family; and it is possible that some of the statements above given may apply to the *Aquilaria* rather than to the plant under consideration, which is, botanically, almost unknown. [A. A. R.]

ALONA. A small genus of South American *Nolaceae*, separated from *Nolana* by having several ovaries, with from one to six cells (not five, each of them four-celled, as in *Nolana*). Mr. Miers restricts the genus *Alona* to the species with woody stems and fasciculate terete or trigonous leaves, as he finds that, in the allied genus *Sorema*, the way in which the carpels are combined varies in the same genus, and therefore cannot by itself be sufficient to make a generic distinction. The species have large handsome flowers, resembling those of the bindweeds. *A. calceola* is cultivated

in this country for the beauty of its large pale blue flowers. It is a native of the coast of Chili.

[J. T. S.]

ALONSOA. A small group of the *Scrophulariaceae*, forming dwarf frutescent herbs, with opposite or ternately whorled serrated leaves, and axillary, subracemose, pretty vermilion-coloured flowers. They are commonly cultivated in green-houses, and in the open air during summer. The characteristic features are a five-parted, sub-equal calyx; a resupinate corolla, having a very short tube, and a sub-rotate, five-cleft limb, of which the front, or upper lobe, is larger, and all rotundate; four didynamous declinate exserted stamens, affixed to the corolla tube; and a two-celled many-seeded ovary. The few species are mostly natives of Peru, where one of the species is famed for its anodyne and stomachic properties; and several of them have been introduced to our gardens. *A. linearis*, a pretty dwarf, bushy, suffruticose plant, of a span or foot in height, has the leaves, which are narrow linear, opposite or in threes, mostly fasciculate, from the non-evolution of the axillary shoots; and the branches terminate in racemes of curious, obliquely-rotate scarlet flowers, with a black spot at the base. In Peru it is called *Ricaco* and *Ricarco*, which mean Mask-flower. One of the best known species, *A. maculata* (sometimes called *celata* or *aricaensis*), has ovate, acute, deeply-toothed leaves, and elongated racemose panicles of scarlet and black flowers. *A. Warszewiczii*, obtained from the mountains of Peru, has racemes of scarlet flowers, without the black spot which is conspicuous in the other species already noticed. Both are erect branched subshrubby plants. There are about a dozen described species.

[T M.]

ALOPECURUS. A genus of Grasses called Fox-tail Grasses, of the tribe *Poaceae*, distinguished from *Phleum*, to which some of the species are nearly allied, by having only one inner glume or pale to each flower, this bearing a long awn attached to the back portion of it. The species are mostly from temperate climates, and have an extensive range from their southern to their northern limits. Among those which are natives of Britain, the meadow Fox-tail Grass is one of the very best kinds, and forms a portion of all good pastures and meadows—particularly on limestone soils: the seeds are consequently sown in most instances as part of a mixture of grass seeds. It is one of the earliest kinds to flower in spring, and, when chemically analysed, is found to contain a large share of nutritive matter in its composition. The other species which are natives of Britain are of less agricultural value. The alpine Fox-tail Grass (*Alopecurus alpinus*) is one of the rarest native species, being much prized and eagerly sought after as a botanical rarity.

[D. M.]

ALOYSIA. The genus to which the lemon-scented Verbena (*V. triphylla*), is sometimes referred.

ALPHONSEA. Certain Indian plants are comprised in a genus bearing the above name, in honour of M. Alphonse de Candolle, the eminent botanist who has especially studied the natural order *Anonaceae*, to which this genus belongs. Its principal characters are—petals valvate in the bud, nearly equal in size; stamens loosely imbricate. By these circumstances the genus may be distinguished from its nearest ally, *Saccolatum*. The species comprise tall trees furnished with thick shining leaves, and small flowers, closely packed in tufts opposite to the leaves.

[M. T. M.]

ALPINIA. A genus of plants deriving its name from Prosper Alpinus, an Italian botanist who lived in the 16th century. The genus belongs to the same natural family as the ginger (*Zingiberaceae*), and is known by its thick, tuber-like, aromatic rhizomes; and by its flowers arranged in terminal spikes. Each flower has an outer row of three pieces, and an inner of four pieces, the lowermost of which is three-lobed. The filament is petal-like, and not prolonged beyond the two-lobed anther, as in some of the plants of this order. Stigma triangular, on a long style. The fruit is a somewhat fleshy capsule of three many-seeded cells. The species are natives of tropical America, the Indian Archipelago, etc. *A. Galanga* and other kinds furnish the aromatic stimulant root known as Galangale root, employed by the natives in cases of indigestion. The fruits of *A. alba* are known as ovoid China Cardamoms; others, as *A. nutans*, are remarkable for the exceeding beauty of their flowers, and are therefore cultivated in our stoves.

[M. T. M.]

ALPISTE. (Fr.) *Phalaris canariensis*.

ALSINE. A genus of small Caryophyllaceous herbs, generally distributed in temperate regions, and in alpine situations in warmer climates; closely resembling *Arenaria*, from which it differs by having the valves of the capsule equal in number to the styles, and not twice as many. The leaves are generally narrow, often subulate; the sepals strongly nerved; the petals white. Four species are natives of Britain: *A. verna*, a tufted perennial, with the petals longer than the calyx; *A. rubella*, a tufted alpine perennial, with short flower-stalks, and the petals not exceeding the calyx; *A. uliginosa*, also tufted perennial, with the petals scarcely exceeding the calyx, but with long pedicels and smaller flowers than the last; and *A. tenuifolia*, a slender annual, not uncommon on wall tops and on dry commons in the South-east of England.

[J. T. S.]

ALSOIDEA. A genus of ornamental plants, belonging to the order *Violaceae*, and inhabiting the islands of Madagascar and Timor. Some of the species are cultivated in this country. They are distinguished by their petals being all equal in size; by the absence of scales between the petals and stamens; the stamens spring from a disc surrounding the base of the

ovary, free above; filament dilated, not narrowed into a claw. They are woody plants, with white flowers, and thickly beset with leaves; hence the name—from the Greek *alsodes*, leafy. [M. T. M.]

ALSOPHILA. A genus of cyatheaceous Ferns, representing the *Alsophyllæ*: often becoming magnificent unbranched trees. Among the cyatheaceous Ferns, which are known by the obliquity of the ring of their spore-cases, and by having an elevated receptacle, *Alsophila* is distinguished, primarily, by the absence of any indusium or cover to the sorus; and, secondarily, by producing only one sorus on each vein or venule. There are a considerable number of species, some of which have been imported for the decoration of our hot-houses. The species have bipinnate fronds, and a considerable number of them are found in the West Indies, South America, and Mexico, a few in Australia and the South Sea Islands, and several more in the East Indies and Malay Islands. *A. excelsa*—a native of Norfolk Island—is stated by Capt. King to grow to a height of eighty feet. 'The branches (fronds), which resemble those of the palm-tree in their growth, fall off every year, leaving an indentation on the trunk. The middle of the tree, from the root to the apex, consists of a white substance, resembling a yam, which, when boiled, tastes like a bad turnip: this the hogs feed on greedily. The outside of the trunk is hard wood, and full of regular indentations, from the top to the bottom.' Another tree of the same genus, cut down by Mr. Allan Cunningham, was fifty-seven feet long without the fronds; and Mr. Backhouse measured some forty feet high, crowned with magnificent circular crests of fronds. It is altogether a noble plant, having the stipes and main rachis of its fronds muricate, or rough, with small raised points. The fronds are bipinnate; the pinnules, or secondary divisions, oblong-lanceolate, acuminate, pinnatifid, with oblong acutish segments. *A. australis*, from the same region, is another fine species. In Tasmania, where Mr. Backhouse met with tree ferns in profusion, this species was seen with stems of all degrees of elevation up to twenty-five or thirty feet, some of them at the lower part as stout as a man's body, the whole length clothed with the bases of old leaves, which were rough, like the stems of raspberries, closely tiled over each other, and pointing upwards. Some of the larger fronds were thirteen feet long—making the diameter of the crest twenty-six feet. Some of the Indian species are also remarkable for their stature. There is preserved in the British Museum a stately trunk, forty-five feet long, of *A. Brunonianæ*; and another of equal height, belonging to *A. gigantea*, is in the museum of the Linnæan Society of London. Some of the species are, however, without these elongated trunks, although all produce fronds of large size. [T. M.]

ALSOPHILÆ. A section of cyatheæ-

ous Ferns, in which the sort have no cover. The plants referred to here are sometimes not easily distinguished from *Polypodium*, the compression of the spore cases being less marked, and the receptacle less obviously elevated than in the more typical species. [T. M.]

ALSTONIA. A genus of the Periwinkle family (*Apocynaceæ*) differing from most others in the seeds having a tuft of silky hairs at each end, instead of at one end only; and from its nearest ally, *Blaberopus*, in the absence of the two nectary scales seen in the flowers of that genus. There are about a dozen species distributed over India, the Moluccas, tropical Australia, and West Africa. They are trees or shrubs with milky juice; opposite, often whorled, and entire leaves; small white flowers disposed in cymes at the ends of the branches, the corolla funnel-shaped with a flat border of five rounded lobes; and fruits consisting of two cylindrical pods (*follicles*) the thickness of a quill, and often a foot in length.

A. scholaris, called Devil-tree or Pali-mara about Bombay, is a widely-diffused plant in India and the Moluccas. It is a tree of fifty to eighty feet, with a furrowed trunk; oblong stalked leaves, three to six inches long, and two to four wide, disposed in whorls of four to six round the stem, their upper surface glossy, the under white, and marked with nerves running at right angles to the midrib. It has a powerfully bitter bark, which is used by the natives in India in bowel complaints, and its light wood is used in Ceylon for making coffins. The wood taken from near the root of what appears to be the same species in Borneo, is of a white colour, very light, and used for floats for nets, and household utensils, as trenchers, corks, &c. The genus bears the name of Alston, once Professor of Botany at Edinburgh. [A. A. B.]

ALSTRÖMERIA. A genus of very handsome Amaryllidaceous plants, distinguished by having a six-parted regular subcampanulate perianth, of which the interior segments are narrower, and two of them somewhat tubulose at the base; six stamens inserted with the perianth; a trifid stigma; and an inferior three-celled ovary with many horizontal ovules. They are tropical or extra-tropical herbs of South America, with fasciculate tuberous roots, and erect leafy stems, terminating in umbels of showy flowers. The numerous species, many of which have ornamented our gardens, are very similar in character. The leaves in this genus are, by the twisting of the petiole, resupinate; the upper surface, which is usually smooth, even, and destitute both of ribs and stomata, having the peculiar structure and performing the functions of the under surface. This curious economy in the leaves of *Alströmeria* was first pointed out by the late Robert Brown. Amongst the handsomest of the species may be mentioned *A. aurea*, an erect herb one to three feet high, with scattered, lanceolate, obtuse leaves, reversed, as is the

case throughout the genus, by the twisting of the foot stalk. The flowers are produced several in a terminal umbel, the perianth consisting of three outer spatulate, deep orange-coloured segments, and three inner ones, which are narrower, lanceolate, acuminate, orange-coloured, the two upper of them marked with several dark red lines distributed over their surface. Quite distinct from this is *A. Flos Martini*, the St. Martin's Flower of Chili, which has an erect stem, linear acute leaves, and a perianth consisting of three outer cuneately obovate yellowish-white segments, and an inner series of one short lower whitish lobe, and two upper oblong spatulate ones which are bright yellow in the upper half, and stained with irregular dark red spots, the spots becoming confluent towards the top. *A. Ligta*, so named because, according to Feuillée, it is called *Ligta* in Chili, is another very beautiful kind, in which the leaves are linear or linear-lanceolate, and the flowers, on corymbose two-flowered peduncles, are large, bluish-coloured, with obovate emarginate sepaline divisions, the two upper petaline divisions narrow spatulate, yellow, striped with red below, and tipped with crimson. *A. pittacina* has the flowers a little hooded, rich crimson at the base, and at the tips green, spotted with purple. Another fine ornamental species is *A. Simsiana*, which has orange-scarlet flowers. The greater number of the species are natives either of Chili or of the Andes of Peru, a few being distributed in other parts of South America. The *A. guineensis* turns in Chili a kind of arrow-root, which is prepared from its succulent roots. See also *ROMARIA*. [T. M.]

ALTERNATE. Placed on opposite sides of an axis on a different level, as in alternate leaves. Placed between other bodies of the same or different whorls, as in an umbellifer, where the stamens are alternate with, that is between, the petals.

ALTERNATIVE. A term applied to mutilation, when of the pieces of a flower, being in two rows, the inner is so covered by the outer that each exterior piece overlaps half two of the interior row.

ALTHÆA. The Marsh-Mallow is, as the name implies, one of the *Malvaceæ*, and is distinguished by its flowers having an outer calyx of from six to nine pieces, and an inner one, partly divided above into five pieces. In other respects *Althæa* much resembles *Malva*. *A. officinalis*, the common Marsh Mallow, grows in marshes near the sea in this country, and also in Central and Southern Europe. The rootstock is perennial; the flowering stems are erect, branched, three or four feet high, covered with a soft velvety down, as also are the stalked, egg-shaped, cordate leaves, which are slightly notched at the margin, the lower ones five-lobed, the upper ones three-lobed. The flowers are of a pale rose colour, on short stalks, which spring from the axils of the upper leaves. The roots are much used, especially in France, under the

name of *Gaiumauve*, to form demulcent drinks. *A. hirsuta* is a rare English plant, which has been probably introduced along with foreign agricultural seeds. It is an erect slender annual, much smaller than the preceding, with bright pink flowers, and covered with long spreading stiff hairs. *A. rosea* is the origin of the Hollyhock of gardens. It grows wild in China, also in the South of Europe. It possesses similar properties to the common marsh mallow, and is used for similar purposes in Greece. The leaves furnish a blue dye. Several species of *Althæa* are in cultivation, but the gay flowering shrub commonly called *Althæa Frutescens* is, properly speaking, a species of *Hibiscus* (*syriacus*). [M. T. M.]

ALTHÆA FRUTEX. The garden name for *Hibiscus syriacus*.

ALTHERÆ. (Fr.) *Althæa officinalis*.

ALTHERIA. A genus of *Naiadaceæ*, containing a single species, a native of France. It is a slender tufted plant, growing in salt lakes, and resembling *Zannichellia*—except that that genus has male and hermaphrodite flowers; whereas, in *Altheria*, the flowers are dioecious; the male flowers being solitary, and below the female. [W. C.]

ALTINGIACEÆ. (*Liquidambar*, *Balsamaceæ*, *Balsamifluæ*.) A solitary genus, *Liquidambar*, represents this natural order, of which three species only are known—all trees of some magnitude—producing a fragrant resin called storax, or resembling that substance. They are nearly related to plane-trees and willows, from which they differ in having seed vessels with two distinct cells, instead of one; and seeds with broad membranous wings. See *LIQUIDAMBAR* and *STORAX*.

ALUM ROOT. The root of *Geranium maculatum*; also applied to some species of *Heuchera*.

ALUYNE. (Fr.) *Artemisia Absinthium*.

ALVEOLATE. Socketed, honey-combed; when a flat surface is excavated into conspicuous cavities, as in the receptacles of many Compositæ.

ALVIER, ALVIES. (Fr.) *Pinus Cembra*.

ALYSSUM. The generic name of several herbaceous annual plants with yellow flowers, belonging to the *Cruceferous* order, and generally employed in decorating rock-work, or the open border. *A. exaltate*, a native of Transylvania, &c., popularly known as Gold-dust—in French, *Corbeille d'Or*—has somewhat woody, diffuse stems, lanceolate, hoary leaves, and numerous small flowers of a brilliant yellow colour, growing in dense clusters. These appear early in May, when flowers are scarce, and are consequently much prized. This species, like the rest of the family, thrives best in dry, somewhat stony ground; but may be made to grow anywhere. Several other species are cultivated, under the name of *Madwort*. [C. A. J.]

ALYSSUM, SWEET. *Glyce* (or *König*) *maritima*.

ALYXIA. A genus of *Apocynaceæ*, containing sixteen species; natives of Australasia, Madagascar, and tropical Asia. They consist of evergreen trees or shrubs, with ternate, quaternate, or sometimes opposite, entire, and shortly-petiolate leaves. The flowers are fragrant, axillary or terminal and solitary, or in cymes. The calyx is five-partite; the corolla is hypocrateriform, its long tube is swollen above the middle; the five included stamens, on short filaments, and with lanceolate anthers, are inserted on the dilated portion of the tube; there are two ovaries, with a single included style. While this genus has all the habit and the structure of the flowers of the true *Apocynaceæ*, it differs from the other genera of the order in having baccate, or sub-drupeaceous fruits, in the shape of its seed, in its ruminate albumen, and in its erect embryo: in these two last particulars it agrees with *Anonaceæ*. The dark green foliage and fragrant flowers make the members of this genus an ornament in the conservatory, where they flower freely in the autumn. *A. stellata* produces a fragrant wood. [W. G.]

AMADOU. A soft leathery substance, derived from *Polyporus fomentarius* and some other *Polypori*, and used for tinder, moxa, and other economical or medical purposes. It is prepared by cutting off carefully the cuticle and pores of the fungus, dividing it into convenient slices, beating them out, and steeping them in a solution of saltpetre. Occasionally, it is used to make coarse clothing, and then the latter process is omitted. The best Amadou is prepared in Germany, from *Polyporus fomentarius*, but *P. igniarius* and other species afford an inferior quality. The softer and more silky the substance of the fungus, the better the material. The fungus is generally collected from trunks of trees in the forests, where it is tolerably abundant; but attempts have also been made at cultivating it by collecting timber in proper situations, and watering it at proper intervals. The species occurs pretty generally in this country, but is not sufficiently frequent to make its collection a matter of interest. [M. J. B.]

Amadou, is sometimes called German Tinder in the shops. The wood of *Hernandia guianensis* is used in a similar way in South America. [T. M.]

AMADOUVIER. (Fr.) *Polyporus igniarius*.

AMALAGA. *Chavica officinarum*.

AMANDE DE TERRE. (Fr.) *Cyperus*

AMANDIER. *Amygdalus*. — A LA MAIN, or DES DAMES. *Amygdalus fragilis*. — DE GE'ORGE. *Amygdalus nana*. — SATINE'. *Amygdalus orientalis*. — DU BOIS. *Hippocratea comosa*.

AMANITA. A sub-genus of *Agaricus*, distinguished by its gills producing white spores, and the whole plant being covered at first by a distinct universal wrapper, or volva. It contains some of the most excellent and poisonous of *Agarici*—amongst the former being the Orange and *A. vaginatus*; and among the latter the Fly Agaric and *A. virosus*. Some of the species have a distinct ring upon the stem; while others are wholly deficient in this ornament. The Fly Agaric (*A. muscarius*), with its vermillion pileus studded with white or yellow warts, and its stately stem, is the ornament of beech woods in most parts of the kingdom, and seldom fails to excite admiration, especially when illuminated by a strong gleam of light. Several species—and especially those of Sikkim, where they abound—are amongst the largest of the fleshy Fungi. [M. J. B.]

AMANSIA. A lovely genus of rose-spored *Algae*, mostly inhabiting the southern hemisphere, with a pinnate frond and generally involute tips. The frond is ribbed; the membrane formed of oblong six-sided cells, of equal length, arranged in transverse lines; the tetraspores are in marginal or superficial podshaped processes—generally in two rows; and the pyriform spores form a little fascicle at the base of the sub-globose capsules, which are perforated at the tip. Some species have almost exactly the habit of *Jungermannia*. [M. J. B.]

AMARACUS. (Fr.) *Origanum Dictamnus*.

AMARANTH, GLOBE. *Gomphrena globosa*.

AMARANTHACEÆ. (*Amaranthi*; *Polycnemæ*.) Under this name are included about 500 species of weeds, or, occasionally, showy annual plants (very seldom undershrubs), with inconspicuous apetalous flowers, in almost all cases of a scarious texture, and most commonly with a white colour—now and then pink, orange, or crimson. They are very nearly the same as *Chenopods*; and belong to Lindley's *Chenopodal* alliance. They occupy dry, stony, barren stations, or thickets upon the borders of woods, or even salt marshes; are much more frequent within the tropics than beyond them; and are unknown in the coldest regions of the world. Many of the species are used, with the addition of lemon-juice, as pot-herbs, on account of the wholesome mucilaginous qualities of the leaves. *Gomphrena officinalis* and *macrocephala* in Brazil, where they are called Para todo, Perpetua, and Raiz do Padre Salerma, are esteemed useful in all kinds of diseases, especially in cases of intermittent fever, colic, and diarrhoea, and against the bite of serpents.

AMARANTHUS. A genus of tropical annual plants, the type of a natural order, to which it gives its name—the *Amaranthada*. They are readily distinguished from the few other genera of the order by their

three-bracted coloured calyx of three or five pieces, and their one-seeded fruit, splitting irregularly round when ripe. The genus includes several handsome garden plants, the chief being the *A. caudatus*, popularly known as Love-lies-bleeding, and in Franco as *Queue de Renard* and *Discipline de Religieuses*, having long pendulous compound racemes of crimson flowers; the *A. hypochondriacus*, or Prince's Feather, with erect flower spikes and purplish foliage; the *A. speciosus*, or larger Prince's Feather, resembling the last, but differing by its more vigorous growth; and the *A. tricolor*, from China, an interesting species, more remarkable for the vivid colours of its foliage than for its flowers, which are insignificant. The last-named is much more tender than the other species; and, in the open air in this country, it is only in warm summers that its leaves assume the glowing tints to which the plant owes its specific name. In the gardens of the Southern United States, these hues are so richly developed as to have procured for it the popular appellation of Joseph's Coat. The plant known as Globe Amaranth belongs to another genus—*Gomphrena*. The name of this genus is often written *Amarantus*.

[W. T.]

AMARANTINE. (Fr.) *Gomphrena globosa*.

AMARANTOIDE. (Fr.) *Gomphrena coccinea*.

AMARELLE. (Fr.) *Cerasus avium*.

AMARINIER. (Fr.) *Salsavittellina*.

AMARYLLIDACEÆ (Narciss). A large natural order, consisting for the most part of bulbous plants, but occasionally forming a tall, cylindrical, woody stem, as in the genus *Agave*. They differ from Irids in having six introrse stamens, and from Nthaceous plants in their ovary being inferior. A few species of *Narcissus* and *Gala-* are found in the North of Europe and the same parallels. As we proceed south they increase: *Pancratium* appears on the shores of the Mediterranean; *Ornithoglossum* and *Pancratium* in the West and East Indies; *Hamantulus* is found for the first time with some of the latter on the Gold Coast; *Hippeastrum* show themselves in countless numbers in Brazil, and across the whole continent of South America; and, finally, at the Cape of Good Hope, the maximum of the order is beheld in all the beauty of *Hamantulus*, *Ornithoglossum*, *Clivia*, *Cyrtanthus*, and *Brunsvigia*. A few are found in New Holland, the most remarkable of which is *Doranthus*. Poisonous properties occur in the viscid juice of the bulbs of *Buphara toxicaria* and *Hippeastrum*; those of *Lomatium vernum*, the Snowdrop and Daffodil, and other kinds of *Narcissus* are emetic. Nevertheless the *Agave*, or American aloe, as it is called, has an insipid sweet juice. Others are detergent, and a few yield a kind of arrow-root. Between 800 and 400 species are

AMARYLLIS. The type of the Amaryllidaceous family, and formerly made to include a large number of species. It is now, however, generally limited in extent, and confined to those which have the tube of the perianth short, narrow funnel shaped, and ribbed; the three petaline filaments inserted at the base of the segments; the three sepaline ones adhering to the mouth of the tube; the style declinate; the capsule obovate. They are handsome bulbous plants, with an autumnal flower-scape appearing before the leaves, which are hiemal. The scape supports a many-flowered umbel of large stalked flowers, the anthers of which are incumbent, attached in the middle. The typical species is *A. Belladonna*, which is separated by some as a distinct genus. This plant is a native of the Cape of Good Hope, and is of vigorous habit, producing flower-scapes one and a half foot high, and large, showy, funnel-shaped flowers of a pale delicate rose beautifully pencilled with red, in the month of September, the flowers being succeeded by the leaves, which are ligulate or strap-shaped. *A. Josephine*, and *A. grandiflora*, sometimes placed in *Brunsvigia*, are referred hither by Herbert. Most of the plants called *Amaryllis* in gardens, e.g. *A. equestris*, are now referred to *Hippeastrum*; others, as *A. formosissima* to *Sprekelia*, *A. lutea* to *Oporanthus*, and *A. purpurea* to *Vallota*. The *A. Belladonna* has been said to be employed for poisoning in the West Indies, but this statement appears to be a mistake, and probably refers to some other plant of the same order, the *Belladonna* being a Cape plant. The name *Belladonna Lily* was given to the flower in Italy from the charmingly blended red and white of the perianth, resembling the complexion of a beautiful woman.

[T. M.]

AMARYLLIS CANDELABRE, or GIL-RANDOLE. (Fr.) *Coburgia multiflora*. — SALTIMBANQUE. *Sprekelia Cybister*. — DE GUERNESEY. *Nerine sarniensis*. — DE VIRGINIE. *Zephyranthes Atamasco*. — JAUNE. *Oporanthus luteus*. — REINE DE BEAUTE. *Sprekelia formosissima*. — VE'NE'NEUSE. *Buphara toxicaria*.

AMASONIA. A genus of the Vervain family (*Verbenaceæ*) nearly allied to *Clerodendron*, and chiefly differing from that genus in its habit. The species enumerated are six, all of them natives of southern tropical America and the greater part of them found in Brazil. They are perennial dwarf shrubs, with alternate or opposite leaves, and terminal racemed panicles of flowers, each little group of yellow flowers being supported by a large scarlet-coloured or beautifully variegated bract, which bears on its outer surface a number of pellucid glands. They are well-deserving of cultivation, but seldom met with.

[A. A. B.]

AMA-TSJA. Tea of Heaven; a kind of tea prepared in Japan from the leaves of *Hydrangea Thunbergii*.

AMAUROPELTA. A name given by Kunze to a West Indian Fern, supposed to have some affinity with the davallioïd group, sometimes called *Saccoloma*. It is now referred to *Lastrea*. [T. M.]

AMBASH or AMBRASCHA. *Hernimaria Elaphrolyon*, alias *Edemona mirabilis*, the Fish-tree of the Nile.

AMBATCHA. *Arum abyssinicum*.

AMBER TREE. *Anthospermum*.

AMBERROA. A genus of Composites, several of the plants composing which have long been cultivated under the more familiar name of *Centaurea*, from which genus the present one differs only in a few obscure and minute characters of the fruit and pappus. The two best-known species are the *A. odorata*, or Yellow Sweet Sultan, and the *A. moschata* or Purple Sultan. Both are branching annuals, growing a foot or more high, with oblong pinnatifid foliage, and large terminal showy flower-heads. Those of the first are characterised by having the outer florets much longer than those of the centre, and the fruit is crowned with a short pappus of hairs. In the case of the latter species, *A. moschata*, the pappus is altogether wanting, and the florets of the circumference are scarcely longer than the central ones. The odour of this species is hardly suggestive of musk, as its name would imply, but is rather honey like. [W. T.]

AMBYLOCARPUM. The generic name of a Persian weed of no beauty, belonging to the Composite family, and closely related to *Carpesium*, but differing in the strap-shaped and female ray florets being in a single row, as well as in the achenes—which are five, angular, and without pappus—being beakless. The plant is called *A. unduloides* from its resemblance to our Fleabane (*Inula Patavica*). Its lance-shaped leaves are, however, longer and smooth, not downy. The yellow flower-heads are single at the ends of the twigs, and nearly half an inch across. [A. A. B.]

AMBYLOLEPIS. A Texan genus of Composites, of which a single species, *A. scitgora*, is in cultivation, and possesses some interest from the pleasing fragrance of its flowers, which they retain for many years when dried. This fragrance, which the seeds of the plants possess in a high degree, is doubtless due to the presence of coumarin, the chemical principle to which the well-known tonka bean, and the common vernal grass, *Anthoxanthum odoratum*, also owe their agreeable scent. The species in question is a dwarf, erect, branching annual, with entire, ovate, lance-shaped, stem-clasping leaves, two to three inches long, the branches being terminated by a single flower-head one and a half inch in diameter, with a ray of broadly wedge-shaped florets, and a disk of tubular ones, both being of a uniform orange-yellow colour. The involucre consists of about ten ovate, lance-shaped, spreading bracts, the receptacle is naked

and conical, and the villous fruit is crowned by a pappus of five broad, blunt, transparent, colourless scales. [W. T.]

AMBORA. A genus of *Montiaceæ*, consisting of trees from Madagascar and Mauritius, with entire evergreen leaves, and monœcious flowers, generally in racemes, though sometimes solitary, rising from the trunk or lower parts of the branches. The male flowers are scattered among the more numerous females. The stamens are numerous, with short filaments and bilocular anthers. There are many one-celled ovaries, each containing a single ovule. The fruit consists of many one-seeded drupes, enclosed in the enlarged calyx, which gives it a baccate appearance. The bark and leaves exhalé an aromatic odour. [W. C.]

AMBORN. (Fr.) *Cytisus Laburnum*.

AMBOYNA WOOD. The beautifully mottled wood of *Pterospermum indicum*.

AMBRETTE JAUNE. (Fr.) *Amberboa odorata*. — **MUSQUÉE.** *Libiscus Abelmoschus*.

AMBRINA. A genus of plants belonging to the natural order *Chenopodiaceæ*. It comprises annual or perennial plants, with alternate, nearly sessile, cleft or sinuous leaves, covered, like the whole of the plants, with resinous spots. The flowers are clustered in heads, which are placed in the axils of the leaves, or in leafless or leafy terminal spikes. The genus is allied to *Chenopodium*, from which it differs in its obovate fruit, not depressed in the centre, and by the seeds being placed vertically in the seed vessel, not horizontally. From the genus *Bitum* it differs in the calyx, becoming of a pentagonal shape when it invests the fruit. All the species have an aromatic odour, and possess tonic and stimulant properties. *A. pinnatifida* is cultivated for the sake of its elegant and aromatic foliage. *A. ambrosioides*, or Mexican Tea, originally a native of North America, but long naturalised in the south of Europe, is used medicinally in the form of an infusion, having antispasmodic, vermifuge and carminative properties. *A. anthelmintica* is common in the Southern States of America, where it is employed as a vermifuge. [M. T. M.]

AMBROISE. A name given in Jersey to *Teucrium Scordonia*.

AMBROISINE. (Fr.) *Chenopodium ambrosioides*.

AMBROSIA. A genus of the Composite family (*Compositæ*), chiefly annual coarse-habited weeds, with opposite, or alternate lobed, or dissected leaves and the flower-heads in racemes or in bundles in the axils of the leaves. The sterile and fertile flowers occupy different heads on the same plant. The sterile involucre, somewhat top-shaped, composed of seven to twelve scales, united into a cup, and cen-

taining five to twenty staminate flowers. The fertile ones top-shaped, closed, pointed, and usually with four to eight horns or tubercles near the top in one row, and containing a single flower composed of a pistil only. The aeries, of which there are about twelve, are pretty widely diffused, being found in India, tropical Africa, South Europe, and in North and South America, growing in fields and waste places. *A. artemisiaefolia* is very plentiful on the plains of the Saskatchewan and Red River; while *A. tenuifolia* is said to cover thousands of miles of the Pampas, south of Buenos Ayres, giving them a black appearance like that of the Scotch moors. *A. trifida* is called the Great Rag-weed in America, and *A. artemisiaefolia* the Roman Wormwood; indeed, all the species bear a great resemblance to the Wormwood (*Artemisia*). *A. maritima*, found in Italy and the Levant, is said to be tonic and resolutive; all its parts give out a sweet odour and have an aromatic taste, a little bitter, but agreeable. [A. A. B.]

AMBROSINIA. A genus of *Aroidæ*, containing a few species, natives of Sicily and Sardinia. They are small land plants, with tuberous, stoloniferous rhizomes, entire leaves, and a small spathe, inclosing a couple of scentless flowers, of which the uppermost has many monadelphous stamens perfectly destitute of a calyx, and a single unilocular ovary. They are referred by Endlicher to *Aroidæ*, but Lindley considers that the paucity of flowers in the spadix affords sufficient ground for establishing another order, which he calls *Pistaceæ*, and which includes *Lemna*, *Pistia*, and some other allied genera. [W. C.]

AMELANCHIER, the Savoy name of the Medlar, is given to a family of Pomaceous trees, of Europe and North America, allied both to *Mespilus* and *Cotoneaster*. In British gardens they are cultivated for their flowers, which are white, abundant, showy, and produced early in the season; for their fruit, which ripens in June; and for the deep red or rich yellow hue which their foliage assumes in autumn. The common *Amelanchier*, *A. vulgaris*, has long been cultivated in England, where it sometimes attains the height of fifteen or twenty feet. It bears abundance of flowers, and its fruit, though not highly palatable, is eatable. This is a native of Southern Europe, where it grows in rocky mountainous woods. The American species, *A. stryptium*, or the Grape Pear, bears sparingly small fruit of a purplish colour and of an agreeable sweet taste, which ripens in June, before that of any other tree. *A. ovalis*, considered by some to be merely a variety of the preceding, abounds, according to Dr. Richardson, in the sandy plains of the Saskatchewan. 'Its wood is prized by the Orees for making arrows and pipe-stems, and is thence termed by the Canadian voyageurs *Bois de Péche*. Its berries, about the size of a pea, are the finest fruit in the country, and are used by

the Orees both in a fresh and dried state. They form a pleasant addition to pemmican, and make puddings very little inferior to plum-pudding.' [C. A. J.]

AMELINGUE. (Fr.) A kind of Olive.

AMELLON. (Fr.) A kind of Olive.

AMELLUS. A genus of the Composite family (*Compositæ*), containing twelve species, all of them natives of South Africa. They are herbs or shrubs, their lower leaves opposite, the upper alternate, oblong, entire or toothed, and hairy or canescent. Flower-stalks terminal, bearing a solitary head of flowers; the florets of the disc yellow, those of the ray blue. *A. Lychnitis* is cultivated in gardens. The flowers of it, and most of the species, are a good deal like those of the *Michaelmas Daisy* (*Aster*), to which genus this is allied, differing chiefly in the opposite lower leaves, and in having the bristles of the pappus in a single series. [A. A. B.]

AMENTACEÆ. Under this name were once comprehended all apetalous unisexual plants, whose flowers grow in catkins, or amenta. Modern botanists find it more convenient to distribute them through several different orders, the chief of which are *Salicaceæ*, *Corylaceæ*, *Betulaceæ*, *Casuarinaceæ*, *Altingiaceæ*, *Myricaceæ*, which see. A forest of these amentaceous plants as they grow in the island of Java, is shown in Plate IX.

AMENTUM. A catkin. A deciduous spike of unisexual apetalous flowers, such as appears in the spring on the hazel and willow.

AMESIUM. A name once proposed to be given to *Asplenium septentrionale* and some allied species. [T. M.]

AMETHYSTEA. An insignificant Siberian genus of Labiata, belonging to the *Ajuga* or bugle division of the order, and distinguished by the very short upper lip of its corolla, and the abortion of its upper pair of stamens. The only species, *A. carulea*, was formerly cultivated, but is now seldom met with, so many more deserving plants being available. It is a hardy annual, growing a foot or more high, with erect, square, branched stems; opposite, three-parted leaves; the segments oblong lance-shaped; and short terminal leafy racemes of very small pale-blue flowers, the corollas of which are scarcely longer than the calyx. As an ornamental plant, it is entirely worthless, but it possesses the merit of being slightly fragrant. [W. T.]

AMHERSTIA. A genus of the Pea family (*Laguminosæ*), named in honour of the Countess Amherst. *A. nobilis* is the only species. It grows near Martaban, in the Malayan peninsula, and attains a height of about forty feet. When in flower, it is said to be 'one of the most superb objects imaginable, unrivalled in India or in any other part of the world.'

The leaves are equally pinnate, large, and, when young, of a pale purple colour. 'The flowers are large, scentless, and of a bright vermilion colour, diversified with three yellow spots, and disposed in gigantic ovate pendulous bunches.' The tree is cultivated in some of the larger English gardens; but, requiring so much space, is seldom met with in collections. The Burmese name of the plant is *Thoca*, and handfuls of the flowers are offered before the images of Buddha. [A. A. B.]

AMIANTHIUM. The name of a genus of North American plants, belonging to the same family—*Melanthaceae*—as the *Colchicum* and *Veratrum*. The species have a widely-spreading petal-like perianth, without glands; six stamens attached beneath the ovary, with their anthers bursting outwardly; a capsule of three cells, which separate one from the other when ripe. One species, *A. muscatellinum*, contains a narcotic poison which is injurious to cattle that browse on its foliage. Its bulbs, pounded and mixed with honey, are used as a fly poison. [M. T. M.]

AMICI. (microscopical observer.) Four species are known, one from the vicinity of Loxa, another from the Cordilleras of Mexico (at an elevation of 5,000 to 8,000 feet), and two from Bolivia and Columbia. They are struggling shrubs, having alternate pinnate leaves, with few leaflets. Their flower stalks are axillary or terminal, having at their base two large, kidney-shaped, coloured bracts. Two of the segments of the calyx are large compared with the others, and roundish in form. The pods are compressed, and jointed. All the parts of the plant are covered with pellucid, glandular dots, somewhat like those of St. John's wort. *A. syzomeris*, the Mexican species, is sometimes to be found in gardens, and is well worth cultivation, especially as it flowers late in autumn, or during the early part of winter. It is generally treated as a greenhouse plant; but, in the South of England, if planted out of doors in the spring, it generally flowers well in the autumn. The flowers are large, and of a pale yellow colour—about the size of an everlasting pea. [A. A. B.]

AMIDONNIER. (Fr.) *Triticum dicoccum*, sometimes called *T. amyleum*.

AMMANIA. A genus of inconspicuous herbs, of the order *Lythraceae*, growing in wet places in the warmer regions of the globe; mostly glabrous annuals, with square stems, opposite entire leaves, and small axillary, nearly sessile flowers, often without petals. Several species have been introduced, but are more curious than beautiful. *A. vesicatoria* has acrid leaves, which, when bruised, are used by the native practitioners of India to raise blisters. [J. T. S.]

AMMI. A small genus of Umbelliferous

plants, with the habit of the carrot (*Daucus*), spindle-shaped roots, and many-parted leaves; it is remarkable for the large size of the outer petals of the umbel. As the name denotes (from the Greek *amos*, sand), they affect sandy ground, but will thrive if sown in the common soil of the garden border. Common Bishop-weed, *A. majus*, is a native of the south and middle of Europe, Egypt, and the Levant, where it attains the height of three or four feet. Tooth-pick Bishop-weed, *A. Vinnaga*, is so called on account of the use made in Spain of the rays or stalks of the main umbel. These, after flowering, shrink, and become so hard that they form convenient tooth-picks. When they have fulfilled this purpose, they are chewed, and are supposed to be of service in cleaning and fastening the gums; however this may be, the leaves have a pleasant aromatic flavour in the mouth. [C. A. J.]

AMMOBIUM. In a structural point of view, this genus is allied to *Gnaphalium* and *Antennaria*, from which it differs but slightly, except in habit. Two species are

row foot-stalk, those of the stem and branches very small, and prolonged downwards in a narrow, wing-like form. The flower heads, which are of the dry everlasting character so common to plants of the Australian continent, are nearly an inch across, with a disk of tubular florets; a receptacle set with oblong, pointed, toothed, chaffy scales; an involucre of imbricated leaflets, the inner series of which have membranous margins, and a four-angled, elongated fruit, furnished at the apex with four teeth, the two larger of which are terminated by a bristle. The plant remains some time in flower, and is not without a certain degree of interest; though, as an ornamental plant, it is almost superseded by the more recent species of *Heitchrysum*, *Rhodanthe*, and *Acroclitium* from the same continent. [W. T.]

AMMOCHARIS. A genus of *Amaryllidaceae*, in which the tube of the six-parted perianth is cylindrical, enlarged, the sepaline divisions not imbricating thereon; the filaments of the stamens are adjusted almost equally at the base of the limb; the anthers are short, affixed in the middle; and the capsule is turbinate, three-celled. The leaves are vernal, and not sheathing. The genus is intermediate between *Ornium* and *Euphonia*, differing from the first in its anthers, its filaments inserted just within instead of without the tube, its shorter limb and wider-mouthed tube, and its leaves not sheathing; and from the last, by the wider mouth of the tube of the perianth, the insertion of the filaments within the tube, and the more numerous ovules. The two species, sometimes referred to *Brunsvigia*, are South African. *A. falcata* has ligulate glaucous leaves, and

a many-flowered umbel of greenish-white flowers, which afterwards become pinkish and finally rose-colour. [T. M.]

AMMONIACUM. A drug said to be obtained from *Dorema ammoniacum*, and also from *Ferula tingitana*.

AMMOPHILA. A genus of Grasses of the tribe *Arundineæ*, inhabiting the sandy sea-shores of the coasts of Europe and North America, and extensively cultivated in many places, as in the eastern counties of England and in Holland, for preserving the sand-banks which prevent the inroads of the sea. In the northern parts of England, it is used for making table mats and basket work. It is the widely-creeping and matted rhizomes which serve to bind together the sand-banks on which it grows. The stems grow two or three feet high, and bear long, narrow, rigid involute leaves and a spiked cylindrical panicle, with laterally compressed spikelets. The glumes are nearly equal, and lance-shaped, stiff and chaffy. The flowering glumes, or outer pales, are the shorter, with a tuft of hairs outside, but the inner pales nearly equal them in length. The genus is nearly related to *Calamagrostis*, from which the inflorescence, the stiff glumes, and the absence of an awn to the flowering glume, serve to distinguish it. The only species, *A. arundinacea*, or *Panama arenaria*, is variously called Maram, Marrum, Sea-reed, or Sea Matweed. [T. M.]

AMNIOS. The fluid that is produced within the sac which receives the embryo-rudiment and engenders it.

AMOMUM. A genus of aromatic herbs, belonging to the Ginger family, *Zingiberaceæ*. The root-stocks are jointed, creeping; the leaves placed in two rows, sheathing at the base, lance-shaped, and undivided at the margin. The flowers, in a spike or cluster, are provided with bracts, and but little raised above the ground; there is but one stamen, whose filament is prolonged beyond the two-lobed anther, so as to form a more or less lobed crest; the capsule is three-celled, and opens, when ripe, by three pieces, so as to liberate the numerous small seeds. These plants are natives of India, the islands of the Indian Archipelago, etc. Their seeds are aromatic and stimulant, and form, with other seeds of similar plants, what are known as Cardamoms, of which there are many kinds.

Attare, Malaguetta Pepper, or Grains of Paradise, are the seeds of one, perhaps two, species of this genus, *A. Grana Paradisi* and *A. Meleguetta*. They are imported from Guinea, and have a very warm, slightly camphor-like taste. These seeds are made use of illegally to give a fictitious strength to spirits and beer, but they are not particularly injurious; although, from the very heavy penalty inflicted on brewers who have them in their possession, and on druggists who sell them to brewers (300l.

and 500l. respectively), it would seem as if such an opinion were entertained.

The large round China Cardamoms are supposed to be produced by *A. globosum*, the hairy round China sort by *A. villosum*, Java Cardamoms by *A. maximum*; but the botanical history of the plants producing



Amomum Grana Paradisi.

the various kinds of Cardamoms, Grains of Paradise, etc., is involved in much confusion and obscurity. Several species of the genus are in cultivation as ornamental stove plants. [M. T. M.]

AMOMUM. (Fr.) *Solanum pseudo-Capsicum*.

AMOREUXIA. A genus of *Flacourtiaceæ* containing two species from Mexico and New Granada. They are herbaceous plants, with the habit of *Malva*. The root is a large ligneous tuber. The leaves are alternate, on long petioles, and digitato-partite. The large flowers are in terminal racemes, and consist of five oblong persistent sepals, and five caducous obovate petals. The stamens are indefinite and arranged in two bundles, the one having very much longer and stouter filaments than the other. The ovary is ovate and trilobular, with many ovules attached to a central placenta. M. Planchon has joined this genus with *Cochlospermum* to form a small order *Cochlospermeæ*, which he places near *Malvaceæ* and *Egyphyllaceæ*; but both it and *Cochlospermum* are united by Benth and Hooker with *Bixa*, to form the tribe *Bixææ* in *Flacourtiaceæ*. [W. C.]

AMORPHA. The flowers which belong to the natural order *Leguminosæ*, though composed of petals unequal in size and irregular in form, have, for the most part, these organs symmetrically arranged, after the type of the pea and bean. In the pre-

sent genus, however, the two pairs of petals, termed severally the wings and keel, are absent, the only representative of petals being the standard or vexillum, and hence its name *Amorpha*, 'deformed.' All the plants of the genus are deciduous shrubs, natives of North America. The leaves are pinnate with a terminal leaflet, covered with pellucid dots; and the flowers, of a blue-violet colour, are disposed in long spiked clusters, grouped at the tops of the branches. All the species are ornamental. The foliage is graceful; and the flowers, though individually small, are attractive from their numbers and colour, which is violet spangled with the golden anthers. As they only attain the height of a few feet, they are well adapted for small shrubberies, or the front of large ones, and thrive well in common garden soil. *A. fruticosa*, the commonest species in European gardens, was introduced to Britain in 1724 by Mark Catesby, who states that the inhabitants of Carolina at one time made a coarse sort of indigo from the young shoots. Hence it is sometimes called Bastard Indigo. [C. A. J.]

AMORPHOPHALLUS. A name given to a genus of plants of the araceae family, and used to indicate the exceedingly curious appearance of the plants, which are perennial, with tuberous rootstocks flattened on the upper surface. The leaves and spadices are solitary, invested below with imbricated scales. The spathe is spreading so as to fully expose the thick fleshy spadix, which is dilated and fungus-like at the upper extremity. The male flowers are placed above the females; their anthers are sessile and open by pores; the ovary has either two, three, or four cells, with erect ovules. These plants were formerly included in the genus *Arum*, from which they are distinguished by their spreading not convolute spathes; by their anthers opening by pores, not by longitudinal slits; by the numerous cells to the ovary; and by the solitary erect ovule, those of *Arum* being horizontal. They are natives of India and other parts of tropical Asia, where they are cultivated for the sake of the abundance of starch which is found in the rootstock. The presence of this starch, and especially the mode of preparation, deprives the roots of their otherwise acrid caustic properties. Dr. Wight says of *A. campanulatus*, that when in flower the fetor it exhales is most overpowering, and so perfectly resembles that of carrion, as to 'induce flies to cover the club of the spadix with their eggs.' [M. T. M.]

AMORPHOUS. Having no definite form.

AMOURETTE. (Fr.) *Briza media*; also *Saxifraga umbrosa*.

AMPELOPSIS. A North American genus of *Vitaceae*, distinguished from *Vitis* and *Cissus*, to which it is closely allied, by the absence of the disk or expansion of the receptacle in a ring round the base of the ovary. *A. hederacea*, the Virginian Creeper,

or American Ivy, is a shrubby climber, often planted in this country to cover walls, for which, from the rapidity of its growth, it is well adapted; the leaves, which have five large elliptical leaflets, turn red before they fall in autumn, when the plant presents a very beautiful appearance. The flowers are small and yellowish-green, in a many-flowered panicle. The tendrils are curious, adhering to supporting bodies by small sucker-like expansions which are formed at the apex of each of their divisions. This is particularly noticeable in the *A. tricuspidata*, cultivated under the name of *A. Veitchii*. [J. T. S.]

AMPELOPTERIS. A name proposed by Kunze for a few Indian Ferns now referred to *Goniopteris*. [T. M.]

AMPHEREPHIS. A Brazilian genus of Composites, of which *A. intermedia* is occasionally found in cultivation. It is a branched spreading annual, growing a foot or more high, with ovate, serrated foliage, and terminal flower-heads, an inch across, composed wholly of tubular florets of a purple colour, and surrounded by a double series of leafy bracts or scales. [W. T.]

AMPHIBLESTRA. A genus of polypodiaceous ferns belonging to *Pteridaceae*, and distinguished in this group by having the veins of the fronds compoundly reticulated, with free included veinlets, or little veins within the meshes or areoles. It is a coarse-looking fern of South America, with much the aspect of *Aspidium trifoliatum*, but having the pteroid linear marginal indusiate fructification. [T. M.]

AMPHIBOLIS. A genus of *Zosteraceae*, formed to include a plant found in the Pacific Ocean and on the coast of New Holland; and considered by Endlicher and Kunth to belong to *Cymodocea*. The only species, *A. zosterifolia*, has branched annulate stems, and approximate alternate, linear, truncate, and bidentate leaves, with short truncated stipules. [J. T. S.]

AMPHICOME. A genus of the bignonia family (*Dignoniaceae*). Two species are known, and both of them natives of the temperate regions of North Western India. They are perennial herbs, with alternate, unequally pinnate leaves, and toothed leaflets. The flowers are pink, tubular, and arranged in axillary or terminal racemes. The fruits are about the length and thickness of a crowquill, and their seeds are provided with a tuft of hairs at each end, this circumstance giving rise to the name of the genus—*amphi*, on both sides, and *koma*, a head of hairs. They are both in cultivation. *A. Emodi* is a remarkably handsome plant, and well deserves a place in choice collections; it is about one foot high, and the flowers, which are large for the plant, stand erect when expanded. *A. arguta* is about the same size, but it has smaller drooping flowers. [A. A. B.]

AMPHICOSMIA. A genus of cyatheaceous ferns, belonging to the section

Cyathea, in which group it is distinguished by having beneath the sorus, on the hinder side, a half-cup-shaped indusium, and by having the veins of the fronds free. The species are sometimes referred to *Alsophila*, to *Hemitelia*, or to *Cyathea*. Several species, chiefly South American, agreeing in having the half-cup indusium and free veins, are referred to the genus in *Index Filicum*; but there is also one species from the Cape of Good Hope, two from India, and one from New Holland. The typical species is *A. capensis*, found both at the Cape and in Java, a tree-fern growing twelve to fourteen feet high, and of which, according to Dr. Harvey, there is a noble forest in the woods on the east side of Table Mountain. The fronds of this are three times pinnate, and unarmed. [T. M.]

AMPHIDESMIUM. A genus of cyathaceous Ferns, closely related to *Alsophila*. They are distinguished—having oblique-ringed spore-cases and naked sori with elevated receptacles—by producing two or three sori in different positions on the same vein, the veins in *Alsophila* bearing one only. They are also different in aspect, having bold pinnate fronds, which give them a noble appearance. The species *A. blechnoides* is found in various parts of South America and in the West Indies. [T. M.]

AMPHIGASTRIA. The so-called stipules of Scale-mosses, or *Jungernannias*.

AMPHIGENÆ. A name applied by Brongniart to Thallogens, implying that they are developed in every direction, without any distinct axis and appendages; and not especially at the apex, like ferns and mosses, to which he has applied the name of Acrogens, and which, in contradiction to Thallogens, are furnished with both axis and appendages. [M. J. B.]

AMPHILOCHIA. A genus of *Vochystaceæ*, containing four species from Brazil. They are trees, with opposite petiolate and entire leaves, and glands at the base of the petioles. The flowers are in terminal racemes. The calyx consists of five coloured sepals, combined at the base, the upper being much the largest and spurred. The corolla has only a single petal, inserted in the base of the calyx between the two front sepals. There are two stamens, one on either side of the petal. The ovary is three-celled, with few ovules. [W. C.]

AMPHISARCA. A many-seeded many-celled superior indehiscent fruit, woody on the outside, pulpy within.

AMPHISTEMON. a genus of *Dioscoreaceæ*, formed by Grisebach by the subdivision of *Dioscorea* into many new genera. The section to which this name has been given, is separated from the others by having six short fertile stamens, which are inserted on the apex of the calyx tube. It contains eleven species of tropical, chiefly Brazilian, herbaceous plants. [W. C.]

AMPHITROPAL. When an ovule is attached by its middle, so that the two ends are equidistant from the point of insertion.

AMPLEXICAUL. Embracing; as when a leaf clasps a stem with its base.

AMPOULLEAU. (Fr.) A kind of olive.

AMPULLA. The metamorphosed flask-like leaves found on certain aquatics such as *Utricularia*; not different from *Ascidium*.

AMSINCKIA. A genus of the Boraginæ family, numbering seven species, found in Oregon, California, Mexico, and Chili. They are annual erect herbs, of little beauty; all their parts more or less clothed with rusty hairs. The stems, six inches to one and a half feet high, are furnished with alternate and entire linear, lance-shaped, or ovate leaves, one to five inches long, and terminate in one or more one-sided racemes of yellow funnel-shaped flowers, with a flat border of five rounded lobes. In the largest flowered species (*A. spectabilis*, from California), the corolla tube is three-quarters of an inch in length. The fruit consists of four triangular one-seeded nuts, their dorsal face smooth, or covered with warty excrescences. The seeds are remarkable, from having their cotyledons deeply biparted. [A. A. B.]

AMSONIA. A genus of *Apocynaceæ*, consisting of five species, natives of North America. They are perennial herbaceous plants, with alternate leaves, and pale blue flowers, in terminal paniced cymes. The calyx is small and five-parted; the corolla has the same number of long linear lobes; its narrow funnel-shaped tube is bearded inside, especially at the throat. There are five included stamens, with obtuse anthers, which are longer than the filaments; two ovaries, a single style, and a rounded stigma, surrounded with a cup-shaped membrane. The two pods are long and slender, with many naked cylindrical seeds, in a single row. [W. C.]

AMYGDALOPSIS. A supposed genus of *Drupaceæ* plants formed on the Japanese *Prunus triloba*. Its distinctive character is having several carpels in each flower instead of one: probably a mere malformation, such as occurs in the peach and plum themselves.

AMYGDALUS. The name applied to the genus to which the Almond, the Peach, and the Nectarine belong. It is placed by botanists in the *Drupaceæ* subdivision of the Rose family, and is especially known by the stone of the fruit, which encloses the kernel or seed, being coarsely furrowed or wrinkled, and by the leaves being folded in halves, not rolled round when young.

The Almond-tree (*A. communis*) appears to have been originally a native of Barbary and Morocco; but by long cultivation it has become distributed over almost the whole of the warmer temperate zones of

the old world. It is a small tree, with oblong lance-shaped leaves, slightly saw-toothed at the margin. The flowers, which appear in spring, before the leaves, are solitary and of a beautiful pink colour. The fruit is a drupe, which is somewhat egg-shaped, downy externally; its middle portion tough and somewhat fibrous; its inner portion forming the hard wrinkled stone enclosing the seed within it. Many varieties of the Almond are cultivated, differing in the nature of their fruits; but the two principal are the Sweet and the Bitter Almond. The Bitter Almond has larger flowers than the sweet variety, and they are of a white colour. The styles are not longer than the stamens, and the seeds are bitter. The seeds of the Sweet Almond are much esteemed at the dessert table, in spite of their indigestibility. The bitter almonds, though occasionally used for flavouring purposes, should be employed in small quantities, as they contain a poisonous principle which is similar in its effects to prussic acid. The essential oil of almonds, which is much used as a flavouring ingredient by cooks and confectioners, is a most virulent poison: it contains prussic acid, and should therefore be employed with great care and in a diluted form, as in what is called in shops Essence of Almonds. It is curious that this oil does not exist naturally in the almond, but is formed by the chemical agency of water on some of its constituents.

A. persica is the botanical name given to the Peach, which is sometimes included in a separate genus (*Persica*), but it only differs from the almond in having a fleshy, not leathery, drupe. Instances have been cited of almonds having fleshy drupes, and thus assuming the character of the Peach. Three principal varieties of the Peach exist—clingstones, melters or freestones, and nectarines. The latter only differ from the peach in having smooth, not downy fruits; but both peaches and nectarines are occasionally met with on the same bough. The leaves of the Peach and Nectarine contain a small quantity of prussic acid, and have the taste and odour of bitter almonds. The fruits, taken in moderation, are as wholesome as they are delicious; but the kernels and blossoms contain prussic acid. The Peach is very extensively cultivated in America, but little attention is paid to the culture: the fruits are used in the manufacture of peach brandy, and for feeding hogs! [M. T. M.]

The common Almond-tree grows to the height of about twenty feet. The leaves closely resemble those of the Peach (*A. Persica*), but the flowers are larger than those of that species. Its fruits, which are the Almonds of commerce, are well known. They seldom attain maturity in this country, in which, however, the tree is frequently to be seen, on account of its showy blossoms, which appear in great abundance very early in spring, when the season is not unusually cold; they often appear in February, and, in the mild winter of 1834, a standard almond-tree in

the neighbourhood of London was in full flower in the end of January. De Candolle is of opinion that the Almond is a native of Persia, Asia Minor, Syria, and even Algeria. It is found growing spontaneously in many other countries, to which, however, it is not supposed to be indigenous, the plants met with having probably been derived from others introduced for the purpose of cultivation. In Palestine, it appears to have been cultivated from the earliest ages; for we find it enumerated among the best fruits of Canaan which were sent into Egypt as a present for Joseph, upwards of 3,500 years ago. The fruit of the Almond is of an ovate, somewhat curved, tapering form. It consists of a husk, which dries up and splits at maturity, exposing the stone, within which is the kernel, the only edible portion. There is a variety with bitter kernels, from which, like the sweet, oil can be extracted, but which are otherwise unfit for use, as they contain prussic acid in notable quantity. There are several varieties of the sweet-kernelled; some with hard, and others with comparatively tender, shells or stones. The most esteemed is the large thin-shelled, or Jordan Almond.

The Peach (*A. persica*) differs essentially from the Almond in the nature of the covering of the stone, which, instead of a dry husk, is fleshy, succulent, and delicious, when the fruit is ripened under favourable circumstances. The species comprises the Peach and Nectarine, the skin of the former being downy, and that of the latter quite smooth. They were supposed to be natives of Persia, and, on their introduction into the South of Europe, were called the *Malus persica*, or Persian apple. Professor De Candolle is, however, of opinion that China is the native country of the Peach. His reasons are, that if it had originally existed in Persia or Armenia, the knowledge and culture of so delicious a fruit would have spread sooner into Asia Minor and Greece. The expedition of Alexander is probably what made it known to Theophrastus, B.C. 322, who speaks of it as a Persian fruit. It has no name in Sanscrit; nevertheless, the people speaking that language came into India from the north-west, the country generally assigned to the species. Admitting this to be its country, how can it be explained that neither the early Greeks, nor the Hebrews, nor the people who speak Sanscrit,—and who have all sprung from the upper region of the Euphrates, or from parts communicating with it,—had grown the Peach-tree? On the contrary, it is very possible that the stones of a fruit tree cultivated from all antiquity in China, may have been carried across the mountains from the centre of Asia into Oshmere, or Bokhara and Persia; for the Chinese had discovered this road at a very remote period. This importation must have been made between the time of the Sanscrit emigration and the intercourse of the Persians with the Greeks. The cultivation of the Peach-tree, once established at this point, would easily

extend on one side towards the west, and on the other, by Cabul, towards the North of India. In support of the supposition of a Chinese origin, it may be added that the Peach-tree was introduced from China into Cochinchina, and that the Japanese call it by the Chinese name, *Tao*. In the Japanese encyclopædia it is stated to be a tree from western countries, which applies to China with regard to Japan, or rather to the interior of China relatively to its eastern coast; the statement having been taken from a Chinese author. The Peach is mentioned in the books of Confucius, 5th century before the Christian era; and the antiquity of the knowledge of the fruit in China is further proved by the representations of it in sculpture and on porcelain. The above are some of the arguments adduced by De Candolle against the commonly-received opinion that the Peach originated in Persia: for the full investigation of the subject, we must refer the reader to his *Géographie Botanique*, according to which excellent authority the conclusion is that China is the native country of this esteemed fruit. That it is there cultivated extensively, and to great perfection, is certain. The Flat Peach of China was introduced into this country more than thirty years ago. It is figured in the *Transactions of the Horticultural Society* (iv. 512, t. 19); and, more recently, a very large variety was brought from Shanghai by Mr. Fortune, which has the usual form exhibited by those cultivated in Europe.

In the South of France, and in other Continental countries possessing a similar climate, Peach-trees ripen their fruit very well as standards in the open air; but at Paris they require a wall; and, with this assistance, they also succeed very well in the southern parts of England, but in the northern the aid of fire-heat, and the protection of glass, are necessary. In America, the Peach grows almost without any care—extensive orchards, containing from 10,000 to 20,000 trees, being reared from the stones. At first the trees there make rapid and healthy growth, and in a few years bear in great abundance; but they soon decay, their leaves becoming tinged with yellow, even in summer, when they should be green. This is owing to their being grown on their own roots; for when that is the case in this country, the trees present a similar appearance. They require, therefore, to be budded on the plum or on the almond. Some doubts have been entertained as to whether the Peach is not the same species as the Almond. They appear, however, to maintain their respective characters sufficiently distinct, unless artificially or by accident they are crossed with each other. The possibility of this being effected was successfully tried by Mr. Knight; and the circumstance of their crossing readily proves their close affinity. He fertilised an almond blossom with pollen from a Peach blossom. An almond was the result; but from its kernel he raised a tree which bore peaches of fair

size and round form, with succulent melting flesh, of tolerably good quality, better, indeed, than some seedlings of the Peach itself.

The varieties of Peaches and Nectarines are very numerous, and would be difficult to distinguish, were it not for a classification formed from certain characters afforded by the fruit, leaves, and flowers. In some varieties the fruit has firm flesh, adhering to the stone; such are termed clingstones. Others have melting flesh, parting readily from the stone; these are called melters or freestones. The leaves are either glandless, or are furnished with globose, or with reniform glands at their bases. And in some the flowers are large, in others small. Formerly the Peaches and Nectarines, known in Europe, had all bitter kernels; but sweet-kernelled varieties have of late years been introduced from Syria. The following are some of the best varieties of Peaches: Noblesse, Royal George, Acton Scot, Grosse Mignonne, Bellegarde, Late Admirable, and Walburton Admirable. Of Nectarines, the *Violetto Hâtive*, *Pitmaston Orange*, *Downton*, *Elruge*, *Impératrice*, and *Balgowan* are amongst the most esteemed sorts. [R.T.]

AMYLACEOUS GRANULES. Grains of starch.

AMYLIDÆ. Cells in algae, secreting starch.

AMYLUM. Starch; that organised granular matter of plants which iodine stains violet or blue.

AMYLOID. A substance analogous to starch, but becoming yellow in water after having been coloured blue by iodine.

AMYRIDACEÆ. (*Terebintaceæ*, *Bursaceæ*, *Amyridæ*.) With the appearance of oranges, and sometimes with the dotted leaves of that order, these plants differ in their fruit, forming a shell whose husk eventually splits into valve-like segments. In general, moreover, the petals have a valvate aestivation. The genera collected under this name are by no means perfectly known, and demand a scrupulous revision. The tropics of India, Africa, and America exclusively produce the species. Their resinous juice is of great importance, forming an ingredient in frankincense and other preparations demanding a fragrant combustible matter. See *AMYRIS*, *BURSERA*, *BOSWELLIA*, *BALSANODENDRON*, *ICICA*, and *CANARIUM*.

AMYRIS. A genus of trees belonging to the order *Amyridaceæ*, known by their unequally pinnate leaves, and by their solitary ovary, which contains two pendulous ovules. The plants are natives of tropical America and India, and are remarkable for yielding resinous products. It is supposed that the resin called *Kieim* is produced from some species of *Amyris*, such as *A. hexandra* and *A. Plumieri*, though there is much doubt, not only as to the plant or plants producing the drug, but

even as to whence it is imported. Indian Bdellium, or False Myrrh, is obtained from *A. commiphora*; it is a gum resin, possessing properties somewhat similar to those of the Myrrh, but is not so highly valued. *A. balsamifera* yields some descriptions of the wood which is called Lignum Rhodium. *A. toxifera* is poisonous. See BAL-SAMODENDRON. [M. T. M.]

ANABAINA. A genus of green-spored *Alga*, the species of which consist of necklace-shaped threads, of which some of the articulations are much larger than the rest. They either form a shapeless scum on the surface of pools, or roundish patches on the bare soil. They never develop a distinct solid frond like that of *Nostoc*. One of the species, *A. licheniformis*, is extremely common in gardens where the ground has been much trodden, as amongst raspberry bushes. The threads are a pretty object under the microscope, the large articulations being reproductive. One or two closely allied *Alga*, as, for example, *Aphanizomenon*, are remarkable for being suspended in the water in which they grow, and giving to it a green tint. [M. J. B.]

ANABASIS. A genus of *Salsolaceæ*, consisting of trees and shrubs, natives of Central and Eastern Asia, and of the eastern shores of the Mediterranean. They are jointed plants, generally aphyllous, or with leaves small and opposite. The flowers are sessile and single, or in a glomerulus, hermaphrodite, and furnished with two bracts. There are five sepals, and the same number of stamens inserted in the receptacle; between these and united to their bases are five minute scales or staminodes. The ovary is unilocular and uniovulate, and the style double and divaricate. There are seventeen species. [W. C.]

ANACAMPSEROS. A genus of under-shrubs from the Cape of Good Hope, referred to the order *Portulacaceæ*. They are succulent plants with crowded, imbricated, sessile, ovate-trigonal terete or subglobose leaves with stipules cut into five segments, often hair-like. Flowers large, white, rose, purple, or yellow, with twelve to twenty stamens; peduncles in some species very short, in others elongated, simple or branched. Several species are cultivated in greenhouses. [J. T. S.]

ANACAMPTIS. A genus of Orchids, established by A. Richard for the *Orchis pyramidalis*, which differs from the rest of the species by two small plates or appendages at the base of the labellum. A South European species in which these two plates are united into one horse-shoe-shaped appendage has since been added, and some botanists unite both species with *Gymnadenia* or with *Aceras*, but in a more natural arrangement they would be retained in *Orchis*. The *Anacamptis* (or *Orchis*) *pyramidalis* is not uncommon in central and southern Europe, extending eastward to the Caucasus.

ANACARDIACEÆ (*Terebinthaceæ*, Cas-

aviææ, *Spondiaceæ*, *Anacardiæ*, *Terebinthæ*). When trees or bushes have a resinous, milky, often caustic juice, dotless leaves, and small inconspicuous flowers, with an ovary containing a single ovule suspended at the end of an erect cord, it is pretty certain that they belong to this order, of which more than 400 species are described, inhabiting the tropics both north and south of the equator, but not known to occur in Australia. *Pistacia*, and some kinds of *Rhus*, inhabit temperate latitudes. Among the products of the order are the Mango fruit, and that called in the West Indies the Hog Plum; the nuts named Pistachios and Cashews, the Black Varnish of Burmah and elsewhere, Mastich, Fustic, &c. These varnishes are extremely acrid, and produce dangerous consequences to persons who use them incautiously. See MELANORRHÆA, MANGIFERA, SPONDIAS, RHUS, ANACARDIUM, SCHINUS, &c.

ANACARDIUM. A genus of woody plants, from which the family to which they belong derives its systematic name, *Anacardiaceæ*. The plants of this group are chiefly remarkable for their kidney-shaped fruit, which is placed on the end of the thickened fleshy pear-like receptacle. *A. occidentale*, a plant cultivated in the West Indies and other tropical countries, produces the fruits known as Cashew Nuts. It is a large tree, somewhat like a walnut-tree in appearance, but with oval, blunt,



indium occidentale.

alternate leaves; the fragrant rose-coloured flowers are borne in panicles. The stem furnishes a milky juice, which, as it dries, becomes black and hard, and is used as a varnish. A gum is also secreted by this plant, having qualities like those of gum

arable. It is imported into this country from S. America, under the name of Cadji gum, and is used in S. America by bookbinders, who wash their books with it, to keep away moths and ants. The thickened receptacle has an agreeable acid flavour, with some degree of astringency; the fruit at its extremity is kidney-shaped, of an ash colour; the shell of the fruit consists of three layers, the outer and inner of which are hard and dry, but the intermediate layer contains a quantity of black, extremely acrid, caustic oil, which gives rise to severe excoriation of the lips and tongue in those who attempt to crack the nut with their teeth. This oil is sometimes applied to the floors of houses in India, to protect them from the attacks of white ants. The acrid matter is destroyed by heat, hence the kernels are roasted before being eaten, and then become wholesome and agreeable. The process of roasting has to be carefully conducted, the scridity of the fumes being so great as to produce severe inflammation in the face of persons approaching too near. [M. T. M.]

ANACHARIS. A submerged aquatic, belonging to the natural order *Hydrocharidaceae*, having long, much-branched stems, small pellucid leaves, which are usually inserted in whorls of three, or less frequently four, and inconspicuous flowers: an American plant, which made its appearance in several remote parts of Britain almost simultaneously about the middle of the nineteenth century. How it was intro-



Anacharis Aleinastrum.

duced is unknown, and it is equally a mystery by what means it traversed the wide tracts of country which separate the various stations in which it first appeared; for, as it is dioecious, and pistilliferous plants alone have found their way to this country, it perfects no seeds. It easily propagates

itself from a small portion either of stalk or root, and is of wonderfully rapid growth; hence it has in many instances destroyed the beauty of ornamental pieces of water, impaired navigation in not a few inland canals, and interferes with the working of water-mills, by choking the outlets of reservoirs, especially towards the close of summer, when its debris are often brought down by the current in large quantities. Great efforts have been made to eradicate it in various places, but with imperfect success. It is greedily eaten by swans and some other water-birds; but even this service is not without its disadvantages, since portions of the stem, torn off but not consumed by these seeming allies, are carried away by the current, and transplanted elsewhere. In some places it is said to have almost disappeared, from having exhausted of its specific nutriment the soil in which it was rooted; but whether the ground will not, after a certain lapse of time, recover its productivity, and bear a fresh crop of *Anacharis Aleinastrum*, remains to be seen. See Mr. Babington's remarks in *Journal of Botany British and Foreign*, new series, I. 97. [C. A. J.]

ANACHASTE sanguinea is a terrestrial Orchid, found at the sources of the Amazon river by Warzewicz, a Polish traveller. It has the habit of *Epidendrum maculatum*, with rich blood red or rose-coloured flowers, having somewhat the form of a *Compœtia*, without the spur. Plants were introduced by Mr. Skinner in 1853. The genus is nearly related to *Cochlidium*.

ANACYCLUS. A genus of the Composite family (*Compositæ*), comprising eight species, which are found chiefly on the coasts of countries bordering on the Mediterranean sea. They are herbs with alternate, pinnati-lobed, much-cut leaves, and terminal solitary flower-heads; the ray florets white. In appearance they much resemble *Chamomiles* (*Anthemis*), and are chiefly distinguished from them by their achenes being bordered with a membranous wing. *A. Pyrethrum* grows in Barbary, Arabia, and Syria, and is cultivated in many places for the sake of its roots, which are used in medicine, and are called Pellitory of Spain. They are imported by the French from Africa, in pieces about the size of the finger. These, when fresh, if applied to the skin, cause a singularly cold sensation, immediately followed by heat. It is very pungent, and causes the saliva to flow freely. Sometimes it is given in tooth-ache, but is seldom taken inwardly. 'When chewed, it causes a pricking sensation in the lips and tongue, and a glowing heat.' [A. A. B.]

ANADENTIA. The name given to a number of plants belonging to the large family of *Proteaceæ*, but which are now generally included in the genus *Grevillea*. They are shrubs chiefly of West Australia, with variously cut and lobed leaves. [A. A. B.]

ANADYOMENE. A genus of calcareous green-spored *Algae*, consisting of branched or dichotomous articulated threads, which are laterally confluent with each other, so as to form a more or less fan-shaped membrane. They are most beautiful objects under a low power of the microscope, and might suggest elegant designs for the silversmith. The species, which are few in number, occur in the warmer seas, and consequently we have none upon our own coast. Some species of *Cladophora*, of which we possess so many, give a good idea of the nature of the filaments. [M. J. B.]

ANÆCTOCHILUS. A genus of terrestrial orchids, nearly allied to *Goodyera* and *Ætheria*, with creeping slender-jointed rhizomes, one or two radical leaves, and spikes of white or yellow flowers. Some of the species have the leaves traversed by beautiful silver or golden veins, on a rich green or purplish ground; hence they have become favourites in the gardens of the curious. There are other tropical terrestrial orchids, with similarly veined leaves, belonging to other genera, one of the commonest of which is *Phyllis* *picatus*.

ANAGALLIS. An interesting genus of Primworts, consisting of dwarf trailing herbaceous plants, annual or perennial roots, angular stems, opposite leaves in pairs or threes, and pretty axillary blue or red flowers. The Pimpernel, by which name the species are popularly known, are easily distinguished from the rest of the order by their conspicuous wheel-shaped, five-parted corolla, five stamens with bearded filaments, and especially by their many-seeded globular pods, opening when ripe by a transverse fissure all round, the top falling off like a lid. With the exception of *Centunculus*, an obscure weed, no other genus of the order presents this feature. Every one is familiar with the common red Pimpernel (*A. arvensis*). The *A. latifolia*, with blue flowers, scarcely differs from it, except in colour and the larger size of its blossoms. Of much greater interest are the Italian Pimpernel (*A. Monelli*), with still larger flowers and of stronger habit, and the *A. collina*, a Barbary species, with handsome light red tinted corollas, which, unlike those of the other species, remain expanded even in the absence of sunshine. It is probable that most of the varieties now cultivated in gardens, among which may be mentioned *A. Philippii*, with deep blue, and *A. Parkii*, with red flowers, are either hybrids or mere seminal variations of these two species. [W. T.]

ANAGYRIS. A Leguminous genus of two or three species, of which *A. fatida* is the best known; this is a large bush, with trifoliate leaves, entire elliptical leaflets, and axillary racemes of yellow flowers, much like those of the laburnum. The pod is narrow, compressed, and curved backwards; and from this circumstance the genus is named—*ana*, signifying back-

wards, and *gyres*, a circle. It is found in the South of France, Spain, and other countries bordering on the Mediterranean Sea; also in the Canary Islands. The seeds are kidney-shaped, violet in colour, and are said to be poisonous, like those of the laburnum. [A. A. B.]

ANALOGY. Resemblance to a thing in form, but not in function; or in function, but not in form. Corresponding with a thing in many points, but differing in more, or in points of more importance. Thus, the flowers of *Potentilla* and *Banunculæ* are analogous.

ANAMIRTA. A genus of plants inhabiting Malabar, Ceylon, and the Eastern Isles of India, and belonging to the *Menispermaceæ*. The flowers are unisexual and dioecious—that is, the male blossoms are borne on different plants from the female blossoms. The sepals are six in number; there are no petals; the stamens are numerous, but united into one parcel, forming a globular head. The ovaries of the female flower are three in number, attached to a short thick hemispherical receptacle; they become succulent and drupe-like in the fruit. The most important, if not the only species of this genus, is the *A. Cocculus*, the plant which produces the fruits known as *Cocculus indicus*. It is a climbing plant, with ash-coloured, corky bark. The leaves are stalked, more or less heart-shaped, smooth above, pale beneath, and provided with tufts of hairs at the junctions of the nerves, the larger of which radiate from the base of the leaf. The flowers are borne in pendulous panicles. The fruits are roundish or kidney-shaped; the outer coat is thin and dry, of a dark brown or black colour and wrinkled appearance; within this is a white hard shell, divided into two pieces; this encloses the whitish seed, which is very oily, of a crescent-like shape, and much smaller than the fruit, so that it never entirely fills up the cavity.

Cocculus indicus is imported from the East Indies, and is used for adulterating porter, though, very properly, a heavy penalty is inflicted upon brewers detected in so doing, and upon druggists who supply brewers, as it contains an acrid irritant poison, called picrotoxin. It is used to poison fish, and to increase the intoxicating properties of porter, being employed in the shape of a black extract. Its effects are to produce giddiness, convulsions, and insensibility. It has been occasionally used externally to destroy vermin, and in some skin diseases. [M. T. M.]

ANANASSA. A genus of tropical *Bromeliaceæ*, having rigid foliage, with sharp spines along the edge, distinguished among the inferior-fruited genera of the order, chiefly by its berries being consolidated with the bracts into a compound or syncarpous fruit, which is edible.

The Pine-apple, *A. sativa*, is generally believed to have derived its name from the great resemblance which the fruit

bears in its form to the cone of some species of the pine or fir tribe. It is universally acknowledged to be one of the most delicious fruits in existence. Three hundred years ago it was described by Jean de Lery, a Huguenot priest, as being of such excellence that the gods might luxuriate upon it, and that it should only be gathered by the hand of a Venus. It is stated to be a native of Brazil, and having been carried from thence to the West, and afterwards to the East Indies, cannot be regarded as indigenous to the tropical parts of Asia, Africa, and South America. It first became known to Europeans in Peru, where it is called *Nanas*, and under this name it was described in 1555 by Andre Thevet, a monk, who says it was often preserved in sugar. The plant is biennial, not unlike an *Aloe*, but the leaves are much thinner, and of a hard fibrous texture, with numerous short sharp spines on the edges. The fruit is produced on a short stem which rises from the centre of the plant, and bears a scaly conical spike, surmounted by a number of small spiny leaves called the crown. This conical body, after flowering, gradually enlarges and eventually becomes the rich and succulent Pine-apple we so highly prize. Besides being the first of dessert fruits, it is made into marmalades and various confectioneries, and is used to flavour rum. The earliest account of Pine apples being seen in England, is that of some having been received as a present by the Protector Cromwell. We next find them noticed by the celebrated Evelyn, from whose Diary we subjoin the following extract:—'August 9, 1661. I first saw the famous Queen Pine brought from Barbados and presented to His Majesty' (Charles II.); again under date of July 19, 1668, he observes, 'I was at a banquet which the King gave to the French Ambassador. Standing by His Majesty at dinner in the presence, there was of that rare fruit called the King Pine, growing in Barbados, in the West Indies. The fruit of them I had never seen. His Majesty cutting it up was pleased to give me a piece from his own plate to taste of; but in my opinion it falls far short of those ravishing varieties of deliciousness ascribed to it. It has been conjectured that from the crowns of these Pines, Mr. Rose, the royal gardener, succeeded in raising plants, and that one of the latter might have produced the fruit he is represented, in a well-known picture, as presenting on his knee to King Charles II. as the first Pine-apple grown in England. It is just possible that such might have been the case, but, except in the picture above alluded to (of which a copy is in the possession of the Horticultural Society), we have no evidence to show that the Pine apple was then cultivated in the royal gardens, or at any other place in this country, until many years afterwards. For its introduction into Europe we are indebted to M. Le Cour, a Dutch merchant, who about the middle of the seventeenth century made an attempt to cultivate it in his garden at Drie-hock, near Leyden.

After a great many trials he at last hit upon a plan by which he obtained a sufficient degree of heat to produce fruit equally good, though not so large, as that produced in the West Indies. According to the best authorities, the first plants introduced into England were brought from Holland by the Earl of Portland in 1690. Twenty years afterwards we find Pines successfully cultivated by Sir Matthew Decker, in his garden at Richmond; and to this gentleman the honour has usually been ascribed of having first fruited the Pine apple in Britain, about the year 1712. From that time to the present every possible means that art and ingenuity could devise for the culture of this fine fruit has been adopted, and in no other instance, perhaps, has the care and skill of the gardener been attended with more signal success. Pine-apples having been produced in this country far surpassing in size and flavour the very best of those matured in a tropical climate. The difficulties which formerly attended the cultivation of the Pine-apple have disappeared since the mode of heating hot-houses with hot water was introduced, and handsome fruits weighing from six to twelve pounds are by no means uncommon; but heaviest on record, we believe, was grown in 1826 by Dixon, gardener to John Edwards, Esq., Rheola, Nenth, Glamorganshire, and weighed fourteen pounds twelve ounces! The most remarkable experiment, however, that has been made in pine-growing was one by Barnes, gardener to Lady Rolle, at Bilton, in Devonshire, who, in September 1845, cut some excellent fruit of four and five pounds weight from plants that had been exposed in the open air during the whole of the summer. Pine-apples are no longer a novelty, large quantities being annually imported and sold at a cheap rate in the principal towns throughout the kingdom. Like most of our cultivated fruits, they vary in quality and appearance; no less than fifty-two sorts being described in the *Transactions of the Horticultural Society* (2 ser. i. 1). The greater number have been introduced from abroad; but several have originated from seed in England. That which is now so commonly imported from the Bahamas is a sort called the Providence, one of the least valuable of the race.

[W. B. B.]

ANANDRÆ. A name sometimes given to Cryptogams on the supposition that they have no male organs. See **ASEXUAL PLANTS**. [M. J. B.]

ANANDRIA. A genus of the Composite family, and of the tribe *Mutisiaceæ*, in which the florets are two-lipped. *A. Bellidistrum* is a stemless herb of Siberia and Japan, having rosettes of stalked lyrate toothed leaves, covered with white down underneath, and arising from their midst a flower scape bearing a single head about half an inch across, containing numerous white or purple florets. When the plant is in flower the leaves are seldom more than

three inches long, but, when mature, are from five to six inches. The flower scape also lengthens after the flowers wither, and is often upwards of a foot in length. The naked receptacle and broad-beaked achenes terminating in a small cavity, are the characters which distinguish the genus from *Perdicium*, to which this plant was formerly referred. It has been cultivated in this country, and is the only species of its genus. [A. A. B.]

ANAPAUSIA. A genus of polypodiaceous ferns belonging to the *Acrosticheae*, among which they are distinguished by having a portion of their fronds wholly fertile, and the veins of their fronds compoundly reticulated, with free divaricate veinlets in the areoles. The species are mostly found in the West Indies and South America, and form coarse-growing herbaceous plants with compound fronds, a portion of which are entirely sterile, and the remainder somewhat contracted and covered with the fructification. *A. vesper-tilio*, a Javanese species, has coriaceous lunately bilobed sterile fronds, and linear-lanceolate fertile ones. [T. M.]

ANARRHINUM. A genus of biennial, or perennial herbaceous plants, natives of Southern Europe, Northern Africa, and Syria, belonging to *Scrophulariaceae*, and containing seven species. The radical leaves are generally rosulate, the cauline opposite or alternate, sometimes both on the same plant. The flowers are small in spike-shaped racemes. The calyx is deeply five-lobed, the corolla tubular and bilabiate, the upper lip erect, then reflexed, the lower patent. The stamens are included, four being fertile, and the fifth sterile and undeveloped. The ovary is bilocular, with many ovules. [W. C.]

ANARTHRIA. A genus of *Rubiaceae*, containing five species of perennial plants, with flattened simple or branched stems, indigenous to the eastern shores of New Holland. The flowers are dioecious, and have six glumes. The male flower has three free stamens, with bilocular anthers; the female has three styles. The capsule is three-lobed and tri-locular, with a single seed in each locument. [W. C.]

ANASARCA. A condition of plants analogous to dropsy, though not always attended by extravasation. In extremely wet weather the tissues get gorged with fluid, and as the vegetative powers are generally lowered by the decrease of temperature, the contents of the cells are badly supplied, and, in consequence, their walls, unconsolidated, become subject to decay, which is soon exhibited in a variety of untoward symptoms. Fruit, in consequence, which has been produced in a wet season, is notoriously subject to decay, except compensated, as in the late ungenial summer, by a high state of the hygrometer, a circumstance which may perhaps account for the extremely small quantity of decay which has been ex-

perienced in our autumnal fruits. In some cases, as in elms, there is sometimes direct extravasation, and then the fluid accumulates, and at length forces its way through the bark, producing permanent ulcers. [M. J. B.]

ANASTATICA. A genus of *Cruciferae*, consisting of a single species, the Rose of Jericho (*A. Hierochuntina*), a small annual growing in the arid wastes of the extra-European Mediterranean region, from Syria to Algeria. The stem is short, branched in a corymbose manner at the top; the leaves obovate, with stellate hairs, the lower ones entire, the upper remotely toothed; the flowers are small and white, forming spikes along the branches; the fruit is a short pouch, with two ear-like projections at the top, and divided by a transverse partition within into two cells, in each of which there is a seed. This plant is interesting on account of its hygroscopic properties: when the plant is in flower, the branches spread rigidly, but when the seed ripens, the leaves wither and drop, and the whole plant becomes dry, each branch curls inwards, until the plant presents the appearance of a little ball of wicker-work at the top of the unbranched part of the stem. In this state it is soon loosened from the soil, and carried about by the wind, and often blown into the sea. When this happens, or the plant is otherwise wetted, the branches unbend, and the pods begin to open by splitting longitudinally, so that, when thrown on shore by the waves, the circumstances are favourable for the production of fresh individuals in a locality remote from the original place of growth. The plant retains its property of expanding when moistened, and again curling up when dry for a long time. Specimens, collected ten years ago, exhibit the phenomenon as perfectly as ever. In Palestine it is called 'Kaf Maryan,' or Mary's Flower; and there is a tradition that the plant expanded at the birth of the Saviour. [J. T. S.]

ANASTOMOSIS. The angle formed by the union of veins, or of their branches.

ANATHERUM. A group of grasses, the species of which are now included in the genus *Andropogon*. [D. M.]

ANATROPA. A generic name given to a small, succulent, herbaceous plant from Syria, belonging to the natural order *Elatinaceae*. Except that it has stipules, it differs in no respect from *Tetradiclis*, to which it is consequently generally referred. [W. C.]

ANATROPAL. When an ovule is turned down upon itself, so that the foramen, or true apex, points to the base, and the chalazal is at the apex.

ANBURY. A gouty nodular condition of certain roots, as turnips, arising from the presence of grubs. It must not be confounded with dactylorhiza, which is a

very different affection, and entirely independent of the attacks of insects. [M. J. B.]

ANCHISTEA. P. Anchietea, a Brazilian writer on plants, is commemorated in the name of this genus of Violetworts, *Violacea*. The species are shrubs, with undivided leaves, and small white flowers in axillary tufts. The calyx consists of five unequal divisions, not prolonged at the base; petals, four, unequal, the hindermost one large, and prolonged into a spur; filaments very short; anthers fixed together, membranous at the top, two of them prolonged by means of their connectives into the spur of the petals. Fruit large, capsular, membranous, and bladder-like. Of *A. sulcatris*, a creeping bush, with a nauseous taste, and a smell of cabbage, the root is used as a purgative by the Brazilians, and as a remedy in skin diseases. *A. pyrifolia* is an ornamental stove-creeper, with white flowers. [M. T. M.]

ANCHUSA. A genus of *Boraginaceæ*, consisting of rough or hispid plants, most of which are natives of Southern Europe and the East, resembling *Lithospermum* and *Alkanna*, but with the nuts which form the fruit hollowed out at the base, and the corolla, which is from funnel-shaped to salver-shaped, closed by five scales at the throat; flowers purple, blue or yellowish, in scorpioid racemes, which are generally bracteated, and in pairs. Three species occur in Britain, but two of them appear to be doubtful natives. The evergreen Alkanet, *A. sempervirens*, has broad ovate leaves, those of the root large, and on long stalks; with sky-blue flowers in short twin racemes on short stalks, from the axils of the leaves. The common Alkanet, *A. officinalis*, has narrow oblong leaves, and deep purple flowers, in several racemes, at the top of the stems. The small Bugloss, *A. arvensis*, is often separated from the other species, under the name of *Lycopsis arvensis*, on account of the tube of the corolla being curved: it is a very bristly annual, with small pale blue flowers, and narrow oblong leaves, and is a common weed on cultivated ground. The first two species are often cultivated in gardens, but the biennial European *A. paniculata*, or *italica*, is the most common in flower borders, as its flowers are as large as a fourpenny piece, and bright azure blue. *A. capensis* is from the Cape of Good Hope. *A. tinctoria*, the Alkanet, is now called *Alkanna tinctoria*. [J. T. S.]

ANCHITOUS. Two-edged, as the stem of an *Iris*.

ANCISTROCLADEÆ. Under this name Planchon proposes to form a new natural order, out of the solitary genus *Ancistrocladus*—which see.

ANCISTROCLADUS. A genus of climbing plants, inhabiting the East Indies. Its prominent characters are the branches, some of which are curved and hook-like; the alternate, stalked, leathery leaves unprovided with stipules; inflorescence a

panicle; ten stamens in one row, five shorter than the others, all slightly adherent one to the other at their base; the anthers have a slightly prolonged crest at the top; the one-celled ovary has a single ovule at its base, and ripens into a sort of nut, crowned by the persistent calyx. The genus is by Planchon referred to a new order, *Ancistrocladeæ*, more nearly allied to *Dipterocarpaceæ* than to any other group. 'It combines,' he says, 'with the vegetation of *Nepenthes*, the leaves of *Lophira*, the stamens and stigmata of certain malpighiaceous plants, the adherent calyx of *Dipterocarpus*, the adherent ovary of *Symplocos*, the hook-like branches of *Hugonia*, and a peculiar fleshy fungus-like embryo, with a cylindrical rather long radicle, and a disc-shaped cotyledonary mass.' [M. T. M.]

ANCOLIE. (Fr.) *Aquilegia*.

ANDER. In names formed from the Greek = the male sex or stamen: thus *monander* signifies having one stamen.

ANDERSONIA. A genus of squarrose-leaved shrubs, belonging to the natural order *Epacridaceæ*, containing several species, remarkable for the great beauty of their flowers and the singular structure of their leaves. They are natives of New Holland. The flowers are terminal, and solitary or in spikes. The calyx is coloured, five-partite, with two or more bracts. The corolla is subcampanulate, hypocrateriform, and five-lobed, the lobes bearded at their base. The five hypogynous stamens just appear beyond the throat of the corolla. The existence of a nectary, consisting of five scales, separates this genus from *Sprengelia*, with which it is otherwise identical. The ovary is five-celled, with many ovules in each cell. The fruit, a berry, is esculent. [W. C.]

ANDIRA. A genus of the Peaflower tribe, of the natural family *Leguminosæ*. About seventeen species are known, all of them trees of moderate height, with alternate unequally pinnate leaves, about one foot long, of five to ten pairs of leaflets. The stipules are sometimes large and persistent, or they are small and fall early. The flowers are often showy, and are disposed in axillary or terminal panicles—the reddish lilac of their petals contrasting well with the often dark purple branches of the flower-stalks. The pod is one-seeded, drupaceous, and somewhat like a plum in appearance. All the species are natives of tropical America, but a variety of *A. thermis* is found in Senegambia. This species is called in the West Indies the Cabbage-tree. Its bark is anthelmintic, but requires great care in its administration, being powerfully narcotic. It has a sweetish taste, but a disagreeable smell, and is given in the form of a powder, decoction, or extract. The decoction is generally preferred, and is made by boiling an ounce of the dried bark in a quart of water, until it assumes the colour of Madeira wine. The effects of an over-dose

are vomiting, delirium, and fever: the antidote for this is lime-juice or castor oil. The powder, administered in doses of three or four grains, purges like jalap. The bark is known as Bastard Cabbage Bark, or Worm Bark; formerly it was used as a medicine in English practice, but its use is now obsolete. *A. retusa*, a Brazilian species, has purple flowers, having an odour of oranges, with a slight aroma: the fruit is said to smell like the tonka bean. Most of the species are beautiful objects when in flower. [A. A. B.]

ANDRACHNE. A genus of Spurge-worts, (*Euphorbiaceae*) comprising ten species; distributed over the Mediterranean region, N. India and China, one species occurring in Arkansas. They are perennial herbs of no beauty, with erect or prostrate stems, furnished with alternate, shortly-stalked leaves, having rounded or ovate and entire blades of a pea-green colour, varying from a quarter of an inch to two inches in length; while the small greenish flowers—which are sterile and fertile on different plants—are borne singly, or two to four together, in the axils of the leaves. The sterile flowers have a calyx of five to six sepals, a like number of petals, five entire or bifid glands opposite the petals, and five stamens, slightly united below by their filaments, and surrounding an abortive ovary. The fertile flowers have a like calyx and corolla, rather larger glands, and an ovary surmounted by a three-branched style, each of the branches forked. The fruits are trilobed capsules, of the size of peas, with three cells, and two seeds in each cell. [A. A. B.]

ANDREÆA. A genus of Mosses named after Andrea, a Hanoverian Doctor. It is remarkable for having a capsule which splits into four or sometimes six valves, which, however, do not expand as in *Jungermannia*, but adhere at the apex to which the columella is attached. The capsule is always sessile, even to maturity, but is at length supported by the elongated base or pseudopodium. In consequence of this arrangement, the calyptra does not burst so soon as in most other mosses, as it is ruptured by the swelling of the capsule and not by the elongation of the peduncle. The species are Alpine or sub-Alpine, occurring on quartzose or granitic, never on calcareous rocks, and are found in cold or temperate regions of either hemisphere, or at considerable heights in warmer countries, as in the Himalayas. Four species in which the leaves have a central nerve, occur in this country, while in the others the leaves are nerveless. [M. J. B.]

ANDREÆACEÆ. A natural order, or, according to some, a distinct tribe of Mosses. They do not, however, differ essentially, being distinguished mainly by the longitudinal splitting of the valves at maturity. It consists of but two genera, *Andreaea* just described, and *Acrostichum*, an Antarctic genus, distinguished by the cylindrical capsule splitting into four or eight valves

at the apex only. All the species are of a peculiar dark hue, and the leaves, which are of a close texture, are of a beautiful yellow or golden brown under the microscope. [M. J. B.]

ANDROGYMBIUM. A genus of *Melanthaceae*, containing three or four species from the Cape of Good Hope. They are plants with tunicated bulbs, and simple, short, subterranean stems, crowned with from two to four ovate, lanceolate, or linear leaves, and having one to nine flowers in short spikes, hid in coloured foliaceous bracts. [W. C.]

ANDRÆCIUM. The male system of a flower. The stamens taken collectively.

ANDROGLOSSUM. A genus founded on a single species, *A. reticulatum*, a native of the Island of Hongkong. It seems to belong to the natural order *Rhamnaceae*, the arrangement of the stamens being precisely the same as in that order; but it differs from it in the structure of the ovary, the carpels being almost if not quite distinct, and the ovules, two in each carpel, horizontally attached to the axis, instead of being solitary and erect from the base. The calyx is five-partite; the corolla five-petaled; the five stamens are opposite to and inserted in the petals; there are two styles. The fruit from the abortion of one of the carpels, is simple, spherical, and subdrupaceous, with a crustaceous covering. [W. C.]

ANDROGYNOUS. A term applied to such kinds of inflorescence as consist of both male and female flowers.

ANDROMEDA. A genus of *Ericaceae*, consisting of shrubs and trees having various habits, and a wide geographical range; but found chiefly in boreal districts, or at considerable heights on mountains in North America, Europe, and Asia. The genus has a calyx of five nearly or partly distinct sepals, valvate in the early bud, but very soon separate or open. The corolla is ovate or campanulate, five-toothed, and deciduous. The stamens are ten in number, with the anthers fixed near the middle; the cells generally opening by a terminal pore. The ovary is five-celled, with many ovules in each cell. The style is simple. The fruit is a dry capsule, superior, globular, five-celled and five-valved, and loculicidal, the dissepiments being from the middle of the valves.

The genus is by some modern botanists limited to the single British species, *A. polifolia*; but it is usually extended to include a very large number of species. So extended, it is divided into the following sub-genera:—1. *Andromeda proper*, boreal herb-like plants, with calyx five-cleft, corolla sub-globose, filaments bearded, anthers having a slender ascending awn, and seed smooth. 2. *Cassiope*, Arctic and Alpine under-shrubs, with calyx five-parted, without bracts, corolla campanulate, anthers fixed by the apex, and having a long

recurved awn, stigma truncate, and seeds smooth and wingless. 3. *Ossandra*, boreal shrubs, with calyx five-parted, and having two bracts, corolla tubular, anthers without awns, and seeds flattened and wingless. 4. *Zenobia*, North American shrubs, with calyx five-toothed, corolla campanulate, deeply five-parted, anthers two-awned, and seeds angular. 5. *Leucothoe*, North American shrubs, with calyx five-parted, corolla tubular, five-toothed, anthers unked, or with one or two awns, and stigmas broadly capitate. 6. *Pieris*, Nepal trees or shrubs, with calyx five-parted, corolla tubular or ovate, anthers two-awned, and stigmas truncate. 7. *Agave*, tropical American evergreen shrubs, with calyx five-parted, corolla ovate, anthers with two bristles, stigmas capitate, and seeds angular.

The members of this genus are more or less narcotic. *A. polifolia*, the only British species, but found also in peat bogs throughout the north of Europe, Asia, and America, is an acrid narcotic, and proves fatal to sheep. Similar properties have been observed in the United States in *A. maritima* and other species. The shoots of *A. ovalifolia* poison goats in Nepal. Dr. Hornfield states that a very volatile heating oil, with a peculiar odour, used by the Javanese in rheumatic affections, is obtained from one of the species. [W. C.]

ANDROPHORE. The tube formed by monadelphous filaments, as in mallow.

ANDROPOGON. An extensive genus of grasses, typical of the tribe *Andropogonee*, which, according to Steudel's *Synopsis Plantarum Graminearum*, contains 458 species. The flowers are polygamous. The species are mostly natives of the warmer parts of the globe, especially South America; none of them British. Among the more interesting kinds, the Sweet-scented Lemon Grass, *A. Schenanthus*, may be mentioned, which is a native of Malabar, and well-known in British gardens as a stove conservatory plant. The fresh leaves, when bruised, emit a delightful odour, and when roasted are used in India for medicinal purposes. One of the grass oils is yielded by a species of this genus. (See *Brewster's Journal*, ix. 333.) *A. muricatus*, called in India *khus*, is employed there for making covers for palanquins, and screens, &c. (see *Lindley's Vegetable Kingdom*, p. 113).—The roots are woven neatly into screens or mats, and suspended before the doors or windows, so that the breeze, in passing through them, is cooled and regains a portion of its healthy elasticity, while a slight but very agreeable fragrance is diffused around. Lady Calcott in the *Scripture Herbal*, considers *A. Calamus aromaticus* to be the Sweet Cane of Isaiah, the Sweet Calamus of Exodus, the Calamus of the Canticles and of Ezekiel. Dr. Royle also considered the plant of that name described by Dioscorides to be the Sweet Cane and 'rich aromatic reed from a far country' of Scripture. Steudel does not enumerate

this species under the genus of *Andropogon*, nor give any synonym of it. [D. M.]

ANDROSACE. Mountain plants, with flowers nearly allied to the Primrose, from from which they differ principally in having the mouth of the corolla contracted. They are found on the mountains of Europe, from Siberia to the Pyrenees, and are well adapted for growing on rockwork, though not easy of culture. The leaves, which vary in shape in the different species, are tufted, and grow close to the ground; the flowers are either white or pink, and grow on a scape or leafless stalk, in umbels; they are usually small, and inconspicuous. Some of the species are annuals, and some perennials; one only is a biennial. They vary in height from two to six inches. [C. A. J.]

ANDROSÆMUM. Under the name of *A. officinale*, the Tutsan, *Hypericum Androsæmum*, is sometimes separated from the rest of the *Hypericeæ*, from which it differs chiefly in having a berry-like capsule; but the genus is not generally adopted. [T. M.]

ANDROSTEMMA. A genus of *Hemodoraceæ*, nearly allied to *Conostylis*, containing a single species, from Swan River Colony, New Holland. It is a rushy plant, of no beauty, although its flowers are an inch and a half long, for they are green, and buried among the leaves. [W. C.]

ANDROUS, in the composition of words derived from the Greek, refers to the stamens; thus, *mon-androus* signifies having one stamen, &c.

ANDRYALA. A family of evergreen herbaceous plants, belonging to the natural order *Compositæ*, growing to the height of about half a foot, and having yellow flowers. Two species are found in dry stony fields about Nice, near the Var; the others are natives of Madeira and the North of Africa, and, when cultivated in this country, require the protection of a greenhouse. [C. A. J.]

ANETH. (Fr.) *Alnus glutinosa*.

ANEILEMA. A genus of *Commelynaceæ*, the flowers of which have a six-parted unequal perianth, the three outer divisions or sepals persistent, and the three inner deciduous; six stamens, of which three are dissimilar, scarcely polliniferous; and no involucre. It is principally distinguished from *Commelyna* by the latter circumstance. There are several species, natives of New Holland and India. [T. M.]

ANEMIA. often erroneously written *Anelmia*. A genus of schizomacous Ferns, belonging to the section *Schizææ*, in which it is distinguished by having the fructifications paniculate on distinct fronds, or on lateral branches of the fronds, and the veins free. The separate branches of fructification produce the appearance of a flowering plant, with a spicate inflorescence. There are numerous species of South America and the West Indies, some

of which are of a very ornamental character, and much prized in gardens. One of the most beautiful is *A. adiantifolia*, a species having the barren branch triangular and tripinnatifid, and the two fertile branches erect, rising from its base, and bearing a cylindrical spike of small fertile segments. Several species, with a similar arrangement of the parts, have the sterile branch pinnate. Other species, as, for example, *A. millefolia* and *A. buntifolia*, have the fertile parts distinct, rising from the base. One species, *A. Wightiana*, is found on the Neilgherry Hills of India, and another, *A. Dregeana*, is met with in South Africa and Natal. [T. M.]

ANEMIDICTION. A genus of schizacous Ferns, distinguished from *Anemia* only by the reticulated venation of its fronds. It is consequently included in that genus by those who do not admit the generic importance of the venation in ferns. The principal species, *A. Phyllitidis*, occurs in various forms in the West Indies and South America, and is a fine herbaceous species, with pinnate sterile branches, and tall, compactly-panicked fertile ones. [T. M.]

ANEMIOPSIS. A genus of the small family *Saururac*, peculiar to California and New Mexico, and represented by a single species, *A. californica*, a semi-aquatic perennial herb, with stalked and nearly smooth root-leaves, like those of the *Sprei*, *Rumex Acetos*, but of a much thicker texture. The flower scape, nearly a foot in length, and exceeding the root leaves, bears near its middle a leafy bract (which often produces in its axil a young plant), and terminates in a compact cone of small green flowers, surrounded by an involucre of six oblong petal-like leaves of a white colour, spotted with red, so that the whole head has some resemblance to an anemone flower. The flowers are destitute of calyx and corolla, have six to eight stamens seated on the top of an ovary, which is one-celled, with three bundles of ovules hanging from the top of the cell, and crowned with three short styles. The plant is in cultivation in this country. [A. A. B.]

ANEMONE. A large genus of *Ranunculaceae*, generally distributed in temperate regions—most numerous in alpine situations in the warmer districts. They have tuberous or thickened root-stalks and root-leaves, often ternately divided or cleft. The stem, or rather scape, is leafless, and often unbranched, with an involucre below the flower, formed by a whorl of three (rarely two) bracts. When the scape is unbranched, there is only one involucre; when branched, each flower has one, and the branches spring from the interior of the involucre, together with the peduncle, which bears the central flower. The flowers are handsome, for, though the petals are absent in single flowers, the sepals are brightly coloured, especially on their inner faces. The flowers very readily become double by the conversion of the numerous

stamens into narrow petals; this is often seen in gardens, but occurs even in wild plants of some species found in the South of Europe—a very unusual circumstance.

The genus forms three groups or sections. (1) *Anemone proper*, or *Anemanthus*, of Endlicher, in which the carpels terminate in a short point (not a feathery tail), and the involucre is remote from the flower. (2) *Hepatica*, with the carpels as in *Anemanthus*, but the involucre close to the flower, resembling a calyx. (3) *Pulsatilla*, in which the carpels end in a long feathery tail, formed by the persistent styles, which elongate after the flower fades. Of the first section, three species occur in Britain. The Wood Anemone, *A. nemorosa*, is the only one truly native; it has white flowers, sometimes tinged with purple on the outside. *A. ranunculoides*, a common European plant, naturalised in a few stations in Britain, has bright yellow flowers, otherwise like the wood Anemone. *A. apennina*, a native of Southern Europe, also naturalised in a few British localities, has the flowers bright blue on the inside of the sepals, which are narrow, and more numerous than in the other two; the root-stalk is also shorter and thicker. The last two are often cultivated in gardens, as well as the more showy Japan Anemone, *A. japonica*, which has ternate leaves, branched flowering stems, and large purplish-red flowers. The Star Anemone, *A. hortensis*, or *stellata*, has ternate leaves, with the segments not finely divided, unbranched flower-stalks, and star-like flowers, smaller than those of the Japan Anemone and very variable in colour; and the Poppy Anemone, *A. coronaria*, which, like the last, is a native of the Mediterranean region, has ternate leaves, with the divisions cut into fine segments, unbranched flower-stalks, and large flowers, with broad sepals, very variable in colour—scarlet, purple, blue, whitish, striped, or with an eye of a different hue from the rest of the flower. The last two, and especially the Poppy Anemone, are florists' flowers. [J. T. S.]

ANEMONE, RUE. *Thalictrum anemonoides*.

ANEMONOPSIS. A genus of *Ranunculaceae*, containing a single species, *A. macrophylla*, a native of Japan. It is allied to *Helleborus*, having three to five follicles to form the fruit. The flower, however, resembles in aspect that of an *Anemone*, whence the name. The calyx has nine sepals; the corolla ten petals; and the leaves are three or four times ternately divided, resembling an *Actaea*. [J. T. S.]

ANEMOSIS. The condition known in timber by the name of wind shaken. A trunk which is apparently sound externally, proves, when felled, to have given way in the direction of the concentric layers of which it is composed, so that the connection between them is more or less completely broken. This occurs in many kinds of exogenous timbers, and is no less common in foreign woods than in

those of native growth, being, as it is supposed, due to the pressure of extremely violent gales. This, however, is very doubtful, the effect being more probably due to frost or lightning. Wind, however, may be injurious to trees without producing absolute fractures or separation of parts, by causing too rapid evaporation and in consequence chilling the tissues to such a degree as to retard development, or induce an unhealthy condition, or temporary sterility. [M. J. B.]

ANESORHIZA. A genus of *Umbelliferae*, containing seven or eight species of biennial or perennial herbaceous plants, with one or more fusiform roots: natives of the Cape of Good Hope. The root of *A. capensis*, known vulgarly as Anyswortel, is used as an esculent. The radical leaves are petiolate, and two or three times pinnatisect; those of the stem are scale-like. The umbels are few or many radiate: in some species being as few as three, in others as many as twenty-eight radiate. The limb of the calyx is five-toothed and persistent. The petals are elliptical and acuminate. The involucre and involucrels are many-leaved, the margins of the leaves being often scarious. [W. C.]

ANETHUM. The name applied to a genus of Umbelliferous plants, which is distinguished by the absence of involucre to the umbel, by the absence of the limb or upper part of the calyx, by the fruit being flattened from back to front, provided with a membranous border or wing, and with six ridges, three on each half of the fruits. In each of the furrows, between these ridges, is placed a broad channel, or vitta, filled with volatile oil. The Common Dill, *A. graveolens*, which in appearance resembles the fennel, is cultivated in herb gardens in this country for the sake of its fruits, and is a native of the south of Europe, Egypt, the Cape of Good Hope, &c. The fruits, or as they are commonly but erroneously called, the seeds, when distilled with water, furnish an oil on which the carminative effects of the plant depend. It is generally used in the form of dill water, to relieve flatulence in children, and to prevent the griping properties of some purgative medicines. The plant and the fruit are used as condiments in the East. It is supposed to be the plant which is called Anise in the New Testament narrative. [M. T. M.]

ANETIA. A genus of *Homalinee*, containing a single species. From tropical Africa. It is a shrub with alternate shortly petiolate leaves, and small cinereous flowers in branched spikes. It is nearly allied to *Homaltum*, but differs from it in having a double series of stamens and glands, fifteen of each, that is three times the number of the calyx segments, and in having five diverging styles. [W. C.]

ANETIUM. A genus of polypodiaceous ferns, sometimes referred to the *Aceratichne*, but more closely allied to

the *Hemionitideae*, among which it is distinguished by having the veins of the fronds uniform, reticulate, and the sori sporadic, or dispersed, sometimes reticulated following the veins, and in some places distributed on the surface, but everywhere partial, as if scattered. The species *A. ceterifolium*, is a West Indian and South American plant, producing narrowish simple fronds. [T. M.]

ANETTE. (Fr.) *Lathyrus tuberosus*.

ANEURA, ANEUREÆ. The name of a division and genus of frondose *Jungermanniaceae*. *A. multifida* and *A. pinguis*, found on the margins of ponds, on the walls of wells, and in similar damp situations, associated with *Pellia*, differ from that genus in having more divided and irregular ribless fronds, with the fruit marginal and ventral, the capsule oval or oblong, and the elaters attached to the tips of the valves. *Aneura* is the only genus of the division *Aneura*, a name indicative of the ribless fronds. [M. J. B.]

ANFRACTUOSE. Twisted or sinuous, like the anther of a cucumber.

ANGELICA. A family of Umbelliferous plants, the several species of which inhabit Europe and America. The name was given as a record of the angelic virtues possessed by some of the species; for not only was it a singular remedy against poison, the plague, all kinds of infection, and malaria; but it was invaluable against witchcraft and enchantments. The British species, *A. sylvestris* is a tall and stately plant, five or six feet high, with a polished stem, most frequently tinged with purple and covered with a glaucous bloom like that of a plum, much branched, bearing large compound leaves covered with a bloom like that of the stem, and at the extremity of each branch a large convex umbel of white flowers tinged with pink. It is common on the banks of rivers in withy-holts and other watery places, and may often be distinguished at a considerable distance by the large egg-shaped expansions of the leaf stalks, which serve as an integument for the as yet unexpanded flowers. The plant is now little regarded for any intrinsic virtues it may possess; but it forms a picturesque addition to the landscape, and may be made very useful in the garden by cutting the hollow stalks into convenient lengths and placing them about in the shrubs as traps for earwigs. Candied Angelica is made from the stalks of an allied plant, *Archangelica*. The appearance of a tall species of this genus growing in Kamtschatka is shown in plate 18. [C. A. J.]

ANGELICA. The garden name for *Archangelica officinalis*.

ANGELICA TREE. *Aralia spinosa*.

ANGELICO. *Ligusticum actaeifolium*.

ANGELIQUE. (Fr.) *Archangelica officinalis*. — DE BOHÈME. *Trochiscanthus*

nodiflorus. — **EPINEUSE.** *Aralia* *sp.*
nosa.

ANGELONIA. A genus of *Scrophulariaceae* distinguished by its five-cleft or five-parted calyx; its short-tubed corolla, with fornicate throat, and somewhat two-lipped limb; the upper lip very blunt, two-lobed, the lower one longer, three-lobed with the middle lobe saccate at the base; four didynamous included stamens, and a two-celled many-ovuled ovary. The species, which are rather numerous, inhabit South America, and form erect or procumbent herbs, with opposite leaves alternate on the upper part of the stems, and solitary one-flowered axillary or racemose peduncles. *A. satcariifolia* is a pretty perennial species, with tallish stems, lance-shaped leaves, and a long racemose inflorescence consisting of light purple flowers. *A. angustifolia* is similar but dwarfer. The species have no particular use, but are ornamental. [T. M.]

ANGIOPTERIDEÆ. A section of the marattiaceous division of marattiaceous Ferns, in which the spore-cases are free, and set close together, lacer to lacer, in two opposite contiguous lines. [T. M.]

ANGIOPTERIS. A noble genus of marattiaceous Ferns, representing the group *Angiopterideæ*. The genus is eastern, being common in India, Ceylon, and the islands of the Eastern Archipelago. There are probably but few species, though they have been very much extended by De Vries, the author of a monograph of the family. The differences observed perhaps rather indicate varieties than species. The plants form a large round massive rhizome or root-stalk, covered with the great scale-like bases of the fronds, and from this solid mass rise up the stout stipes, supporting the very large bipinnated fronds, the pinnae of which are articulated on the rachides. The genus is known by its spore-cases being destitute of any elastic or jointed ring, and by having oblong distinct dorsal sori longitudinally bivalved, the spore-cases being separate though crowded into two opposite linear series. The original species, *A. erecta*, was found in the Society Isles. *A. angustifolia*, a Philippine island plant, is described as having a cylindrical caudex, three feet high; the other species, so far as they are known, have the caudex of a depressed globular form. These plants form noble objects when cultivated in our out-houses, but require much space. [T. M.]

ANGIOSPERMÆ. In modern classifications all Exogens are divided into those whose seeds are enclosed in a seed-vessel, and those with seeds produced and ripened without the production of a seed-vessel. The former are *Angiospermeæ*, and constitute the principal part of the species; the latter are *Gymnospermeæ*, and chiefly consist of Conifers and Cycads.

ANGLE-POD. A common name for *Gonolobus*.

ANGOLA WEED. *Rumex* *purpureus*.

ANGOPHORA. A genus of New Holland plants, belonging to the Myrtle family, *Myrtaceæ*. They are large trees, with large, opposite, not dotted leaves. The flowers, which are of a white or yellow colour, are arranged in a corymbose manner, and have their calyx divided into five or six segments, a circumstance that serves to distinguish them from the members of the genus *Eucalyptus*; their petals are free; the stamens are distinct; the fruit is dry, dehiscent, many-celled, containing several seeds, which are not winged. Some of the species furnish a dark-coloured stringent gum. [M. T. M.]

ANGRÆCUM. The tropics of Africa, and its islands, some parts of the West Indies, and the Cape Colony, yield this remarkable genus of Orchids, one of whose species produces the largest flowers known in the order—the sepals and petals and prodigious spur extending to the length of more than a foot in *A. sesquipedale*, a native of Madagascar. The species are, however, for the greater part small-flowered. A whole section of them consists of leafless plants, clinging to the branches of trees by their flat bands, representing roots, as in *Aerides crotolaria*. The finest species, after Madagascar, are from the West of Africa, where they assume some extraordinary forms. None are found except in the hottest latitudes. The leaves of *A. fragrans* are very fragrant, and are used in Bourbon as tea, under the name of Faham; it has been introduced into France.

ANGUILLARIA. A genus of *Melanthaceæ*, containing a few species from New Holland. They have the leaves and roots, and the general habit of *Melanthium*, with the structure of *Ornithoglossum*. [W. G.]

ANGULOA. A genus of very remarkable terrestrial Orchids, inhabiting the forests of tropical America. They have round, ribbed leaves, and short leafy scapes, bearing single large fleshy flowers, either white, yellow, or spotted with crimson on a pale yellow ground. One of them grows in the Equator, at the height of 7,000 feet above the sea. Six or seven species are cultivated in this country.

ANGURIA. Under this name are included certain plants belonging to the gourd family, *Cucurbitaceæ*. They are natives of South America, and have lateral tendrils, male and female flowers distinct, but on the same plant; the male flowers provided with two distinct, not united stamens; and the fruit a gourd. Some of the species are cultivated. [M. T. M.]

ANHALONIUM. A genus of South American *Cactaceæ*, containing two species of napiform plants. The genus approaches *Mammillaria* in the arrangement and structure of its flowers, and has by some been made a section of that genus; but its fruit and seed unite it on the other hand with *Echinocactus*. [W. G.]

ANIA. A genus of terrestrial orchids of little interest, related to *Bletia*. They have plaited radical leaves, and flowers in spikes. Only two are known, inhabiting the hottest parts of Asia.

ANTBA. A Gulian plant, probably *Lauracens*, described by Aublet, but which has not since been recognised.

ANIGOSANTHUS. A curious and handsome genus of *Hamodoraceæ*, distinguished by having its woolly, tubular, elongated, often-curved perianth connate with the ovary, but at length deciduous; the limb six-cleft, and turned to one side; six stamens inserted in the throat; a filiform style and simple stigma; and a three-celled ovary, containing numerous ovules. The species, which are not very numerous, are herbs of the Australian continent, producing linear-ensiform leaves, slightly sheathing at the base, and a tall flower-scape, supporting a branching subcorymbose head, or short raceme of large and often showy flowers. The outer surface of the perianth, and the upper part of the flowering stem, are clothed with a peculiar short dense pile of branching coloured hairs, which are very curious objects when slightly magnified. Several of the species have found their way to our greenhouses, where they form desirable plants, on account of their distinct and peculiar, and not unornamental aspect when in flower. The flowers last a considerable time. One of the best-known species is *A. Manglessii*, a perennial tufted-growing plant, with glaucous green leaves, a foot to eighteen inches long, and an erect branched stem, clothed with a short thick crimson felt of the branched hairs above alluded to. The flowers are arranged on the branches in short terminal spiked racemes, and are two to three inches long, curved, clothed with velvety hairs, which, for the greater part of the length of the tube, are of a bright green colour, and on the peduncles, as well as the swollen base of the perianth enveloping the ovary, are rich crimson. Another species well known in gardens, *A. coccineus*, has a dichotomously forked inflorescence, and flowers of a dull crimson below, and green towards the tips. In another beautiful species, *A. pulcherrimus*, in which the inflorescence is branched and loaded with flowers, the colour of the short velvety hairs on the flowers is bright yellow, while those on the stems are scarlet, curiously branched, on a yellow ground. *A. tyranthinus*, again, has the paniculated branches and copious flowers clothed with dense tomentum of the richest Tyrian purple; while in *A. fuliginosus*, which has been called a flower of mourning, the upper parts of the stem, and the lower parts of the flower, are downy, as if covered with black velvet. These species are all from the Swan River district. [T. M.]

ANIME. A resin procured from *Hydnocarpus Courbaei*. The name is also applied to other clear varnish resins.

ANIS. (Fr.) *Pimpinella Anisum*. — **ÉTOILE**, or **DE LA CHINE.** *Illicium anisatum*. — **DES VOSGES.** *Carum Carui*.

ANISADENIA. A genus of the order *Linacæ*, containing two species, from the Himalayas, plants having the appearance of *Trientalis*, with a simple erect stem, bearing a number of alternate, entire, membranaceous leaves at its summit. The calyx and corolla consist of five parts. The petals are unguiculate. There are five filiform fertile, and five short barren stamens. The ovary is sessile, and trilobular, with two ovules in each cell. There are three filiform styles. [W. C.]

ANISE. *Pimpinella Anisum*. — **STAR.** *Illicium anisatum*.

ANISEED TREE. A common name of *Illicium*.

ANISOCALYX. A genus of *Scrophulariaceæ*, containing a single species, found on the margins of streams in the island of Hong Kong. The calyx is unequally five-partite; the corolla is deciduous, and nearly equally five-partite. There are four didynamous stamens, scarcely longer than the corolla, with oblong purple and bilocular anthers; the style has a simple capitate stigma. [W. C.]

ANISOCHÆTA. A genus of the Composite family (*Compositæ*). There is but one species, which is a native of Caffreland. It is a sub-climbing shrub, with alternate, ovate, coarsely-toothed leaves, and terminal panicles of flower-heads. The genus is nearly related to the *Ageratum* of our gardens, but differs in habit, as well as in the scales of the pappus and in the form of the achenes. It is a plant of no beauty. [A. A. B.]

ANISOCHILUS. A genus of *Labiatæ*, consisting of annual or perennial herbaceous plants, natives of Asia, chiefly of India, and containing nine species. The verticillasters are in ovate-oblong, or cylindrical terminal spikes, compact and imbricate; the floral leaves are bract-like. The calyx is ovate, swollen below, contracted above. The tube of the corolla is bent down after leaving the calyx; the throat is inflated; the upper lip is three or four-lobed, the lower lip is longer, entire, and concave. There are four stamens, and a bifid style. [W. C.]

ANISODUS. A genus of plants belonging to the *Solanum* family, or by Miers referred to *Atropacæ*. Its name is derived from its calyx, which is irregularly five-toothed, a circumstance which distinguishes it from *Hyoscyamus*, or the henbane genus. *A. luridus*, a Nepalese plant, is common in cultivation; it has a tap-shaped root, alternate leaves, which are stalked, oval, somewhat woolly on their under surface; the greenish yellow bell-shaped flowers are borne on axillary flower-stalks, and the fruit bursts by a transverse crack, like that of the henbane. [M. T. M.]

ANISOMELES. A genus of *Labiata*, containing eight species, natives of South-eastern Asia, the Mauritius, and tropical Australia. They are herbaceous plants, having the habit of *Stachys*. The terminal verticillasters are dense and many-flowered, or lax and few-flowered; the axillary are few-flowered. The calyx is ovate, tubular, and five-toothed. The corolla is the same length as the tube of the calyx: its upper lip is erect, oblong, and entire; the lower lip has the two lateral lobes, ovate and obtuse, the middle one emarginate and bifid. The stamens, four in number, are longer than the upper lip. The style is bifid at the apex. *A. malabaricus* has the reputation of being a tonic and febrifuge, and is so used by the natives of India. [W. C.]

ANISOMERIA. A genus of *Phytolaccaceæ*, containing a single species from Chili. It is so nearly related to *Phytolacca* that it is generally considered as a subgenus, differing from the true *Phytolacca* in the inequality of the lobes of the calyx, the ascending stamens, and the absence of an elevated central axis, leaving the ovaries free at their inner edge. [W. C.]

ANISOMEROUS. When the parts of a flower are unequal in number. The same as *Unsymmetrical*.

ANISOPTERA. A genus of *Dipterocarpeæ*, containing six species of trees, natives of the Islands of the Eastern Archipelago. They are nearly related to *Dipterocarpus*, but differ from it in having alternate leaves, and in the stamens, twenty-five in number, having their short filaments united together at the base. [W. C.]

ANISOTES. A genus of *Lythraceæ*, founded on the Brazilian *Lythrum anomatum*, which differs from *Lythrum* in having irregular flowers, the upper pair of petals being much larger than the rest, and the stamens only six. [J. T. S.]

ANISOTOMA. A genus of *Asclepiadaceæ* from the Cape of Good Hope, consisting of climbing herbs, with heart-shaped or kidney-shaped leaves, and small lateral umbels of subsessile flowers having a downy corolla. [T. M.]

ANISOTOME. A genus of *Umbelliferae*, containing three or four species, natives of Auckland and Campbell Islands. They are amongst the largest and noblest plants of the natural order to which they belong, attaining a height of six feet, and bearing large umbels of rose-coloured or purple flowers. The stem is strong, erect, and furrowed. The leaves are large, petiolate, and two or three-pinnate. The flowers are dioecious, with the calyx margin five-lobed, and one or more of the lobes longer and more lanceolate than the remainder. In the male flower there are two rudimentary abortive ovaries, with the styles as mere points on their inner margins. In the female flowers the ovaries are conical, and terminate in long stout recurved styles, capitate at the extremity. The furrowed

seeds are covered with a blackish testa. The whole plant of *A. latifolia*, when bruised, emits an aromatic smell. [W. C.]

ANNOTINOUS. A year old. *Rami annotini* are branches one year old.

ANNUAL. Flowering and fruiting in the same year when raised from seed.

ANNULAR. Having the form of a ring, as in certain embryos.

ANNULATE. Surrounded by elevated rings or bands, or by scars in that form.

ANNULUS. A ring, as that which surrounds the spore-case of a fern, or the peristome of a moss; or the membrane remaining round the stipe of an agaric when the cap has expanded. In the latter case, it is a membranous or filamentous veil, inserted on the one hand round the stem, and on the other into the edge of the pileus, so as to cover the organs of reproduction.

ANODA. A genus of *Malvaceæ* differing little, if at all, from *Sida*, except in the fact that its peduncles are not jointed, from which circumstance also its name has been derived. The species are natives of tropical America, north of the equator, and are herbaceous plants with solitary violet or yellow flowers. Some of them are in cultivation. [M. T. M.]

ANOMALOUS. Irregular, unusual, contrary to rule.

ANOMATHECA. A small genus of pretty Iridaceous bulbs, inhabiting South Africa. The genus is distinguished by having a hypocrateriform perianth with a filiform triquetrous tube constricted at the throat, and a six-parted limb of oblong spreading segments, of which the three hinder ones are approximate; three subsecund stamens inserted in the throat of the perianth, and having short filaments; a filiform style bearing three narrow linear stigmata; and an inferior roundish ovate ovary, three-celled, containing many ovules. *A. cruenta* is a very pleasing dwarf plant, often seen in gardens. This produces a stem six to twelve inches high, furnished at the base with two-ranked, narrow, sword-shaped leaves, branched above, and terminating in a subsecund spike of flowers, of which the long slender tube is whitish, and the limb rich carmine crimson; the three lower segments have also a deep blood-coloured basal spot. There are one or two other species. [T. M.]

ANONA. A South American and West Indian genus of shrubs and trees, from which the name of the order to which they belong, *Anonaceæ*, is derived. The generic characters are a calyx of three minute sepals, united at the base; a corolla of six petals in two rows; the stamens numerous, with linear, two-celled anthers surmounted by an oval crest; numerous ovaries placed on a rounded receptacle and partly united together, becoming completely fused when

mature into a many-celled, fleshy, oval or rounded fruit.

Several species of this genus are cultivated in tropical countries for the sake of their fruits. The Sour-sop of the West Indies is the fruit of *A. muricata*. It is of considerable size, often weighing upwards of two pounds; it is greenish and covered with prickles; the pulp is white, and has an agreeable slightly acid flavour. The



Annona squamosa.

Sweet-sop is the fruit of a tree, *A. squamosa*, native of the Malay Islands, but extensively cultivated in the East and West Indies. The fruit is ovate, covered with projecting scales, the rind is thick, but encloses a luscious pulp, concerning which, however, tastes differ; it appears to be highly esteemed by the Creoles while the Europeans think lightly of it. The fruit grows in the Indian Archipelago; is said to possess a finer flavour than that grown in the West Indies. The leaves of this plant have a heavy disagreeable odour, and the seeds, according to Royle, contain an acrid principle, fatal to insects, on which account the natives of India use them powdered and mixed with the flour of Gram (*Cicer ariseticum*) for washing the hair. The Cherimoya of Peru is the fruit of *A. Cherimola*, which is nearly allied to the preceding. The fruit is somewhat heart-shaped and scaly on the exterior, and is counted by the Creoles as being the most delicious fruit in the world, a verdict which Europeans do not confirm. The common Custard Apple, or Bullock's Heart is an eatable fruit produced by *A. reticulata*, a native of the West Indies, but cultivated in the East Indies also. Its yellowish pulp is not so much relished as that of the other kinds. In addition to their fruits, the plants of this genus are remarkable for their fragrant leaves and

romatic properties. The wood of *A. patris* is so soft and compressible that it is made use of in Jamaica in place of cork; the fruit is called the Alligator Apple as it is not eaten, as it contains a narcotic principle. [M. T. M.]

ANONACEÆ (*Anonæ*, *Anonads*, *Glyptomeræ*) form an important natural order of tropical trees, remarkable for the powerfulromatic qualities of some of the species. They are nearly allied to Magnoliadæ, differing mainly in the want of stipules, and in having an albumen ruminated like a nutmeg. In most species, moreover, the stivation of the petals is valvate, so that the flowers, being formed on a ternary

axis, are usually arranged in a whorl; in all there seems to be present a stimulating quality, which renders them unsafe as articles of food, or as condiments, except in small quantities. The timber of some is extremely elastic, as Lancelwood, and occasionally is intensely bitter. See *XYLOPIA*, *UVARIA*, *GUATTERIA*, *ANONA*, *MONODORA*, etc.

ANONYMOS. A name occasionally given by the older botanists to various plants which they could not readily compare with any one that had a name already.

ANOPLANTHUS. A genus of the Broomrape family (*Orobanchaceæ*). They are annual, leafless, parasitical herbs, growing in the roots of various plants; seldom more than one foot in height, and the whole plant of a brown or purple colour. The flower stalks are naked above and scaly below, bearing a single terminal flower; the corolla with a curved tube about an inch long, or short, and somewhat bell-shaped. There are five species known, of which *A. (Aphyllon) uniflorus*, called Cancer root, and two others, are found in North America; the remainder, which have large scarlet flowers, are natives of Asia Minor. [A. A. B.]

ANOSMIA. A genus of *Umbellifera*, containing a single species from Candia—a biennial, erect, herbaceous plant, with a fusiform root, obtusely trifid leaves, and white hermaphrodite flowers. It is nearly related to *Smyrniacum*, from which, however, it is separated by the want of involucre and involucrels. [W. C.]

ANOTTA, or ARNOTTO. *Bixa Orellana*.

ANPLECTRUM. A genus of Melastomaceous shrubs, from the Moluccas. They have opposite, stalked, elliptic-oblong, entire, five-ribbed leaves, and flowers in axillary and terminal panicles, with four petals and eight stamens, the fruit being a subglobose berry. [J. T. S.]

ANREDERA. A genus of *Basellacæ*, containing a single species, a native of the West Indies and Peru. It is a climbing herbaceous plant, with alternate petiolate leaves, and pedicellate flowers, arranged in simple axillary spikes. [W. C.]

ANSELLIA africana. A very fine Orchid, found growing on oil-palm trees in the island of Fernando Po. It has a tall stem, not unlike a sugar-cane; broad strap-shaped leaves, and great drooping panicles of greenish flowers, blotched with purple. There is also a plant of this genus found at Natal, and called *Ansellia gigantea*; but it does not seem to be distinct from the plant of the West Coast.

ANSERINE. (Fr.) *Chenopodium*; also, *Potentilla anserina*.

ANT TREE. *Triplaris Bonplandiana*, the habitation of a species of ant (*Myrmica*).

ATTENNARIA. A family of herbaceous evergreen perennials, belonging to the natural order *Compositæ*, and distinguished by the dry, coloured, chaffy scales encircling each head of flowers, of which the stamens and pistils are on different plants. *A. margaritacea*, the Pearly Everlasting (*Gnaphalium* of Linneus), is a native of North America, where it grows in some districts in great profusion. It has long been a favourite garden plant in this country, and, having escaped from cultivation, has in some places thoroughly established itself as a denizen. Gathered just before their prime, the flowers retain their form and lustrous pearly hue for an indefinite period; hence they are often laid by to be added to winter bouquets, or, having been previously dyed of various colours, to be employed in decorating rooms. On the Continent, under the name of *Immortelles*, they are much used in the construction of wreaths, to be placed as votive offerings on the graves of the departed, and renewed on the anniversaries of their saints' days. *A. dioica* is a British species, not unfrequent in hilly and mountainous districts. It is a much smaller plant than the preceding, from five to six inches high, with decumbent stems, cottony leaves, and white or rose-coloured flowers. [C. A. J.]

ATTENNARIA (bis). The black web-like masses which hang down from the ceilings of wine vaults, and from thence cling to the casks and bottles, forming the pride of the wine-merchant, are derived from a fungus of this genus, belonging to the race of sac-bearing moulds, *Physomyces*. Other species creep over living leaves, covering them with a black felt, and hindering both the proper access of light and their especial functions of breathing and perspiration. The threads of which the mass is composed are either even, or swollen into joints, like necklaces, and the fruit arises from swollen portions of the threads, a miniature plant being sometimes produced within the swellings or sporangia, without distinct spores. Since many of the species are succeeded by a *Capnodium*, it is possible that the greater part are only imperfect or transitional forms of that genus. *Attennaria* are far more common in warm than in cold climates, and are the pest of orange groves and coffee plantations. They seem frequently

to accompany different species of *Oecus*, from whose exudations they probably derive their nutriment. The cellar fungus above mentioned is now referred to *Scymnus*. [M. J. B.]

ANTHEMIS. The genus of plants to which the Chamomile belongs. It forms part of the Composite family, among which it may be known by its involucre, consisting of a number of overlapping scales, with membranous

row, ligulate, or strap-shaped, containing pistils only; while those of the centre, or disc, are numerous, tubular in form, and contain both stamens and pistils. The receptacle on which the flowers are placed is convex, and covered with little chaffy scales or bracts, which stand up between the florets.

The Chamomile, *A. nobilis*, is a native of Britain. Its stems are procumbent or erect, much-branched, leafy, furrowed, and hollow in the interior. The leaves are downy, pinnately divided into narrow segments. The bitterness of the Chamomile is due to a principle which possesses tonic properties. The aromatic fragrance is due to the presence of an essential oil, which is of a light blue colour when freshly extracted. Both these ingredients exist in larger quantities in the central yellow florets than in the outer white ones; hence the wild Chamomile is preferred for medicinal purposes, as in the cultivated variety the flowers are apt to become double by the conversion of the yellow tubular central florets into white strap-shaped ones like those of the ray. Owing to its stimulant tonic properties, it is much used in certain cases of weak digestion, and occasionally as an emetic, in the form of an infusion. *A. tinctoria* furnishes a yellow dye. *A. Cotula* is a common weed in the South of England, where it is called Stinking May-weed. The leaves differ from those of the true Chamomile in being quite smooth, not downy. The plant is covered with glands, which emit a powerful and disagreeable perfume, and cause swelling of the hands of persons employed to pull the plant up as a weed. [M. T. M.]

ANTHER. The case which contains the pollen of a plant; the terminal hollow of a stamen.

ANTHERICUM. An extensive genus of *Liliaceæ*, distinguished by its six-leaved, equal spreading, or campanulately connivent perianth; six hypogynous stamens with short filaments; a filiform declinate style, with an obtuse subcapitate stigma; and a three-celled ovary, containing numerous ovules. The species consist of herbs having fleshy fasciculate roots, radical filiform or linear lanceolate leaves, sometimes fleshy, often hairy, and flower scapes bearing racemes or panicles of white flowers. They are found indigenous in the middle and south of Europe, in New Holland, and in South Africa. The species are ranged in three groups, viz.:—1. *Anthericum proper*, in which the perianth is

spreading, and the stamens smooth. 2. *Bulbine*, in which the perianth is spreading and the stamens are all, or each alternate one, bearded. 3. *Crackia*, in which the perianth is campanulately connivent, and the stamens smooth. 4. *Liliustrum*, which belongs to the last group, is a pretty plant with broadish grassy leaves, and a scape one and a-half foot high, bearing several largish white sweet-scented flowers, marked on each segment with a green dot. This is called St. Bruno's Lily. [T. M.]

ANTHERIDIA (Antherids). A term applied to the male organs in cryptogams, which, though analogous to anthers in phænogams, cannot be considered as precisely the same organs, or, in strict botanical language, their homologues. They are of very various character and variously seated in the different sections. While amongst the higher cryptogams, in Ferns and some other allied sections, they consist of little sacs, seated on the threads or membrane immediately derived from the spores, producing bodies altogether analogous with the spermatozoon of animals; in *Selaginella*, *Ptilularia*, &c., they appear under the guise of a second smaller spore, which after a time produces the spermatozoids; and in Mosses they appear on the plant itself, once only, or more frequently, according as it is annual or perennial. In *Characeæ* the antheridia are of a very complicated structure, as described under that head.

In the lower cryptogams there is no less difference in the character of the antheridia. Amongst the rose-spored and dark-spored *Algae* there are several distinct types; amongst the green-spored we have sometimes free bodies, analogous to the small spores of *Selaginella*. The spermatozoids are not, however, spiral, as in the higher cryptogams, though still endowed with active motion by means of delicate appendages. Amongst Funguses and Lichens we have again a totally different type, the spermatozoids, or spermatia as they are called, not having active motion or external motile appendages. Amongst the lower kinds it is possible that they may be merely representative, without any active functions, and in some cases, probably, they exist merely as a sort of confidia. The whole subject is, however, at the present obscure, as far as Fungi and Lichens are concerned. Organs which are sometimes called antheridia, are occasionally so denominated without any sufficient grounds, as for example the prominent cells on the gills of the hotbed toadstools, *Coprinæ*. [M. J. B.]

ANTHEROMANIA. An unnatural development of stamens. This may take place without any detriment to the plant. As the petals are multiplied, the stamens are usually multiplied; but where the stamens are epigynous, the addition will sometimes materially disturb the normal construction of the flower. In some double flowers, the apparent multiplication of the petals is really a multiplication of the

stamens, and as such petaloid stamens are generally devoid of anthers, the fertility of the plant may in consequence be affected. [M. J. B.]

ANTHISTIRIA. A genus of Grasses of the tribe *Andropogoneæ*. The flowers are polygamous, the hermaphrodite being sessile, or very shortly stipitate, whilst the male flowers are pedicellate. The species are all foreign, and many of them only grow spontaneously in tropical countries. One of the most interesting is the Kangaroo grass of Australia, *A. australis*, which supplies a considerable portion of food to the cattle in some parts of that country, and is consequently, valuable to the colonists. *A. arundinacea* grows from six to twelve feet high, in the East Indies, according to Roxburgh. [D. M.]

ANTHOCARPOUS. Composed of flowers and fruit blended into a solid mass, as in the Pine-apple.

ANTHOCERCIS. A genus of plants allied to *Salpiglossis*, and belonging to the same natural family *Scrophulariaceæ*. The plants are shrubs, natives of the extra-tropical parts of New Holland. Some of them are cultivated in greenhouses. The calyx is five-parted, equal; the corolla bell-shaped, its tube contracted at the base, its limb five-parted; there are four perfect stamens, and a rudiment of the fifth. [M. T. M.]

ANTHOCERIDEÆ, ANTHOCEROS. A small natural order and genus of Liverworts, distinguished by the capsule, which is threaded by a linear columella, bursting longitudinally on one or both sides, and by the fronds being without the pores which are so conspicuous in *Marchantiaceæ*. It consists of about three genera only, which occur in different parts of the world, one of which, *Carpobolus*, is remarkable for the absence of the spiral vessels or elaters in the capsule, that are so characteristic of the tribe. Two species, *Anthoceros laevis* and *A. punctatus* occur in this country on the ground, principally in the eastern counties. None of the species bear anything like the true leaves of the higher *Jungermanniæ*. [M. J. B.]

ANTHOCORTUS. A genus containing a single species of *Beshtaceæ*, a native of the Cape of Good Hope. It is a little-known herbaceous plant with filiform leafless stems. The flowers are dioecious. The male has a six-parted infundibuliform, and purple-coloured calyx, and three stamens; the female is unknown. [W. C.]

ANTHOCYANE. The blue colouring matter of plants.

ANTHODISCUS. A genus of *Rhizophoraceæ*, containing a single species, a tree from Guiana. It has alternate or opposite trifoliate leaves, and flowers in racemes, each flower having a short pedicel with two bracts. The small persistent calyx is cup-shaped, and obscurely five-lobed. The five caducous petals are concave and

coherent. The stamens are very numerous, and inserted with the petals on a hypogynous disc; they have filiform and glandular filaments, and bilocular anthers. The ovary is globose with many loculements, each containing a single ovule. There are as many oblong incurved styles as there are cells in the ovary. [W. C.]

ANTHODIUM. The head of flowers, or capitulum of composites.

ANTHOGONIUM gracile. A terrestrial Orchid from the north of India, with long, narrow, grassy leaves. The flowers form pretty complete tubes of a crimson colour, at the end of slender scapes.

ANTHOLYSIS. The retrograde metamorphosis of a flower: as when carpels change to stamens, stamens to petals, petals to sepals, and sepals to leaves, more or less completely.

ANTHOLYZA. A small genus of showy *Iridaceæ*, having a tubulose perianth, of which the limb is six-parted, unequal, the upper segment being much the longest, straight, spoon-shaped, the two lateral ones spreading and ascending, and the three lower ones very small; there are three stamens, and three stigmata, and a three-celled ovary, containing numerous ovules. They are herbs with bulb-tubers or corns, and are allied to *Gladiolus*. *A. splendens*, one of the pretty species sometimes seen in gardens, has the corns about as large as a hazel nut, a stem two to three feet high, bearing at the base, long linear or linear-ensiform strongly-nerved leaves, and terminated by a many-flowered spike of distichous flowers, the tubular portion of which is slender at the base, and triangularly gibbous about the middle, the limb being bright scarlet. The flowers appear to be long tubular, with a pair of expanded wings. *A. Cunonia*, another well-known species, has the flowers scarlet, yellow towards the base of the tube, and arranged in a second manner, instead of being distichous on the spike. There are a few other species, all South African. [T. M.]

ANTHOPTERUS. Under this name are comprised certain plants belonging to the order *Vacciniaceæ*. Their prominent characters are a calyx tube provided with five wings, a corolla with a tube similarly winged, and ten stamens, united together into a membranous tube. [M. T. M.]

ANTHOPTOSIS. Most flowers are mere temporary organs, which, when they have performed their functions, are destined to fall. In many cases, however, the flowers fall before impregnation has taken place, or shortly after, involving with them the pistil, and so inducing sterility. This may arise from various causes, as excess or want of proper moisture, but more frequently from late frosts or cold winds. The disease amongst grapes known by the name of 'coulture,' is of this description. This, however, arises frequently from poverty of sap, and may be prevented

by ringing, provided the weather be not very unfavourable. In many instances the fall of the flower naturally follows impregnation, and cannot be regarded as a disease; indeed, the time of its fall seems to depend upon the process of fertilisation, for even in cases where the flowers naturally fade very rapidly, their duration may be prolonged by preventing the access of pollen to the style. [M. J. B.]

ANTHOXANTHINE. The yellow colouring matter of plants.

ANTHOXANTHUM. A genus of Grasses of the tribe *Phalarideæ*. The few species which belong to the genus are all from temperate parts of the globe, and there is only one British, namely, the sweet-scented Vernal Grass, *A. odoratum*. It is distinguished from its allies by having membranous, awnless glumes, compressed and connate below; pales, one to each flower, bearing an awn on its back part. This grass is rather remarkable botanically, by having its flowers diandrous, i. e. with two stamens to each, three being the normal number in grasses; hence, in accordance with the Linnæan system, it is included in a different class from most of the other grasses. It forms a large proportion of many meadows and pastures, but is not considered a first-class species, having a less quantity of saccharine matter and more mucilage than some other kinds, in its composition. The peculiar odour which well-saved new hay gives out, is supposed to be principally emitted from this grass, hence the English name. [D. M.]

The fragrant resinous principle which occurs in this grass, and is called *coumarin*, is a widely-diffused natural perfume, being found, according to Professor Johnstone, in the Tonka Bean (*Dipteris odorata*), the Faham Tea-plant of the Mauritius (*Angraecum fragrans*), the common Sweet Woodruff (*Asperula odorata*), the Sweet-scented Vernal Grass (*Anthoxanthum odoratum*), the common Melilot (*Melilotus officinalis*), and the blue, or Swiss Melilot (*Melilotus caerulea*). 'It is the same odour,' he continues, 'therefore, which gives fragrance to the Tonka Bean, to the Faham Tea of the Mauritius, to our Melilot Trefol, and to sweet-smelling hay-fields. In Switzerland the blue Melilot is mixed with particular kinds of scented cheese, and the coumarin it contains gives to that of Schabzieger its peculiar well-known odour.' The vapour of coumarin is stated to act powerfully on the brain; and it is not improbable that hay fever, to which many susceptible people are liable, may be owing to the presence of this substance in unusual quantities during the process of haymaking. [T. M.]

ANTHRISCUUS. A genus of Umbelliferous plants, with thin, finely-divided leaves, and small, inconspicuous white flowers, arranged in umbels. Two species only are cultivated—the Chervil, *A. Cerefolium*, for flavouring salads, &c., and the Parsnip Chervil, *A. bulbosus*, for its roots as a veget-

able. Chervil is an old-fashioned pot-herb, having been cultivated by Gerard in his garden in Holborn in 1590. It is a native of various parts of Europe, and occasionally met with in England in waste places. The young leaves, when about two inches high, are considered fit for gathering, and are then used in soups and stews, to which they impart a warm aromatic flavour. They are also used with mustard and cress in small salads, but are not much in demand in this country. The French and Dutch, however, have scarcely a soup or salad in which Chervil does not form a part; and, as a seasoning, it is by many preferred to parsley. There is a curled-leaved variety of this plant, which makes a very handsome garnish for dishes, and is on this account more esteemed than the common sort. The *Cerfeuil frisé* of the French is very similar to the last, the only difference being in the leaves, which are even more frizzled than those of plants raised from seed saved in England. Care must be taken not to confound this plant with *Anthriscus vulgaris*, the common rough Chervil, which bears so great a resemblance to it as to have deceived some Dutch soldiers, who gathered it, when in England, in 1745, and put it into their soups, by which several of them were poisoned. The Parsnip Chervil, sometimes called *Cherophyllum bulbosum*, is a native of France, and, although known to gardeners since its introduction to this country in 1726, it is only within the last few years that attention has been directed to its culture as an esculent vegetable. In size and shape the root attains the dimensions of a small Dutch carrot. It is outwardly of a grey colour, but when cut the flesh is white, mealy, somewhat nutty in a raw state, and by no means unpleasant to the taste. When boiled, the flavour is intermediate between that of the chestnut and potato, in consequence of which it has been recommended for cultivation as a substitute for the latter root. [W. B. B.]

ANTHURIUM. A genus of plants of the Arum family, or by some referred to *Cruciferae*. The name is derived from two Greek words, signifying flower-tail, and is given in allusion to the inflorescence, which is a spike somewhat like a tail. The plants are better known under the old name of *Pothos*. They comprise several tropical plants, natives of Central or Tropical America, for the most part growing upon trees, or in their forks, and hence called *epiphytes*, in contradistinction to parasites, which not only grow upon other plants, but also derive their nourishment from them. From the root-like stems the leaves arise; these are of varied shape, in some entire, in others palmate or digitate, sometimes with swollen leaf-stalks, but in all invested below by a small sheath. The stem also gives off numerous aerial roots, like those of the common ivy, but on a larger scale. The flowers contain both stamens and pistils, enclosed within a perianth. The ovary is two to three-lobed.

The flowers thus constituted are densely packed upon a cylindrical often almost sessile spadix or spike, at the base of which is a large bract or spathe, which becomes bent backwards as the flowers come to maturity. [One of the most beautiful species, *A. Scherzerianum* of Costa Rica, has a large scarlet spathe, and a twisted spadix, which when elevated on the tall peduncle have a peculiar aspect, and have gained for the species the name of Flamingo plant. *A. ornatum*, with a white spathe and a purplish-tinted spadix, is almost equally beautiful; while some, as *A. Lindenii*, have exquisitely tinted satiny leaves]. [M. T. M.]

ANTHYLLIS. A genus of plants belonging to the natural order *Leguminosae*, herbaceous or shrubby, having a permanent calyx, which, after flowering, becomes inflated; petals all nearly of equal length; and a pod always hidden by the calyx, and containing one or two seeds. The only British species is *A. Vulneraria*, so called from its supposed property of staunching the blood of wounds, which virtue it probably possesses to the same extent with many other plants having equally downy leaves. Its popular name is Kidney Vetch, or Lady's Fingers, and it is frequently met with in dry pastures, especially such as are chalky, or near the sea. The leaves are rather large, of a bluish tinge, hairy, pinnate, with the terminal leaflet largest. The flowers are most commonly yellow, and grow in crowded heads, which are disposed in pairs, with large deeply-lobed bracts beneath each; the calyx is of a delicate straw colour. In some of the marine stations—especially at the Lizard, in Cornwall—the colour of the flower varies to a remarkable extent, yellow, cream-coloured, white, purple, and crimson being found all growing together. Of the shrubby species, *A. Barba-Jovis* is an evergreen shrub, a native of the South of Europe. This also has pinnate leaves and yellow flowers, and the whole plant has a silvery appearance, from which it derived its name of Jupiter's Beard and the Silver-bush. [C. A. J.]

ANTIARIS. The *Artocarpus* genus of plants to which the Upas-tree of Java belongs. The stamens and pistils are in separate flowers, on the same tree. The male flowers are numerous, and enclosed within a hairy involucre, formed of several fleshy divisions, rolled inwards. The calyx is in three or four pieces, and encloses an equal number of stalkless anthers. The female flower has an adherent calyx of several leaves, and is terminated by a long two-parted style. It contains a single suspended ovule, and becomes converted when ripe into a succulent drupe-like fruit. The female flowers are solitary, placed in the axils of the leaves, side by side with the heads of male flowers.

The Upas-tree, when pierced, exudes a milky juice, which contains an acrid virulent poison, called *antiarin*. Most exaggerated statements respecting this plant were circulated by a Dutch surgeon about the close of the last century. The tree



ANTIARIS & COFFEE PLANTATION IN JAVA

tract, with no other plant near it for the distance of ten or twelve miles. Criminals condemned to die were offered the chance of life if they would go to the Upas-tree and collect some of the poison. They were furnished with proper directions, and armed with due precaution, but not more than two out of every twenty ever returned. The Dutch surgeon, Foersch, states that he had derived his information from some of those who had been lucky enough to escape, albeit the ground around was strewn with the bones of their predecessors; and such was the virulence of the poison, that 'there are no fish in the waters, nor has any rat, mouse, or any other vermin been seen there; and when any birds fly so near this tree that the effluvia reaches them, they fall a sacrifice to the effects of the poison.' Out of a population of 1,600 persons, who were compelled, on

which is given off in such abundance as to be fatal to animals that approach too closely. These peatiferous valleys are connected with the numerous volcanoes in the island. The craters of some of these emit, according to Reinwardt, sulphureous vapours in such abundance as to cause the death of great numbers of tigers, birds, and insects; while the rivers and lakes are in some cases so charged with sulphuric acid, that no fish can live in them. So that doubtless the Upas-tree has had to bear the opprobrium really due to the volcanoes and their products; not that the Upas is by any means innocent, for severe effects have been felt by those who have climbed the tree for the purpose of bringing down the branches and flowers. The inner bark of the young trees, which is fabricated into a coarse garment, excites the most horrible itching. It clings to the skin, if exposed to the wet before being properly prepared. The dried juice, mixed with other ingredients, forms a most venomous poison, in which the natives dip their arrows. A view of one of these trees in the midst of coffee plantations, will be found in Plate 2.

A species of *Antiaris*, called also *Lepurandra saccidora*, furnishes the natives of Bombay with sacks, which are made by beating the cloth-like bark, and peeling it off from the felled branches, leaving a small portion of wood to form the bottom of the sacks. They are used to hold rice. Specimens of these may be seen in the Kew Museum. [M. T. M.]

ANTICAL. Placed in front of a flower, the front being regarded as the part most remote from the axis. Thus, the lip of an *Orchis* is antical.

ANTIDAPHNE. A genus of *Loranthaceæ*, containing a single species parasitic on the trees of the primeval forests of Peru, found chiefly on laurels. It has alternate, obovate, and entire leaves. The flowers are monocious, arranged in small axillary spikes. The male flowers have a simple, three-lobed calyx, three stamens, with petaloid filaments, and biflorous anthers. The calyx of the female flowers is simple, with an entire margin; the ovary is unilocular, and uniovulate, with a subsessile capitate stigma. [W. O.]

ANTIDESMA. A genus of the natural family *Euphorbiaceæ*. Upwards of sixty species are known, all of them natives of tropical India, Africa, and Australia, and their islands. They are trees or shrubs, with alternate, simple, entire leaves, and spicate inflorescence. The flowers are inconspicuous, the males and females on the same plant. The fruit is a one-seeded drupe about the size of a pea. The bark of *A. Santal*, which is a native of Java and the adjacent isles, affords a fibre from which ropes are made. The fruits are of a bright red colour, ripening into an intense black, with a sub-acid taste. They are used in Java for preserving, principally by Europeans, bringing about twopenny per quart.



Antiaris innoxia.

account of civil dissensions, to reside within twelve or fourteen miles of the tree, not more than three hundred remained in less than two months. Foersch states that he conversed with some of the survivors, and proceeds to give an account of some experiments that he witnessed with the gum of this tree, these experiments consisting principally in the execution of several women, by direction of the Emperor! Now, as specimens of this tree are cultivated in botanic gardens, the tree cannot have such virulent properties as it was stated to have; moreover, it is now known to grow in woods with other trees, and birds and lizards have been observed on its branches. It occasionally grows in certain low valleys in Java, rendered unwholesome by an escape of carbonic acid gas from crevices in the ground, and

The leaves are used as a remedy against snake bites, and in syphilitic affections. The wood, when immersed in water, becomes black and as heavy as iron. All the parts of the plant have a bitter taste. The berries of *A. dumosa* are eaten in India by the natives, as well as those of *A. pubescens*, also a native of India; and its bruised leaves are used in native practice, and applied in the form of a poultice to ulcers and tumours. [A. A. B.]

ANTIGRAMMA. A genus of polypodiaceous Ferns of the *Asplenium* section, belonging to that series in which the sori are connivent in pairs, with the indusia opening face to face (scolopendrioid). In that series it is known by having the veins of its fronds reticulated, and its sori parallel and oblique. The genus comprises a couple of Brazilian species, having simple fronds. [T. M.]

ANTIRRHÆA. A genus of Clinchocous plants inhabiting Mauritius and Bourbon, consisting of shrubs with leaves arranged in whorls of three. The flowers are borne on forked peduncles, and have a calyx which is short, bell-shaped, and four-toothed; and a tubular corolla, with four sessile anthers attached to its interior. The fruit is succulent externally, and contains a kernel with two one-seeded cells. The name of these plants is expressive of their valuable properties in arresting hemorrhages, and as astringents. [M. T. M.]

ANTIRRHINUM. A genus of *Scrophulariaceæ*, containing fourteen species, natives chiefly of the Mediterranean region, though some are found in California. They are annual or perennial, rarely shrubby herbaceous plants, with the lower leaves often opposite, and the upper ones alternate. The flowers are commonly showy, and solitary in the axils of the upper leaves, or forming terminal racemes. The calyx is five-partite. The corolla has a broad tube, saccate and slightly protruding below the calyx on the lower side, but not spurred as in *Linaria*. The throat is closed by a large, projecting, bearded palate, which gives to the flower a resemblance to the face of an animal or a mask, whence the name, meaning 'snout-like.' The capsule is two-celled, oblique, and opening by two or three pores at the top. The seeds are truncate.

The genus has been divided into three sections. 1. *Orontium*, annual plants with penninerved entire leaves and compressed seeds. 2. *Antirrhinastrum*, perennial plants with penninerved entire leaves and obovate seeds. And 3. *Asarina*, with palmi-nerved lobed leaves and ovoid oblong seeds. Two species are found in Britain; the larger, *A. majus*, has probably escaped from gardens, and is found on old walls and in clefts of rocks; *A. Orontium* occurs in the corn-fields of the south of England and Ireland. [W. C.]

ANTITROPAL. The same as *Orthotropal*.

ANTJAR. The poisonous *Antiar caria*; also called *Anteschar*.

ANTROPHYUM. A genus of polypodiaceous Ferns, belonging to the *Hemionitidæ*, distinguished by having the veins of the fronds uniform and reticulated, and the fructification, which is linear, and usually immersed in a shallow groove, also more or less, but only partially, reticulated. It is a group of very distinct aspect, though in technical characters coming close to *Hemionitis*, in which latter, however, the lines of spore-cases are more completely joined together into a network, and superficial on the frond. There are several species, all simple fronded, found in various parts of the tropics of both hemispheres. [T. M.]

ANYCHIA. A genus of Knotworts, *Illecebracæ*, near to *Paronychia*, but differing in the absence of petals as well as of awns to the calyx leaves. There are two known species, both North American weeds of no beauty. The Forked Chickweed, *A. dichotoma*, is a slender herb four to ten inches high, with capillary, many-times-forked branchlets, bearing minute flowers in the forks, and opposite oblong leaves rather more than half an inch in length, accompanied with stipules like those of buckwheats (*Polygonum*). [A. A. B.]

AOTUS. A genus of Australian and Tasmanian shrubs, belonging to the Pea-flowered section of the *Leguminosæ* family, containing ten species. They are slender plants, with henth-like leaves, arranged in whorls round the stem, three in a whorl. The flowers are small, bright yellow, with short stalks, and the calyx is destitute of the two small bracts which are found on those of the allied genera: this gives rise to the name of the genus—*Aotus*, signifying without ears. *A. gracilima*, a native of West Australia, is a favourite greenhouse plant. It is a slender shrub, with copious yellow flowers, which are so thickly set on the stems as to hide the leaves from view. One or two other species are in cultivation, but many very pretty species have yet to be introduced. The pods of most of the species are not larger than a grain of barley, and contain each two seeds. [A. A. B.]

APACTIS. A Japanese tree, very imperfectly described by Thunberg, and not since recognised.

APALANCHE VERT. (Fr.) *Prinos verticillatus*.

APALANTHE. A generic name given by Planchon to a few species of *Anacharis*, separated from that genus because of their having hermaphrodite flowers. It has, however, been found that one of these species, *A. Schweinfurthii*, is the same as *Anacharis Alismastrum*, which, although its flowers are generally dioecious, is yet said to bear fertile flowers with three to six stamens, sometimes merely short sterile filaments without anthers or with imperfect ones, and sometimes with oblong

almost sessile anthers. It is probable that, when the other species are more carefully examined, no foundation will be found for the separation. See *Anacharis*. [W. C.]

APARGIA. This name is used in some English books for one or two species of Hawkbit, *Leontodon*, called *A. Heyda* and *A. autumnalis*, the latter of which is sometimes referred to *Oporinis*. [T. M.]

APATURIA. Terrestrial leafless Orchids, from the continent of India, Ceylon, and China. They are of no interest, their pallid flowers hanging down from the side of a rather long spike. One of the marks by which they are most easily known is having, along with a structure similar to that of *Bletia*, stems covered by thin membranous scales.

APEIBA. A genus of the Lime-tree family, *Tiliaceæ*, containing twelve species. They are trees or shrubs with alternate, stalked, entire or serrate leaves, which are covered on both surfaces with starry pubescence, and have at the base of their footstalk two stipules, which fall early. The peduncles are terminal and opposite the leaves, much-branched and many-flowered; the flowers yellow or greenish, and interspersed with bracts. Their fruits are woody, roundish, and often covered with tubercles, or stiff prickles. The species are found in Mexico, the West Indies, and Southern tropical America. The fibrous bark of *A. Petrus* is known in Panama as Cortega, and is used for making cordage, being strong, tough, and distinguished from other indigenous fibres by its whiteness. The wood of *A. Tibourbou* being light and soft, is used in Brazil for making the raft-boats called jangadas. Its fruit, in size and appearance, is much like that of the Spanish chestnut. *A. aspera* has a flattened circular fruit, with rough points, resembling the cup of an acorn, only closed at the top. [A. A. B.]

APERA. A genus of Grasses of the tribe *Agrostideæ*. As defined by Adanson and Beauvois, a few species only are referable to this genus, which in more modern works will be found described under the genera *Agrostis*, *Muhlenbergia*, and *Vulpia*. The principal characters depended on to separate it from *Agrostis* are the lower glume being smaller than the upper, and the presence of a rudimentary second floret, beside the perfect floret. The British species, *Apera Spica-censil*, Wind-Bent Grass, is one of the prettiest of English grasses, the light feathery panicles of inflorescence, with the long awns attached to the glumes, seldom failing to attract attention from even those who are little in the habit of observing plants. Although of small importance as an agricultural species, it is valued for the beauty of its flowers, which remain long on the rachis, and form a handsome drawing-room ornament, even in their natural state, but particularly so when dyed crimson, green, or any other bright colour. [D. M.]

APETALON. A minute leafless Orchid, found beneath the shade of Bamboos in Coorg.

APETALOUS. Having no petals. Also extended to plants that have neither calyx nor corolla.

APHANES. A synonym of *Alchemilla arvensis*.

APHANOSTEPHUS. A genus of the Composite family, numbering three species, which are found in Texas and New Mexico. They are related on the one hand to the daisy (*Bellis*), from which they differ in the presence of a pappus to the achenes, and on the other to the Australian genus *Brachycome*, from which the rounded and striate, instead of flattened, achenes at once distinguish them. They are much-branched annual plants, six inches to a foot high, having linear or spatulate, toothed or entire, more or less hoary leaves, and slender twigs, terminating in a single stalked flower-head about half an inch across, the rays pink or white, the disc yellow. *A. ramosissimus*—called also *Epiletus ramosissimus*—is quite a pretty plant in cultivation, producing a great abundance of flower-heads, with white rays, tinged with pink. [A. A. B.]

APHELANDRA. This name is applied in consequence of the flowers of the plants of this genus having one-celled anthers. They are small shrubs, natives of tropical America. The inflorescence consists of four-sided spikes, with slightly membranous bracts, handsome reddish or scarlet flowers, with a gaping two-lipped corolla, the lower lip divided into three lobes, the central one of which is much larger than the lateral ones; the stamens are four in number, one pair longer than the other (didynamous), the anthers one-celled; the capsule is sessile roundish, two-celled, each cell containing two compressed seeds. *A. cristata* is a remarkably handsome stove plant, with fine ovate pointed leaves, and showy spikes of blossom. It was formerly referred to the genus *Justicia*, and belongs to the order *Acanthaceæ*. *A. aurantiaca* is scarcely less handsome than the other. [M. T. M.]

APHELEXIS. A genus of Madagascar plants, belonging to the Composite family (*Compositæ*), having much resemblance to the everlasting flowers (*Helichrysum*), and differing from these chiefly in the hairs of the pappus. Five species are known, all of them having very small leaves, which are closely pressed to the stem, like those of the club-moss. The flower-heads are either large, solitary, and of a pink colour, or small, yellow, and two or three together at the ends of the branches. The plants known in gardens as *Aphelaxis*, and so commonly cultivated in greenhouses, are natives of the Cape, not of Madagascar, and are generally placed in the genus *Helipterum*. [A. A. B.]

APHELIA. A genus of *Desauriacées*,

consisting of a small sedge-like plant, *A. cyperoides*, from the southern shores of New Holland, which grows in small tufts, with short thread-like leaves and naked stems, a few inches high, at the top of which are short two-ranked spikes of glumaceous flowers, the lower glumes frequently empty; the outer glume of each flower is much acuminate, the upper glume shorter, hispid at the base. [J. T. S.]

APHLOIA. A genus of the *Flacourtiaceae* family, containing but few species. They are small trees, with much-cut, serrated or entire alternate leaves, and axillary, solitary or fascicled flowers, without petals. From all the allied genera, they are distinguished by their single one-sided placental line, to which the ovules are attached. They are natives of Madagascar or the Mauritius, some of them varying much in their foliage, entire or pinnatifid leaves being found on the same plant. *A. theiformis* has an emetic bark. [A. A. B.]

APHYLLE. A name applied to that portion of cryptogamic plants comprehended under the term Thallophytes, in consequence of the greater part of them being destitute of such modifications of leaves as occur in mosses, ferns, &c. Some seaweeds, or *Algæ*, indeed, have leaf-like organs, but these differ in many respects from leaves, and are mere expansions of the common stem. [M. J. B.]

APHYLLANTHES. A genus of *Liliaceae*, consisting of a single species, found in the South of Europe. It is a perennial, slender, rush-like herb, leafless, the scapes having membranous sheaths at the base, like those of the rush, and being terminated by a small head of fugacious blue flowers. The perianth is six-parted, spreading at the apex, connivent into a short tube at the base; six stamens, with thread-like filaments, are inserted above the base of the perianth; the filiform style is terminated by a three-lobed stigma; and the ovary is three-celled, with a solitary basal ovule in each cell. The scapes appear like grassy leaves, but are seen to be tipped by the glumaceous scales which protect the blossom-buds. [T. M.]

APIACEÆ (Umbelliferae, Umbellifers). Under this name is collected a very large number of plants inhabiting for the most part, in the northern regions of the northern hemisphere, woods, bogs, marshes, and dry places. As we approach the equator they become less and less known, and in the southern hemisphere, are comparatively rare. They all have a double-didymous—inferior ovary, separating when ripe into two similar parts, vulgarly called seeds, surmounted by a superior calyx, which is generally scarcely, and often not at all observable; five separate petals; five intervening epigynous stamens; and two styles proceeding from what is not very rarely termed a double epigynous disk. Parsley, Fennel, and Caraway are common. Although the order

numbers at least 1,500 species, divided among nearly 300 genera, not a tree is known among them; a very few only attaining the condition of woody bushes. Many are important as producing articles of food; many are poisons; most are merely unimportant weeds; a few, like *Astrantia*, are furnished with gay colours, and thus become objects of decoration. One of them, *Bolax Gleboria*, forms huge tussocks in the Falkland Islands, resembling haycocks. Of the harmless species, in which, with a little aroma, there is no considerable quantity of acrid watery matter or gum-resinous secretion, must be more particularly named Celery, Fennel, Samphire, Parsley, and the roots of the Carrot, Parsnip, and Skirret (*Sium Ascarum*). The root of *Eryngium campestre* and *maritimum*, vulgarly called Eryngo, is sweet, aromatic, and tonic. The aromatic roots of *Meum athamanticum* and *Mutellina* form an ingredient in Venice treacle. Angelica root, belonging to *Archangelica officinalis*, is fragrant, sweet when first tasted, but leaving a glowing heat in the mouth. Others are gum-resinous, as the species of *Ferula*, yielding *Asafoetida*, the fetid odour of which is supposed to be owing to sulphur in combination with a peculiar essential oil. For aromatic and carminative fruits, the most celebrated are Anise (*Fimbricilla Anisum*), Dill (*Anethum graveolens*), Caraway (*Carum Carui*), and Coriander (*Coriandrum sativum*). Besides these, great numbers of less note are also employed for the same reason, the chief of which are the Ajwains or Jowains of India (species of *Psychotria*), Honewort (*Sium Amomum*), whose fruits smell of bugs, and Cummin (*Cuminum Cyminum*), now only used in veterinary practice. Among poisons, Hemlock (*Conium maculatum*) holds the first place. *Anthriscus vulgaris* and *Sylvestris* are not so dangerous. *Aethusa Cynapium*, *Oenanthe crocata*, *Thellendrium*, *Cicuta maculata*, and *C. virosa* are other fatal species. See Plate 16.

APICRA. A division of the genus *Aloe*, sometimes regarded as distinct, and comprising, along with *Haworthia*, a group of species of very different aspect from the great cylindrical or tubular-flowered aloes more commonly associated with the name. The present are dwarf or acaulescent plants, with very crowded leaves and slender flower-scapes, bearing erect greenish-white flowers, which consist in the *Apicra* series of a regular cylindrical perianth, having short, spreading, conformable limb segments. A considerable group of species is referred hither. [T. M.]

APICULATE. Terminating abruptly in a little point.

APIOS. A leguminous genus of three species, *A. suberosa* being a climbing plant, having pinnate leaves, with a terminal leaflet, and lateral clusters of brownish-purple sweet-scented flowers. It is a native of North America, from Pennsylvania to Carolina, on the mountains, in hedges, and among

bushes. In this country it grows freely in common garden soil, and is easily increased by tubers. It requires to be supported like peas. The tubers, though small, are numerous, farinaceous, and eatable. [O. A. J.]

APIOSPERMUM. A genus of *Pistia*ceae, containing a single species, a native of the marshes of Cuba. The genus has been separated from *Pistia*, with which it agrees, except that its spadix is continued beyond the whorl of stamens, and its seeds are smooth. [W. C.]

APIUM. A genus of Umbelliferous plants consisting of but few species, one of which is the well-known Celery, *A. graveolens*; and the other the common Parsley, *A. Petroselinum*, which occupies a spot in almost every garden.

The Celery, in its wild state, is found in marshy places and ditches near the sea coast in various parts of England. It is a biennial; and as grown in its native ditches the whole plant has a strong taste and smell, and is acrid and dangerous to eat. Such, however, are the wonderful changes effected by cultivation, that this rank, coarse, and more than suspicious plant has by degrees been transformed into the sweet, crisp, wholesome, and most agreeable of our cultivated vegetables. In Italy and the Levant, where it is much grown, but not blanched, the green leaves and stalks are used as an ingredient in soups. In this country they are always blanched and used raw as a salad, or dressed as a dinner vegetable. They are also sometimes made into an agreeable conserve. There are two kinds of Celery; the red and white-stalked, of both of which there are many sub-varieties. The seeds, when bruised and tied into a bag, form an excellent substitute for flavouring soups when Celery cannot be procured.

Celeriac or Turnip-rooted Celery, is a variety of the preceding, obtained by cultivation. It is very seldom grown in this country; but in France, and more especially in Germany, it is commonly employed as a vegetable, and is considered harder than Celery, and capable of being preserved for use much later in spring. It is excellent for soups, in which slices of it are used as ingredients, and readily impart their flavour. With the Germans it is also a favourite salad: the roots being prepared by boiling until a fork will pass readily through them, and when cold eaten with oil and vinegar.

Parsley, which is sometimes called *Petroselinum sativum*, is a hardy biennial plant; and although so common as to be naturalised in some parts of England and Scotland, was originally introduced from Sardinia, of which it is a native, in 1545. It is a well-known seasoning herb, and is in constant demand throughout the year for a variety of culinary purposes, such as sauces, soups, &c., and for garnishing various dishes. Among the ancient Greeks and Romans Parsley always formed a part of their festive garlands, on account of retaining its colour so long; and Pliny

states that in his time there was not a salad or sauce presented at table without it. The ancients supposed that its grateful smell absorbed the inebriating fumes of wine, and by that means prevented intoxication; but however this may be, we believe nothing is more effectual than the eating a leaf or two of Parsley to take off the smell and prevent the after-taste of any dish that has been strongly flavoured with onions. In Cornwall it is much esteemed and largely used in *parsley pie*, which are peculiar to that part of England. If dried and preserved in bottles from which the air is excluded, it will retain its flavour for a long time, and be found extremely useful for seasoning omelets and similar dishes. The curled-leaved Parsley is always preferred for use as being more ornamental than the common sort, of which it is nothing more than a variety obtained and continued by careful cultivation.

Hamburgh Parsley, *A. Petroselinum var. fastiformis*, is a variety of the preceding, and may be used for the same purposes; but it is chiefly grown for the sake of its long spindle-shaped roots, which are dressed and served at table as a separate dish like those of the parsnip. [W. B. B.]

Petroselinum has been distinguished from *Apium* by each part of the fruit having four narrow ribs, with one oil-vessel (vitula) in each furrow, and two on the commissure or line of junction, the albumen being plano-convex, while in *Apium* the latter is terete. Benthams and Hooker make it a section of *Cerium*, distinguished by its obsolete calyx teeth and smooth ovate fruit, the common Parsley being by them named *Cerium Petroselinum*.

APLECTRUM *Agave* is the name of a remarkable terrestrial Orchidaceous plant, which bears in the United States the names of Putty-root and Adam-and-Eve; it is allied to the genus *Oreanthes*, and is found, though rarely, inhabiting woods, growing in rich mould. It forms tubers an inch in diameter, and scapes a foot high, bearing a few dingy green flowers. Owing to its tubers containing a large quantity of very adhesive mucilage, which is employed in mending broken porcelain, it has gained in the United States the name of Putty-root. The solitary leaf is broad and ribbed, like that of a *F*.

AFLOCARYA. A genus of South American scrubby shrubs, of the order *Nolanales*, with fleshy leaves, separated from *Nolana* on account of the five ovaries being free, and the fruit of five separate nuts. [J. T. S.]

APLOPHYLLUM. The plants constituting this genus of the *Rue* family (*Asteraceae*) are perennials or small shrubs, with simple, alternate, dotted leaves, no stipules, and bearing yellow or white flowers in panicle cymes. They are distinguished from *Rue* (*Aster*) by the simple, undivided leaves, whence also they derive their name, as well as by the parts of the flower being arranged in fives, not in fours. They are natives of S. Europe, &c. [M. T. M.]

APIOTAXIN. A genus of the Compo-

site family (*Compositæ*), chiefly found in the alpine and temperate regions of the Himalayas, one only being known in Siberia. Upwards of twenty species are recorded. They are herbs from one inch to three feet in height, varying much in appearance, those growing in the high alpine regions being very dwarf, the taller species being found at much lower elevations, and some of them not unlike burdocks, but the scales of their involucre are not hooked, as in that genus. The hairs of the pappus being in a single series, give rise to the name of the genus. *A. gossypina* is found in Kumaon, at an elevation of from 16,000 to 18,000 feet. The plant, altogether not higher than two or four inches, has its leaves densely clothed with long cottony hairs, which form an admirable covering to protect it from the cold to which it is exposed. *A. Lappa*, the root of which is the *Costus* of the ancients, is found on the mountain slopes of the Cashmere Valley, at an altitude of 8,000 to 9,000 feet. It is a gregarious herb, six to seven feet high, with an annual stem and perennial root, which is thick and aromatic; the leaves lyrate-pinnatifid, and about two feet long; the flower-heads two to three, sessile, and the florets of a purple colour. Dr. Falconer (from whose account the following is abridged) described the plant under the name of *Aeklandia Costus*. In Cashmere the plant is called Koot, in Bengal Putchuk, and the Arabic name is Koost. It is gathered largely, the greater portion being laden on bullocks, sent through the Punjab to Bombay, and there shipped for the Red Sea, the Persian Gulf, and China. A portion of it finds its way to Calcutta, through Hindostan. The roots are dug up in September and October, cut into pieces, two to six inches long, and exported without further preparation. The quantity collected amounts to about 200,000 lbs. per annum; the cost of collecting and transport to a mercantile depôt in Cashmere is said to be 2s. 4d. per cwt., but when it reaches Canton it is sold for 47s. 5d. per cwt. The root is used by the Chinese as an aphrodisiac, and for burning as incense in their temples. In Cashmere the root is only employed for protecting bales of shawls from the attacks of moths; and the stems of the plants are suspended from the necks of children, to avert the evil eye. [A. A. B.]

APOCARPOUS. Having the carpels, or at least their styles, disunited.

APOCYN GÖBE-MOUCHE. Fr. *Apocynum androsaemifolium*.

APOCYNACEÆ. (*Contorta*, *Vincæ*, *Apocynæ*, *Dogbanes*.) A natural order of corolliferous Exogens, with a superior ovary, free epipetalous stamens, a pulley-shaped (trochlear) stigma, and unequal-sided lobes of the corolla, on which last account Linnaeus called them contorted, or twisted-flowered plants, the corolla having some resemblance to a Catharine-wheel firework in motion. Most of the species inhabit tropical countries; the northern forms are

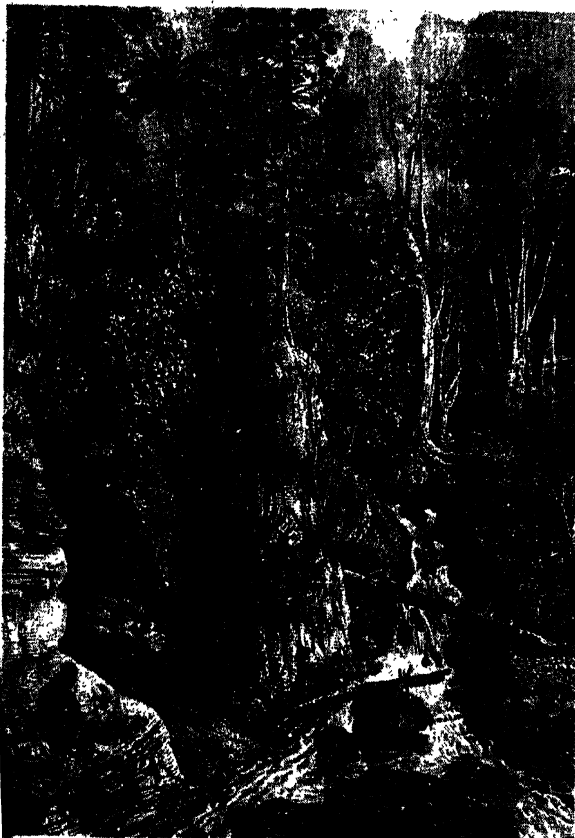
the *Vincæ*, or Periwinkle, *Nerium*, or Oleander, and a few more. In general the species form a poisonous, acrid, milky secretion, which renders them dangerous; but others are mild enough in their action to be useful in medicine, and in a few cases the milk is bland enough to form a palatable beverage. Some yield the gum-elastic (caoutchouc (see VAHEA)); while some *Hancornias* and *Carissas* produce an eatable, and, as travellers say, a pleasant fruit. See TANGHINIA, TABERNÆMONTANA, HANCONIA, &c. The commoner forms in cultivation are those of *Allamanda*, *Parsonna*, *Vinca*, and *Tabernaemontana*. About 600 species are known, distributed through about 100 genera.

APOCYNUM. A genus of *Apocynaceæ*, containing four species of perennial herbs, with upright branching stems, opposite, mucronate-pointed leaves, a tough fibrous bark, and small, pale, and terminal or axillary flowers on short pedicels. The calyx is five-parted, and the corolla campanulate, five-cleft, bearing five triangular scales in the throat opposite the lobes. The five stamens, inserted on the very base of the corolla, have the filaments flat and shorter than the arrow-shaped anthers, which converge around the ovoid obscurely two-lobed stigma, and slightly adhere to it by their inner face. The fruit consists of two long, slender and coriaceous follicles, containing numerous ovoid seeds, comose with a long tuft of silky down at the apex. From the fibrous bark of *A. cannabinum* (commonly called Indian Hemp), and *hypericifolium*, the Indians prepare a substitute for hemp, of which they make twine, bags, fishing-nets, and lines, as well as linen for their own use. The members of the genus afford by incision a milky juice, which, when sufficiently dried, exhibits the properties of India-rubber.

A. androsaemifolium, the Fly Trap of North America, is cultivated as an object of curiosity in this country. The five scales in the throat of the corolla of this plant secrete a sweet liquid, which attracts flies and other insects to settle on them; the scales are endowed with a peculiar irritability, the cause of which has not been accurately determined, but which causes them to bend inwards towards the centre of the flower, when touched, and to retain the unlucky flies as prisoners. Numbers of dead flies may be seen in the several flowers of this plant: the movement of the scales probably serves to scatter the pollen on the stigma. These plants are more or less poisonous and acrid, and produce emetic and diaphoretic effects. They are widely distributed over the temperate parts of both hemispheres, and a few are in cultivation, but possess no great beauty.

[M. T. M.]

APODANTHES. One of the genera of *Rafflesiaceæ*, characterised by unisexual flowers, a four-cleft calyx, which is provided with two bracts, petals inserted



VEGETATION OF TENERIFE: VIEW IN THE CALDERA
(After Webb)

a. *Pistacia atlantica* b. *Juniperus cedrus* c. *Phoenix dactylifera*
d. *Isurus indica* e. *Pinus canariensis*

on the ovar. The male flowers are not known; the female flowers have a half-superior ovary which, when mature, becomes a fleshy fruit with a four-cornered cavity, containing several seeds with a hard-pitted covering. The natives of Zulana. [M. T. M.]

APODYTES. A genus of *Oleaceæ*, containing a single species from Port Natal, South Africa. It is a tree or shrub, with alternate, exstipulate, petiolate, and entire leaves. The flowers are in loosely-branched terminal racemes. The calyx is small, five-toothed, and persistent. The corolla consists of five oblong linear petals, rising from the receptacle. The stamens are five in number, alternating with the petals, and by thin dilated filaments, uniting the petals together through two-thirds of their length. The ovary is free and unilocular, with two ovules. The style is excentric, and kneed at the base; the stigma is minute. The fruit is a drupe, one-celled, and one-seeded by abortion, of a peculiar kidney shape, with a fleshy protuberance from the hollow side. [W. C.]

APONOGETON. A genus of aquatic plants belonging to the *Juncaginaceæ*, and remarkable for producing its flowers in conjugate or binate spikes at the ends of the flower scapes. The flowers consist of several (six to eighteen) stamens with subulate filaments, and are destitute of both calyx and corolla, the conspicuous part of the inflorescence being a double row of large white bracts, at the base of which the minute apetalous flowers are seated. *A. distachyon*, a very handsome, deliciously fragrant water-plant, a great favourite in gardens, has been well figured and described from vigorous, well-developed specimens in *Paxson's Flower Garden* (il. t. 43) by Dr. Lindley, who writes:—'In appearance it resembles a Pondweed (*Potamogeton natans*), except that it is of a clear green colour without any tinge of brown. Its bulb or corm is described as being as large as a hen's egg. The leaves float on the surface of the water, are oblong, about eighteen inches long when full grown, flat, and have three distinct veins running parallel with the main rib. When young their sides are rolled inwards. The flowers are placed on a forked inflorescence, originally included within a taper-pointed calyptrate spathe (cap), which is forced off as they advance in size. When fully formed each fork of the inflorescence is very pale green, and is bordered by two rows of large, ovate-oblong, obtuse, ivory-white bracts, in the axils of which stand the minute flowers. The latter are bisexual, and destitute of both calyx and corolla. Twelve hypogynous free stamens, with dark purple anthers, surround from four to six distinct carpels, each of which has a short curved style, a bimple minute stigma, and six erect anatropal ovules. After flowering the bracts and inflorescence grow rapidly, acquire a deep green colour, and soon resemble tufts of leaves, among which lie in abundance large membranous

indehiscent beaked carpels, containing about four seeds each, and readily tearing at the sides.' This species is common at the Cape of Good Hope, where it bears the name of Water Uintjes. The flowering tops are, according to Mr. Bunbury, sometimes used in the colony both as a pickle and as a substitute for asparagus. Martyn states that the 'bulbs' are eaten roasted. There are one or two other species from South Africa. The Indian *A. monodachys* is now referred to *Spathum*. [T. M.]

APOO. (Fr.) *Urtica*.

APOPHYSIS. A name given to a swelling, often hollow, or of extremely loose texture, at the base of the capsules in several mosses. It is developed extremely in the natural order *Splachnæ*, where it often exceeds in size the true capsule. It attains its maximum in *Splachnum luteum* and *rubrum*, where it is a most conspicuous object, hanging down like an umbrella or the vesicle of *Ascophora*. In *Odipodium* almost the whole of the stem consists of apophysis, which is confluent at once with it and the capsule. [M. J. B.]

APOROCACTUS. A genus of *Cactaceæ*, distinguished from *Cereus* by the elongated narrow tube of the perianth, and its obliquely gaping, somewhat two-lipped limb, and also by the graduated insertion of the fewer stamens, all of which are exerted, and the upper ones longer than the rest. It includes a few species known in gardens under the name of *Cereus*. *A. Baumanni*, sometimes called *Cereus Theodici*, is a handsome, cylindraceous, erect-stemmed succulent plant from Buenos Ayres, having a many-angled stem, and numerous rich orange-crimson, slender-tubed flowers, curving at the base so as to be inserted obliquely, and also curving in an opposite direction at the mouth, which is slightly spreading. *A. flagelliformis*, the *Cereus flagelliformis* or Creeping *Cereus* of gardens, is a well-known plant, with long, slender, pendent stems, producing a profusion of narrow rose-coloured flowers. It is a native of Peru. [T. M.]

APOROSA. *Sorpa*.

APORUM. A division of the great genus *Dendrobium*, distinguished by having fleshy equitant leaves. The flowers are small, and have no beauty.

APOSTASIA. Among the forests of Malacca, Borneo, and Assam are found two species of Endogens, with low stems, covered with grassy leaves, and terminal panicles of small yellow flowers, which throw an unexpected light upon the structure of the allied order of orchids. The calyx and corolla consist each of three narrow equal pieces. The anthers—two or three—are distinct; the style is perfectly free from the stamens, and the ovary is three-celled; so that the gynandrous structure of orchids wholly disappears. Another genus nearly related is *Neuwiedia*, a Borneo

plant resembling a dwarf palm, with dense spikes of triandrous flowers, and a three-winged ovary, terminating in a narrow neck. They represent the *Apostasiaceae*.

APOSTASIACEÆ. This is a very small group, bordering on the limits of the vast Orchidaceous order, from which it differs mainly in its stamens not being gynandrous, but distinct from each other and from the style. It stands near the genus *Oypripedium*, some of the reputed species of which, now called *Selenipedium*, have a three-lobed ovary. The flowers of all the known species are small and inconspicuous, while the leaves are strongly marked by stout parallel larger veins, as in *Curculigo*, or any similar plant.

APOSTAXIS. Unusual discharge of the juices of plants. This may arise merely from an extreme abundance of fluid, which is in consequence discharged, as in Indian Shot or the Vine, from the point, or serrated top of the leaves. If, however, it is elaborated sap which flows out, either from injury or weakness of the tissues, the effect may be injurious. And this is exactly the case in what is called gumming; a condition which may be induced artificially, by allowing water to drop constantly over a branch. This always proceeds from injured or diseased tissues, and is with difficulty arrested when once set up, and, if so, is the certain forerunner of fatal canker. In some cases, as in the Trageacanth plant, the gum is organised, and is derived apparently from the medullary rays. In Conifers, a flow of resin is often attended with the same fatal results as gumming in Plums and other allied plants. In this case it seems to arise generally from root-confinement and a consequent check of circulation. [M. J. B.]

APOTHECIA. The shields of lichens; firm horny disks arising from a thallus, &c., containing spores.

APPENDAGES. Leaves and all their modifications are appendages of the axis. Hairs, prickles, &c., are appendages of the part which bears them. A name applied to processes of any kind.

APPENDICULA. A genus of inconspicuous Orchids, inhabiting tropical Asia. They have long stems clothed with oblong distichous leaves, bearing at the end a few green flowers. About twenty species are known, one only of which has been in cultivation in Europe.

APPETIT. (Fr.) *Alitum Schenoprasum*.

APPLE. *Pyrus Malus*. — **ADAM'S.** A variety of the Lime, *Citrus Limetta*. — **ALLIGATOR.** The fruit of *Anona palustris*. — **BALSAM.** The fruit of *Momordica Balsamina*. — **CHERRY.** The Siberian Crab, *Pyrus baccata*. — **CUSTARD.** The fruit of *Anona reticulata*; also a common name for the family of *Anona*. — **DEVIL'S.** The fruit of *Mandragora officinalis*. — **EGG.** The fruit of *esculentum*. — **ELEPHANT.**

The fruit of *Peruvia elephantum*. — **KANGAROO.** The fruit of *Solanum laciniatum*. — **KAU' or KEL.** The South African name of an edible fruit produced by *Aberia Kagra*. — **LOVE.** The fruit of *Lycopersicon esculentum*. — **MAD, or JEW'S.** The fruit of *Solanum esculentum*. — **MAMMER.** The fruit of *Mammea americana*. — **MANDRAKE.** The fruit of *Mandragora officinalis*. — **MAY.** *Podophyllum peltatum*. — **MONKEY.** A West Indian name for *Clusia flava*. — **OAK.** A spongy excrescence, formed on the branches of the oak-tree. — **of FERU.** The fruit of *Nicandra physaloides*. — **of SODOM.** The fruit of *Solanum sodomium*. — **OTAHEITE.** The fruit of *Spondias dulcis*. — **PERSIAN.** A name given to the Peach, when first introduced into Europe. — **PINE.** *Ananassa sativa*. — **PRAIRIE.** *Peoralea esculenta*. — **ROSE.** The fruit of *Eugenia malaccensis*, *E. aqua*, *E. Jambos*, and others. — **STAR.** The fruit of *Chrysophyllum Cainto*. — **THORN.** *Datura Stramonium*. — **WILD BALSAM.** *Echinocystis lobata*.

APPLE BERRY. A colonial name for *Billardiera*.

APPLE-TREE, MALAY. *Eugenia malaccensis*.

APPLEWORTS. An English name proposed for the order *Pomaceæ*.

APRICOT. *Prunus Armeniaca*; formerly sometimes written *Apricock*. — **WILD.** *Mammea americana*.

APTANDRACEÆ. Out of the genus *Aptandra*, Mr. Miers has proposed to form a natural order, bearing this name. Only one species is known, a tree with alternate leaves and minute flowers, a native of the banks of the river Amazon. It is usually referred to *Humiriada*. Its great feature is having anthers opening by reflexed valves, as in *Lauraceæ*.

APTERIA setacea. An obscure North American plant related to *Burmannia*, but destitute of wings to the fruit.

AQUIFOLIACEÆ (*Hicineæ, Hollyworts*). The common Holly-tree is the type of a small natural order of shrubs and trees, with rotate monopetalous flowers, a definite number of epipetalous stamens, and a fleshy fruit. The species may be said to possess in general emetic qualities, variously modified in various instances. Birdlime is obtained from the bark of the common Holly, and the beautiful white wood is much esteemed by cabinet-makers for inlaying. A decoction of *Ilex vomitoria*, called Black drink, is used by the Creek Indians at the opening of their councils, and it acts as a mild emetic. But the most celebrated product of the order is Maté, or Paraguay tea, the dried leaves of *Ilex paraguayensis*: which see.

AQUILARIA. The Eagle-wood, or *Agallochum* of the ancients, is produced from certain species of this genus: hence the

name. The genus gives its name to the order *Aquilariales*, and is characterized by a top-shaped leathery calyx, downy externally, whose limb is divided into five small oblong, reflexed segments; from the throat of the calyx project ten woolly scales, which adhere to the whole length of the interior of the calyx tube, and alternate with the ten stamens, the filaments of which also adhere for nearly their whole length to the calyx tube, and are attached to the back of the anthers below their middle. The ovary is two-celled, each cell containing a single ovule, suspended from the placenta; these ovules are flat on one side, convex on the other, and winged, the wing being prolonged downwards into a horn-like process; the ovary is surmounted by a short style, terminated by a large round stigma, which is depressed in the centre. *A. Agallocha*, a large tree, inhabiting Silihet, and provided with alternate lance-shaped stalked leaves, furnishes an odoriferous wood, called Aloes-wood, or Eagle-wood, supposed to be the Aloes-wood of Scripture. The wood contains an abundance of resin, and an essential oil, which is separated, and highly esteemed as a perfume. The Orientals burn it in their temples for the sake of its slight fragrance, on which account also it was used in the palace of Napoleon the First. It has been prescribed in the rheumatic affections in Europe. Other but inferior kinds of this wood are said to be furnished by species of *Aloezytum* and *Euccarcia*. [M. T. M.]

AQUILARIACEÆ (*Aquiliariads*) consist of fragrant tropical Asiatic trees, with small apetalous flowers, resembling those of a *Rhamnus*. Only ten species are known, of which the most important is the genus *AQUILARIA*: which see.

AQUILEGIA. A genus of *Ranunculaceæ*, widely distributed over the temperate regions of the northern hemisphere. It is generally considered to consist of many species, but the authors of the *Flora Indica* believe that the greater number of these are merely varieties. It is distinguished by the curious structure of the flowers, which have five flat, elliptical coloured sepals, alternating with as many spurred petals; the spurs are very large, and produced backwards into hollow tubes, like a sornucopia with the mouth downward, and are frequently curved round towards the central axis of the flower at the extremity. The fruit consists of five follicles, with numerous seeds. In cultivation, double varieties occur, which have a series of spurred petals, with the spurs included in those of the exterior ones, like a nest of crucibles. Stellate varieties also occur, which have the petals flat, and destitute of

leaves twice or thrice-ternate. *A. vulgaris*, the Common Columbine, is apparently native in Britain. It has the flowers usually purplish blue, but in cultivation they vary much, being dark purple, dull reddish, or white. *A. alpina* has much larger flowers and shorter spurs, and stamens hardly exceeding the petals. *A. canadensis* has scarlet and yellow flowers, with very long slender straight spurs, and very long stamens. The species are quite hardy in the open border. [J. T. S.]

ARABETTE. (Fr.) *Arabis*.

ARABIS. An extensive genus of annual or perennial herbaceous plants, belonging to the natural order *Cruciferae*, and bearing white, or (rarely) purple flowers. For the most part they are under a foot in height, the root-leaves are stalked, but the upper ones clasp the stem, and all are more or less thickly set with forked hairs. They inhabit various countries, but the British species possess little interest. The name *Arabis* was probably given to the genus because most of the species delight in stony or sandy soil, such as that of *Arabis* is presumed to be: Wall-cress, the English name, has similar reference to the usual place of growth. Many species are well adapted for rock-work, and others are equally fitted to be grown as border flowers, as they bloom earlier than most garden plants. The genus being closely allied with others, some confusion exists as to the names severally assigned to the plants which it contains. Some species are described under the names of *Turritis* and *Cardamine*. [C. A. J.]

ARAÇA. A name given to the fruit of some Brazilian *Eugénias*.

ARACEÆ (*Aroideæ*, *Arads*) are incomplete plants of the Endogenous class, with numerous naked unisexual flowers, closely packed upon a spadix, shielded when young by the hooded leaf called a spathe, as is seen in the common Wake-robin (*Arum maculatum*). They are common in tropical countries, but rare in those with a cold or temperate climate. Botanists have mixed them with *Orontids*, from which their hermaphrodite flowers distinguish them. Most have tubercous roots (corms), but some acquire the stature of little trees, the most interesting of which is the Dumb-cane, a species of the genus *Dioscorea*. The acrid poisonous qualities which have given rise to the latter name are characteristic of the order. Nevertheless the whole contain starch in such abundance that it may be separated in the form of arrowroot or used as food in its combined state; only, however, after careful washing to remove the acrid juices. Thus, the common spotted *Arum* was eaten with us in time of scarcity, and yields a kind of arrowroot, and the *Colocassias* are grown everywhere in hot countries as common field crops. See all these names. One of the peculiarities of the order is to extend the end of the spadix into a soft, cellular,

exception. The five-spurred petals with incurved heads have been compared to five doves, the sepals representing the wings, and to this the English name Columbine refers. The leaves are ternate, the root-

enlarged process, which is the growing point of the flower-branch, and analogous to the succulent receptacle of the strawberry, the dry core of the raspberry, the spongy excrescence called the oak apple, and even the stiff hard spine of the *Gleditsia*. Scarcely more than 200 species are known. The appearance presented by this very distinct race of plants, is shown in plate 2, in which a group of *Caladiums* is seen at fig. b.

ARACHIS. A genus of Leguminous plants, remarkable for the peculiar structure of its calyx, and the habit of thrusting its fruit into the ground. M. Poiteau, in the *Annales des Sc. Nat.*, 1853 (xix. 268), gives a good description and figure of *A. hypogaea*. The principal characters of the genus are the immensely long tube of the calyx, whose limb is two-tipped; the corolla papilionaceous and yellow; and eight stamens united into one parcel. The ovary is very small, and placed at the bottom of the very long calyx tube; it contains two ovules, and is terminated by a very long style, thickened at its extremity, and covered with hairs at the place where it comes in contact with the stamens. After the fall of the flower, the ovary, which is very small, is gradually raised upon a stalk which in time attains a length of two to three inches, and in its growth curves downwards, so that at length the small ovary at its extremity is thrust into the ground. When this happens, the ovary begins to enlarge, and ripens into a pale yellowish wrinkled slightly curved pod, often contracted in the middle, and containing two seeds. Should the ovary by some accident not be enabled to thrust its pods into the ground, it withers and does not attain perfection. The plant was originally a native of the West Indies and West Africa, but is now cultivated in warm climates, preferring a light sandy soil. The seeds which are of the size of a pea are eaten as food, but are chiefly valuable for the quantity of oil they produce when pressed. The oil is used as a substitute for that of olives, to which it is equal in quality. The plant might with much advantage be extensively cultivated in Australia and others of our colonies for the sake of its excellent oil, while the herbage would form valuable forage for cattle, who eat it greedily. The pods are known in this country as Ground Nuts. The peculiarity of thrusting the fruit into the soil to effect its maturation there, is not confined to this genus, but exists also in the allied genus *Voandzeia*, a native of Surinam, where its seeds are eaten, like those of the *Arachis*, as peas by the

[M. T. M.]

ARACHNIODES. A doubtful genus of Java Ferns, long supposed to belong to the *Pteridaceae* or *Alseodora*. Mr Baker has, however, ascertained that it was founded on a specimen of *Lastrea confertifolia*, from which the proper indurium had fallen, leaving only an arechnoid or cobweb-like covering. [T. M.]

ARACHNIS (from the Greek: a spider). A Javanese Orchid, of epiphytall habit, whose name has been derived from the extraordinary resemblance of its flowers to a huge spider. The plant has flowers five inches in diameter, of a lemon colour, with great purple spots; they grow as many as twelve together, on a long loose spike arising from one side of a strong scrambling stem. They are said to have the most delicate smell of musk, but so penetrating withal that a single spike will scent an entire meeting-hall. Kœmpfer, however, asserts that this odour resides exclusively in the ends of the sepals and petals, which are broader at the end than elsewhere; and he says that if they are cut off all fragrance ceases. The plant has had several names, as *Epidendrum flos aris*, *Aerides arachnites*, *Remanthera arachnites*, and *Arachnis moschifera*. It is called in Java, Katong ging. Undoubtedly it is one of the most remarkable plants of its remarkable order, and it is not a little surprising that it should never have been introduced into Europe.

ARACHNITIS is a name given to the spider *Ophrys*.

ARACHNOID. Resembling cobweb in appearance; seeming to be covered with cobweb, in consequence of the entanglement of long white hairs.

ARACHNOTRICH. A genus of plants closely related to *Bondeletia*, from which it differs in having the corolla four-parted, with its tube and throat smooth. The anthers are placed towards the top of the tube of the corolla on very short filaments. The plants are covered with a more or less cobweb-like clothing of hairs, hence the name. It belongs to the natural order *Cinchonaceae*. [M. T. M.]

ARADS. An English name for the *Araceae* or Arum family.

ARALIA. This genus is the type of the order *Araliaceae*, and consists of trees, shrubs, and herbs of rather striking character, found in North America, and in New Zealand, Japan, and the East. The flowers are inconspicuous, collected in umbels, the umbels not unfrequently ranged in large compound panicles. The calyx has a very short superior limb, which is entire or five-toothed; the corolla consists of five petals inserted on the margin of the epigynous disk; the stamens are five in number, alternating with the petals; and the ovary is inferior, five to ten-lobed, with a solitary pendulous ovule in each cell, and becomes a berry-like drupe. The foliage is very various in character, but generally of an ornamental aspect; sometimes simple, entire, or lobed, sometimes digitate, pinnate, twice ternate, bipinnate, or supradecomposed. Some of the species have smooth, and others prickly stems. One of the former, *A. racemosa*, grows three to four feet in height, with a divaricately-branched herbaceous stem, bearing com-

pound leaves, the petioles of which are tripartite, each division bearing from three to five ovate or heart-shaped serrated leaflets. This plant is called Spikenard in North America, and is highly esteemed as a medicine. The roots of *A. nudicaulis*, another North American herbaceous species, were formerly imported and sold for sassafras; and they are stated to be used by the Creoles, under the name of Rabbit-root, as a remedy against syphilis, and also as an application to recent wounds. *A. spinosa*, one of the prickly species, is a small, simple-stemmed tree, eight to twelve feet high, the stems and leafstalks both prickly, the leaves doubly and triply pinnated with ovate serrated leaflets, and the panicle much branched, downy, bearing numerous umbels of flowers. This is known in America under the name of Angelica tree, and the berries are used in an infusion of wine or spirits for relieving rheumatic pains and violent colic. The tincture has also been found to relieve toothache. The Rice Paper plant of China has been referred to this genus by Sir W. J. Hooker, under the name of *A. papyrifera*. This plant grows in the deep swampy forests of the island of Formosa, and apparently there only, forming a small tree, branching in the upper part, the younger portions of the stem, together with the leaves and inflorescence, covered with copious stellate down. The full-grown leaves are sometimes a foot long, cordate, five to seven-lobed, of a soft and flaccid texture. The panicles of flowers come from the extremities of the stem and branches, rising above them, and then becoming pendulous, one to three feet long, bearing the numerous capitate umbels of small greenish flowers. The stems are filled with pith of very fine texture, and white as snow, which when cut forms the article known as Rice paper. Large quantities of the stems are taken in native crafts from Formosa to Chinchew, where they are cut into thin sheets for the manufacture of artificial flowers. A lengthened account of this interesting plant will be found in *Hooker's Journal of Botany*. [T. M.]

ARALIACEÆ (*Araliæ*, *Ivyworts*) form a small natural order closely approaching Umbellifera, from which they in reality differ in little, except their fruit always consisting of more carpels than two, and having no double epigynous disk. They are also more generally arborescent, many of them being trees or large shrubs, and very few herbs. Several are conspicuous for their broad noble foliage. The species are found in the tropical and sub-tropical regions of the world; and in some of the coldest, as in Canada, the north-west coast of America, and Japan. *Aralia pectoris* even occurs in Lord Auckland's Islands, in 50° south latitude. They have aromatic qualities, usually slight, but occasionally intense. One of them forms a soft white spongy pith, which when cut into thin plates and flattened becomes the famous so-called Rice paper of the Chinese.

See **HEDERA, ARALIA, PANAX, GUNKERA, ADOXA, &c.**

ARA-ROOT. The same as Arrow-root, which see.

ARAR TREE. *Colletris quadrivalvis*, formerly called *Thuya articulata*, a great coniferous tree, which yields gun Sandarac.

ARATICU DO MATO. A Brazilian name for *Annona sylvatica*.

ARAUCARIA. A genus of *Conifera*, consisting of lofty evergreen trees, with verticillate spreading branches, covered with stiff, flattened, pointed leaves, usually imbricate, but more or less spreading. The spikes of male flowers are cylindrical and terminal; each anther divided into from six to twenty cells. The ripe cones in the females are large, globular, terminal, densely imbricated with numerous woody scales, sometimes winged, each bearing a single adnate seed, and many of them usually barren. There are five or six species known, all from the southern hemisphere. *A. imbricata* is the species commonly planted in this country, and the only one which will bear our climate without protection. It is a native of the mountains of Southern Chili, where it forms vast forests, attaining a great height, and supplying a hard and durable timber. The seeds are edible when fresh, and grow in sessile cones of the size of a child's head, growing at the ends of the branches. The Bunya Bunya pine, *A. Bidwillii*, a noble tree inhabiting the scrubs between the Brisbane and Burnett rivers, bears cones as large as a man's head, and which contain a number of large seeds, which are eaten as food by the aborigines. *A. brasiliensis* forms large forests in south tropical Brazil. It much resembles the Chilean species, but is rather more elegant in growth, and of a better colour. It is occasionally planted in Southern Europe, where it succeeds better than the *A. imbricata*, but is too tender for this country. *A. excelsa*, the Norfolk Island pine, attains the height of 200 feet. The leaves are much shorter than in the two preceding species, and but slightly flattened, and the scales of the cone are broadly winged, with a hooked point. It will not bear the open air in our climate, but forms a conspicuous object in lofty conservatories. It has been considered by some botanists as forming, with two Australian species, a distinct genus under the name of *Eutassa* or *Eutaeta*.

ARBOL DE CORAL. A Mexican name for *Picramnia Coralodendron*. — **DEL CERA.** A South American name for *Elaeagia utilis*. — **DE LECHE.** The Cow Tree, *Prostrum Galutodendron*. — **DE ULE.** A Mexican name for *Castilleja elastica*.

ARBOR JUDÆ. A common name for *Cercis* or Judas tree. — **VITÆ.** The common name for *Thuja*.

ARDOUSER. (Fr.) *Arbutus*.

ARBRÉ A' CHAPELET. (Fr.) *Melia Asedarach*. — **A' FRANGES.** *Chionanthus virginica*. — **A' LA GIRE.** *Myrica cerifera*.

sera. — A' PERRUQUE. *Rhus Cotinus*. — A' SULF. *Stillingia sebifera*. — AU POIVRE. *Vitex Agnus-castus*. — AUX ANEMONES. *Calycanthus floridus*. — AUX FRAISES. *Arbutus Unedo*. — AUX QUARANTE E'CUS. *Salisburia adiantifolia*. — D'ARGENT. *Leucodendron argenteum*. — DE CASTOR. *Magnolia glauca*. — DE JUDE'E. *Cercis Siliquastrum*. — DE NEIGE. *Chionanthus virginica*. — DE SOIE. *Acacia Julibrissin*. — DE STE. LUCIE. *Cerasus Mahaleb*. — DE VIE. *Cupressus thuloides*, *Thuja occidentalis*, and *Thuja orientalis*. — DU VOYAGEUR. *Ravenala madagascariensis*, sometimes called *Urania speciosa*. — SAINT. *Melia Azadirach*.

ARBUTUS. A genus of *Ericaceae*, consisting of trees and shrubs, natives of Southern Europe, the Canary Islands, North America and Chili. Twenty-five species have been described. They have alternate, entire, or toothed evergreen leaves. The pedicellate and bracteate flowers are in terminal paniculate racemes; the corolla is white or reddish; the calyx inferior, and consisting of five small sepals. The deciduous corolla is globose or ovately campanulate, with a small contracted five-cleft and reflexed border. It encloses the ten stamens, which have flattened filaments, and anthers compressed at the sides, opening by two terminal pores, and attached below the apex, where two reflexed awns are produced. The ovary has five cells, with many ovules in each. There is a single style with an obtuse stigma. The fruit is a globose indehiscent berry, rough with granular tubercles, and containing five many-seeded cells. The berries are edible though not agreeable. *A. Unedo* is called the Strawberry tree from its fruit resembling a strawberry at a distance. When eaten in quantities this fruit is said to be narcotic. A wine is made from it in Corsica, but it has the same property as the fruit. In Spain both a sugar and a spirit are obtained from it. The bark and leaves of the same plant are used as astringents; in some parts of Greece they are employed for tanning leather. This species grows abundantly on the rocks at Killarney. It is cultivated as an ornamental shrub, and as it ripens its fruit the second year, it is peculiarly beautiful in October and November, being covered at the same time with blossoms and ripe fruit. [W. C.]

ARBUTUS, TRAILING. An American name of *Epigaea repens*.

ARCEUTHOS. (Gr.) *Juniperus Oxycedrus* and *Juniperus phoenicea*.

ARCHANGEL. A common name for *Lamium* and *Galeobdolon*; also applied to *Archangelica officinalis*.

ARCHANGELICA. A genus of Umbelliferous plants, whose stems and leaves have a very powerful and agreeable aromatic smell. The *Anghica*, *A. officinalis*, is the

only species grown for culinary or medicinal purposes. Angelica is a hardy biennial, from three to six feet high, found in England in moist situations, but believed to be originally a native of the northern parts of Europe. It has been in cultivation since 1348. The leaf stalks were formerly blanched and eaten like Celery. They have, however, long ceased to be so, and are now in request for the use of confectioners, who make an excellent sweetmeat with the tender stems, stalks, and ribs of the leaves, candied with sugar. The seeds and leaves are powerfully aromatic, and are used in country places for their supposed medicinal properties. [W. B. B.]

ARCHEGONE. A term applied to the long-necked cellular sacs which occur in the higher or acrogenous cryptogams, and which are analogous to the pistils of phanogams. They contain at the base of their cavity a cell which is analogous to the embryo sac of phanogams, and which is impregnated by the agency of spermatozooids. From this cell, either the young plant as in ferns, or the capsule as in mosses, is formed by means of repeated cell division. [M. J. B.]

ARCHILL, or ORCHIL. A colouring matter obtained from various species of lichens, especially *Rocella tinctoria*.

ARCTIUM. One of the familiar plants, which, without culture or management, flourishes in nearly all climates and every kind of soil. To the agriculturist it is best known as a troublesome weed, always ready to make its appearance in neglected ground, growing rapidly, and with its large spreading leaves choking all other vegetation; to the artist it affords a bold and striking foreground for his landscapes; and to the school-boy its heads of flowers, under the name of burs, offer an ever welcome supply of means for playing practical jokes. The Burdock is of no utility to man, as no domesticated animals, except, it is said, the ass, will eat its leaves; though it is a question whether it might not be sown with advantage as a cover for pheasants in places where there is a difficulty in raising underwood. It was formerly commended for its medicinal virtues, and was prescribed for rheumatic affections. Some writers too, speak of its excellence as a culinary vegetable. The stems, they say, should be gathered young, stripped of their rind, and treated as asparagus. When burnt the ashes afford a large quantity of alkaline salt. It is a very variable Composite plant, four British forms, *A. majus*, *A. minus*, *A. nemorosum*, and *A. intermedium* being considered as distinct species by some botanists. Their characters are, however, inconstant, although extreme forms of each are readily recognizable; and they are perhaps better regarded as varieties of the aggregate species, *A. Lappa*. The name *Lappa* is derived from the Celtic *Lep*, a hand, from its prehensile pro-

parties. *Arctium* is from *arctos*, the Great Bear, from the rough character of the plant. [C. A. J.]

A. Lappa, under the name of Gobo, is cultivated in Japan as a vegetable.

ARCTOCALYX. A genus of *Geraneaceae*, consisting of half-shrubby plants inhabiting the mountains of Mexico. They have ovate-lanceolate or elliptical leaves, axillary flowers of an unusually large size for the order, and of a bright orange spotted with brown or purple. The calyx is large, tubulose-bell-shaped, fifteen-nerved, and five-toothed. The corolla is funnel-bell-shaped, and the ovary sunk into the calyx, and surrounded by a glandular disk. *A. Endlicherianus* is not uncommon in our gardens. [B. S.]

ARCTOSTAPHYLOS. A genus of *Ericaceae*, consisting of procumbent shrubs, with small deciduous or persistent leaves, and rather small bracteate flowers, two or three together, in very short terminal racemes. It is very nearly related to *Arbutus*, differing from it in having a glabrous berry with five stones, and each stone being one-seeded. The genus has been recently very much limited. Ten species have been separated and placed under the generic title of *Comarostaphylis*, having as their distinctive characteristic a drupaceous fruit, with a single hard five to nine-celled stone, and a single seed in each cell. Five more species have been removed to the genus *Daphniodostaphylis*, which is characterised by having the ovary placed on a ten-angled, hypogynous disk, and containing six to ten cells. The restricted genus *Arctostaphylos*, containing only the two species found in Britain, has the ovary without true dissepiments. The three genera have all alike a five-partite, persistent, and hypogynous calyx, a five-lobed reflexed corolla, inserted on the calyx, and ten stamens. The two species are natives of the northern regions of both the old and the new world. The whole plant of *A. uva-ursi* is astringent; it has been used for tanning leather. The berries form a favourite food of grouse and other game. The plant is a valuable medical astringent, used to check an excessive secretion of mucus, as in urinary and bronchial affections, and even in calculus. The *Arctostaphylos alpina*, or Black Bear-berry, is the badge of the clan Ross. [W. C.]

ARCTOTHECA. A genus of the Composite family, consisting of two species, both perennial herbs, peculiar to Southern Africa, and found in sandy spots near the sea. *A. repens*, which has been cultivated in this country, is a branching plant, six inches to a foot high, with pinnatifid leaves, about six inches long, covered underneath, as are also the stems, with a white tomentum, and bearing solitary yellow flower-heads, nearly three-quarters of an inch across, borne on long naked stalks. The ray florets are strap-shaped and neuter, those of the disc perfect; involucreal scales

in many series; pappus none; achenes wingless and four-sided. [A. A. B.]

ARCTOTIS. A genus of *Compositae*, all natives of the Cape of Good Hope, with showy orange-coloured flower-heads, of which several species occur in gardens. It has a honey-combed receptacle set with bristles, oval grooved achenes crowned with several broad membranous scales, and an involucre of numerous imbricated leaflets with chaffy margins. The *A. speciosa* is not unfrequently cultivated under the name of *A. breviscapa*, as a half-hardy border annual, though our English summers are too short and too cool to bring it to the perfection it attains in its southern home. It would probably be seen to more advantage if treated as a tender biennial. As grown in our gardens, it is a dwarf, tufted, tomentose plant, with numerous, short, prostrate stems, proceeding from the crown of the root; three-nerved leaves, varying from oval and entire to lyrate pinnatifid, in the latter case with a large terminal lobe; and large terminal flower-heads, with a brownish disk and orange-coloured ray, expanded only in fine weather during the middle of the day. Many of the species are greenhouse perennials, which would succeed in the open ground in summer in warm situations, and some of them would be desirable additions to our gardens. Of this section, probably the only attainable species is the *A. grandiflora*, with handsome deep orange-coloured capitules, four inches in diameter, and silvery-grey pinnatifid foliage, blooming freely during the whole summer, in a sunny situation and dry soil. [W. T.]

ARCTURIA. A section of the genus *Drosera*, of which the Tasmanian *D. Arcturi* is the type. This has three undivided styles with thickened stigmas; the stem is short, and not bulbous, with narrow leaves passing insensibly into the leaf-stalk; scape with a single white flower. [J. T. S.]

ARCTURUS. A genus of *Scrophulariaceae*, established by Bentham, but subsequently abolished by him; the name being retained to characterise a group of the genus *Celsia*, in which the anthers are attached by their middle. [W. C.]

ARDISIA. This is a large genus of the family *Myrsinaceae*, containing upwards of 100 species. They are evergreen shrubs or small trees, with alternate, rarely opposite, leaves covered with transparent dots. Their flowers are white or rose-coloured, and arranged in panicles, the branches of which are often of an intense rose colour, thereby adding greatly to the beauty of the plant. The flower-stalks are often disposed in little umbels on the branches of the panicle. They are found in India, the islands of the Indian Ocean, and America. The bark of *A. colorata* is known in Ceylon as Dan, and is used in native practice in bowel complaints, fevers, and externally for healing ulcers. It is tonic and astringent. *A. solanacea*, a na-

tiva of India, is to be met with in some gardens; the juice of its berries is of a beautiful red colour, which, when put on paper, changes to a durable brown. *A. crenata*, a native of China and Penang, is a beautiful dwarf bush often cultivated in greenhouses. The leaves are glossy green, and in the winter season, if well managed, the plant is covered with a mass of scarlet berries, much like those of the holly. *A. primulifolia*, a native of Hong Kong, is only about six inches high, and has thin leaves like those of the common primrose. A number of species are in cultivation in English gardens. [A. A. B.]

ARDISIADS. An English name for the order *Myrsinaceae*.

AREC. (Fr.) *Areca oleracea*.

ARECA. The generic name applied to certain species of Palms, characterised by having a lofty stem, plumated leaves whose stalks are rolled up into a cylinder at their base; a double spathe encloses the flowers, which are borne upon a branched spadix, and are unisexual. The male flowers have a six-parted perianth; the female flower contains six rudimentary stamens, and a superior one-seeded ovary which ripens into a drupe-like fruit with a fibrous rind.

A. Catechu is a handsome tree, cultivated in all the warmer parts of Asia for the sake of its fruits, which are of the size of a hen's egg, of a reddish yellow colour, and with a thick fibrous rind, within which is the seed. This is known under the name of Areca nut, Pinang, and Betel nut, and is about the size of a nutmeg, but conical in shape, flattened at the base, brownish externally, and mottled internally like a nutmeg. These nuts are cut into narrow pieces, which are rolled up with a little lime in leaves of the Betel Pepper. The pellet is chewed, and is hot and acrid, but possesses aromatic and astringent properties. It tinges the saliva red, and stains the teeth, and is said to produce intoxication, when the practice of chewing it is begun. The effects seem to be as much due to the other ingredients as to the areca nut. So addicted are the natives to the practice, that Blume tells us, 'they would rather forego meat and drink than their favourite areca nuts, whole ship loads of which are annually exported from Sumatra, Malacca, Siam, and Cochin China. The practice is considered beneficial, rather than otherwise. In this country the charcoal of the nuts is used as tooth powder, for which it is well adapted by its hardness. A sort of Catechu is furnished by boiling down the seeds of this palm to the consistence of an extract, but the greatest quantity of the drug called Catechu used in this country is the produce of *Acacia Catechu*. The flowers of the tree are very fragrant, and used on festive occasions in Borneo, where they are considered a necessary ingredient in medicines, and charms employed for healing the sick. In Malabar another species, *A.*

Dicksoni, is found wild, and furnishes a substitute for the true betel nut to the poorer classes.

A. oleracea is the Cabbage Palm, which is found in abundance in the West Indies. It derives its name from the bud which terminates its lofty stem. This bud consists of a great number of leaves densely packed, so that the inner ones are of a white colour, and delicate flavour, and serve as a vegetable. The noble trees are destroyed for the sake of this luxury; and it is related that in the cavity formed by the removal of the 'cabbage' a kind of beetle deposits its eggs, from which maggots are produced which are an article of diet much relished by the negroes of Guiana! [M. T. M.]

AREGMA. A remarkable genus of parasitic *Fungi*, which abound on several species of *Rosaceae*. Their first appearance is that of some yellow *Uredo*, in which condition the fruit is not distinguishable from that of the genus just mentioned, but, after a time, cylindrical dark multi-septate bodies are produced on long bulbous stalks, forming a sort of spore-shaped prothallus, the articulations of which germinate, and produce at length the true spores. Nothing is more common than the *Aregma* of the Rose and Bramble (*A. Rosa* & *A. Rubi*), which afford interesting objects for the microscope, and food for much reflection, from their peculiar mode of reproduction. [M. J. B.]

AREMONTIA. A name altered from *Agrimonia*, and now applied to an evergreen herb belonging to the natural order *Rosaceae*. It grows about a foot high, and bears irregularly pinnate downy jagged leaves, of which the upper leaflets are largest, those of the stem in threes; the flowers are small, yellow, and grow in tufts. The plant is a native of Italy and Carniola. [C. A. J.]

ARENARIA or Sandwort. A genus of *Caryophyllaceae*, belonging to the tribe *Alsineae*, consisting of small herbs, distinguished from the others of the tribe by having the styles generally three; the capsule opening by twice as many valves as there are styles, at last splitting down to the base; the seeds without an appendage; and the petals not cleft into two segments. The species are extensively distributed; three occur wild in Britain: *A. serpyllifolia*, which is a common annual plant, with the petals not exceeding the calyx. Some authors consider we have two species included under this name, and separate from the common form, *A. leptoclados*, which is a much more slender plant, with softer capsules. *A. ciliata*, a perennial found on Ben Bulbin, in the West of Ireland, has the petals much longer than the calyx, and the leaves fringed with hair. *A. norvegica*, also a perennial, from the Orkney and Shetland Islands, is closely allied to the last, but the leaves are not fringed. *A. trimeria* is sometimes placed in the genus *Muhlenbergia*, as the seeds have an

appendage: it, however, accords ill with the other species of that genus. [J. T. S.]

ARENGA. *Saguerus*.

AREOLATE. Divided off into distinct spaces usually more or less angular. The skin of a plant is areolate.

ARETHUSA bulbosa is a small swamp plant, belonging to the order of Orchids, with a one-leaved scape, terminated by a single very handsome rosy-purple sweet-scented flower. It is found exclusively in North America, and is the only species of its genus. Other supposed species belong to *Pogonia*.

ARGALOU. (Fr.) *Palturus aculeatus*.

ARGANIA. A genus of plants belonging to the family of *Sapotaceae*. The calyx has ten sepals, in two rows; the throat of the corolla has five scales or abortive stamens, alternating with the five fertile stamens; anthers opening outwardly; style awl-shaped. *A. Sideroxylon* is the Argan tree of Morocco, in certain provinces of which it grows in woods. It is a spiny evergreen tree, with a trunk of considerable size, but of low stature. It gives off branches at a few feet from the ground, which incline downwards till they rest on the earth; at length, at a considerable distance from the stem, they ascend. A tree mentioned in the *Journal of Botany* for April 1854, measured 16 feet only in height, while the circumference was as much as 230 feet. The fruit is an egg-shaped or roundish drupe, dotted with white. These fruits are much relished by all ruminating animals, who, in chewing the cud, eject the hard seeds, from which a valuable oil is extracted. The culture of the plant for the sake of its oil has been recommended in Australia and certain parts of Cape Colony subject to droughts. The wood is very hard, and so heavy as to sink in water. [M. T. M.]

ARGEL, or ARGHEL. A Syrian name for *Solenostemma Argel*, the leaves of which are found amongst Egyptian scums.

ARGEMONE. The name of a genus of the Poppy family, *Papaveraceae*, thus characterised:—sepals 2-3; petals 4-8; stamens numerous; stigmas 47, radiating, sessile, or elevated on a very short style; capsules obovate, opening at the top by a number of little valves. *A. mexicana*, a native of Mexico, has become widely distributed over the globe, abounding in roadides, and waste places in proximity to human habitations. The seeds possess acrid, narcotic, and purgative properties, and are employed as a substitute for ipecacuanha. They also contain an oil which has been recommended—as what has not—as a remedy for cholera. The yellow juice of the plant is used in ophthalmia. [M. T. M.]

ARGENTINE (Fr.) *Cerastium tomentosum*; also *Potentilla anserina*.

ARGOPHYLLUM. A small genus of

Tasmanian *Brexiaceae*, with alternate stalked ovate undivided leaves, silky and silvery on the under side. The flowers are very small, in terminal many-flowered corymbose or paniculate cymes. A curious cup from which the stamens rise, is cut into comb-like teeth. [J. T. S.]

ARGOUSIER. (Fr.) *Hippophae*. — DU CANADA. *Shepherdia canadensis*.

ARGYLIA. A genus of *Bignoniaceae*, containing eight species, from Chili, of perennial herbs, with fleshy roots, an angled stem, petiolate palmate and alternate leaves, and white or purplish axillary flowers. The genus has a five-partite calyx; a tubular corolla, with a five-lobed limb; four didynamous stamens; and a bilocular ovary. [W. C.]

ARGYREIA. A genus of the natural order *Convolvulaceae*, having large handsome flowers, with a bell-shaped corolla, into the base of the tube of which the stamens are inserted. The ovary is two-celled, each cell containing two seeds, unless, as often happens, some of them become abortive. Fruit berry-like, indehiscent. They are natives of tropical Asia. The leaves of *A. bracteata* and *A. speciosa* are used in India as a poultice in cases of scrofulous disease of the joints, and as a cool application in headaches. The root of *A. malabarica* possesses purgative properties. Two or three species are in cultivation. They are climbing plants with white or purple flowers, and much resemble *Ipomoea*. [M. T. M.]

ARGYROLOBIMUM. A genus of the Pea-flower tribe of the natural family *Leguminosae*, containing upwards of forty species, all of them herbs or dwarf shrubs, with trifoliate stalked or nearly sessile leaves, having two stipules at their base, and generally covered with silvery hairs. The flowers are yellow, solitary or racemed, with bracts. About thirty species are found in South Africa, a number in the countries bordering on the Mediterranean, and some extending through Afghanistan into N.W. India. The name of the genus has reference to the pod which is often clad with silvery hairs. [A. A. B.]

ARGYRORCHIS. An obscure terrestrial Orchid from Java, with pinkish flowers. It appears to be a mere peloria of *Macodes Petola*.

ARHYNCHIUM. An Orchidaceous epiphyte from tropical Asia, with dull green and brown flowers, referred by the younger Reichenbach to *Romantaria bilinguis*. Its lip is so constructed as to look as if composed of two tongues laid one upon the other.

ARIL, ARILLUS. A body which rises up from the placenta, and encompasses the seed, like the mace in nutmeg, and the red sac in *Swongmorus*.

ARILLODE. A false aril; a coating of the seed proceeding from its own surface, and not from the placenta.

ARIOPSIS. A curious genus of plants belonging to the *Araceæ*, and similar to the genus *Arum* in appearance, hence the name. The species were formerly included in the genus *Bemusatia*, and consist of small Indian herbs with inconspicuous stems, globose rhizomes, and glaucous heart-shaped peltate leaves, on long stalks. The spathe is nodding, boat-shaped, adherent to the lower part of the spadix, on the upper part of which the male flowers are placed in little depressions; each little cavity contains six globose anthers, bursting by one pore. The female flowers at the lower portion of the spadix consist of obliquely ovate ovaries with three to five stigmas. The fruit is like a berry, but somewhat dry, angular, one-celled, with four to five placentas, and several seeds placed in two rows along each placenta. *A. peltata* is sometimes met with in cultivation as an object of curiosity. [M. T. M.]

ARISEMA. The plants of this genus of the *Arum* family have tuber-like rootstocks, from which proceed peltate, pedate, palmate, or more rarely undivided leaves. The spathe is rolled round the spadix at the base, the spadix has unisexual flowers below, its upper part covered with rudimentary flowers; the anthers are provided with distinct filaments; the ovaries are numerous, and contain 3-8 ovules, and are terminated by very short styles. The tuberous rootstocks of two species are used by the natives of Sikkim Himalaya, as food; they are beaten into a pulp with water, and allowed to ferment, a process which destroys their acridity. The Dragon-root, or Indian Turnip of America, is the tuber of *A. crotubens*, which furnishes a kind of starch. [M. T. M.]

ARISARUM. A genus of plants of the *Arum* family, closely allied to *Arisema*. The lower part of the spadix has unisexual flowers, but no rudimentary ones, and is naked at the top; the ovaries are few in number, and have a distinct style. The plants are herbaceous, with a tuberous or branching and creeping rootstock, heart-shaped or spear-shaped leaves, on long stalks, and livid purple spathes. They are natives of Southern Europe and the Mediterranean region. [M. T. M.]

ARISTA. The awn or beard of corn, or any such like process.

ARISTATE. Furnished with an arista.

ARISTOLOCHACEÆ (*Aristolochia*, *Asarum*, *Picnolobum*, *Birtheortia*). In the tropical parts of both hemispheres, and occasionally beyond those limits, occurs a race of plants with singularly inflated irregular flowers, consisting of a calyx only, of a dull dingy colour, varying from yellow to shades of chocolate, purple, or brown, and often emitting an offensive odour. A hot summer appears to be one condition of their existence, with a few exceptions—the most striking of which are *Asarum*, little stemless plants, wild in

Europe and North America, and the *Aristolochia Clematitis*, which has become as it were naturalized in England. The wood of these plants, when they have any, consists of parallel plates, held loosely together by soft medullary processes. The ovary is inferior, with many ovules, and for the most part consists of six cells, the number three being, as in *Endogone*, characteristic of the floral apparatus of the order. In medicine these plants are slightly aromatic stimulating tonics, useful in the latter stages of low fever; the taste is bitter and acrid; the odour strong and disagreeable. They are also said to be sudorific, emmenagogue, purgative, and diuretic. The principal genera are *ARISTOLOCHIA* and *ASARUM*, which see.

ARISTOLOCHIA. A remarkable genus of plants belonging to the *Aristolochiaceæ*, and characterised by the possession of a calyx generally of some other colour than green, of an irregularly tubular form, inflated at its lower portion, and adherent at its base to the ovary. The stamens are five or six in number, and adhere to the solitary style; the fruit is a six-celled capsule with numerous seeds. The wood of these plants differs much in appearance from that of Exogenous trees or shrubs in general, as it consists of radiating plates of wood, surrounding a pith and encircled by the bark, not disposed in rings.

The plants of this genus are for the most part shrubs, generally climbing round the branches of trees. They are abundant in tropical South America, while a few species are distributed throughout North America, Europe, and India. One species, *A. indica*, is common to India and to New Holland. The flowers of some of the kinds are remarkable for the oddity of their form, and for their large size. Humboldt mentions one, *A. cordata*, as growing on the shady banks of the Magdalena, and having blossoms measuring four feet in circumference, and which the Indian children sportively draw on their heads as caps. *A. Clematitis*, the common Birthwort, is found in this country, but generally in the neighbourhood of old ruins, as if it had at some time been cultivated in the gardens attached to such buildings; probably for medical purposes, as an aid in parturition. It is a low-growing shrub, with slender erect greenish furrowed stems, stalked heart-shaped leaves, in the axils of which the yellowish trumpet-shaped flowers are produced in clusters. Others of the species had formerly a similar reputation, such as *A. rotunda* and *A. longa*.

A. Serpentaria is the Virginian Snake-root, furnishing the drug known as *Serpentary*, which is esteemed in the southern states of America as a cure for the bite of the rattlesnake or of a mad dog. Its effects, when given in large doses, are a feeling of sickness, purging, and subsequently increased fulness of the pulse; hence it is still occasionally used as a stimulant in fevers.

The roots of other species are used in the United States for the same purposes, as *A. hastata* and *A. tomentosa*; and several kinds are employed in Brazil for their stimulant properties. Many of these plants, besides those above mentioned, are said to be useful in effecting the cure of snake bites, not only in tropical America, but also in the West Indies, Hindostan, and Egypt. It is stated that the Egyptian jugglers use some of these plants to stupefy the snakes before they handle them; and Jacquin relates that the juice of the root of *A. angulicida*, if introduced into the mouth of a serpent, so stupefies it, that it may be handled with impunity. If the reptile be compelled to swallow a few drops, it perishes in convulsions; hence it is perhaps, on homœopathic principles, that the root is affirmed to be an antidote to snake bites. *A. bracteata* and *A. indica* are both used for similar purposes in India, so that there is the concurrent testimony of the natives of different quarters of the globe as to the peculiar property of these plants. The two kinds just named are bitter plants, used as purgatives and vermifuges, and for other purposes in India.

In Central America one or more plants, called Guaco by the natives, are held in high esteem for the cure of snake bites. It is conjectured, with much probability, that the Guaco is some species of *Aristolochia*. So satisfied are the natives of Peru, Central America, and Mexico of its extraordinary medicinal powers and specific virtues in cases of snake bite, that every Indian or Negro who has to traverse the country, invariably has a supply of this friendly plant in a dry or prepared state, to meet any accident that may befall him, by inadvertently placing his foot upon one of these dreaded and deadly foes of mankind. Mr. Temple, to whose account of this plant, published in the *Journal of the Society of Arts* for the year 1855, we are indebted in drawing up this notice, states that he employed the tincture in four cases of snake bite with complete success. He also gives a strange account of the way in which the Guaco is reported to have been first discovered, the substance of which is as follows:—A traveller passing through a forest observed two formidable snakes engaged in deadly encounter; after a short time one was severely bitten and fled from the scene of conflict, until it reached a creeping plant, of the leaves of which it partook with greediness—that plant was the Guaco. He secured the reptile, and brought away the plant the leaves of which it had eaten. The snake, although bitten by one of a most deadly species, quite recovered. Another report, as problematic as the other, is that snakes have been observed carefully to avoid localities where the plant grows. Many persons are so firmly persuaded that the snake will not approach the Guaco, that when travelling in the bush, they carry a small piece of the root of the plant in their pocket. So then, this wonderful plant prevents the access of

snakes, stupefies them, and kills them if they do come, and cures them if bitten by a fellow snake, and likewise cures human beings bitten by these venomous reptiles. There can be no doubt of the partial truth of some of these statements, and hence, not only the botanical history, but the medical properties of Guaco, demand accurate investigation.



Aristolochia grandiflora.

Several different kinds of *Aristolochia* are cultivated in hot-houses for the singularity, and in some cases for the handsome appearance, of their flowers, albeit their colour is usually of a dingy hue. The flowers of various species act as a sort of fly-trap: the flowers are bent in the middle, and lined with hairs pointed downwards, so that ingress is easy but escape impossible to the unlucky insect, which thus, it may be unconsciously, aids in the ripening of the seed. *A. stipho*, a native of the Alleghany mountains, is cultivated as a climbing plant, out of doors, for the sake of its large, heart-shaped leaves; the flower is curved like a siphon, hence its name; it has also received the name of Pipe-vine, from a resemblance in the form of the flowers to that of a tobacco-pipe. (M. T. M.)

ARISTOTELIA. A genus of the natural family *RUPEAEAE*. There are five species known: shrubs or small trees with opposite or ternate stalked leaves, which vary much in size and form. The flowers are small and white, arranged in axillary fascicles or in racemes; the berries roundish, varying in colour from pink to black, and in size from that of a small pea to a cherry. The wood of *A. Menziesii*, a native of Chili, is used for making musical instruments, its tough bark forming the strings. The berries are acid but eatable, and a wine is made from them by the Chilians which is given in malignant fever. It was employed by Domby in Chili during the plague of 1782, with boasted success. Two species are found in N. Zealand: the berries of *A.*

racemosa, the Mako-Mako of the natives, are eaten. The genus is named in honour of the Greek philosopher. [A. A. B.]

ARJOONA. A genus of *Oleaceae* or *Santalaceae*, containing three species of undershrubs or herbs, with alternate rigid and acute leaves, and flowers in spikes at the ends of the branches. The calyx consists of a cylindrical five-lobed tube. The stamens, five in number, have slender filaments and oblong anthers. The inferior ovary is fleshy and contains three ovules. There is a thread-like style, and three short linear stigmas. The fruit, included in the persistent bracts, is one-seeded. The species are natives of South America. [W. C.]

ARMARINTHE. (Fr.) *Cuchrys*.

ARMATURE, ARMS. Any kind of defence consisting of spines, prickles, &c.

ARMENIACA. The Apricot, *Prunus Armeniaca*.

ARMENIACUS. Apricot-coloured; also, native of Armenia.

ARMERIA. Thrift. A genus of *Plantaginaceae*, with narrow often grass-like leaves and naked scapes, terminating in compact heads, almost like those of the Scabious, surrounded by an involucre of bracts, the two outermost of which have the bases produced downwards, forming a cylindrical sheath or tube, enclosing the upper part of the scape. The flowers are rose-coloured, purple or white. Two species are included in the British Flora; but one of them, *A. plantaginacea*, which has the leaves three or five-nerved, broader towards the end, is only found in Jersey. The other, *A. vulgaris*, is the common Sea-Pink or Thrift, and occurs on all the coasts and many of the mountains of the British Islands: the leaves are narrow and parallel-sided. This plant is often cultivated in gardens, in place of box edging. [J. T. S.]

ARMILLARIA. A sub-genus of *Agaricus*, distinguished from other white-spored groups by its partial ring-like veil, without any universal volva, which remains attached to the stem. *Agaricus melleus*, a species common on almost every rotten stump in autumn, is the most prominent example met with in this country. This is frequently eaten abroad under the name of Halimasch; but it is very acrid, and causes a strong constriction of the throat when eaten raw. It would not be an acceptable article of food in this country, even were it free from danger. The sub-genus is so decidedly artificial that, with great propriety, the different sections of which it is composed, might merge as ring-bearing species amongst other white-spored sub-genera, as *Trichotoma*, *Clitocybe*, and *Collybia*. [M. J. B.]

ARMOISE. (Fr.) *Artemisia*.

ARMORACIA. The Horse-Radish, *Cochlearia Armoracia*.

ARNEBIA. A small genus of oriental and North African *Borraginaceae*, allied to *Lithospermum*, but having the style blind at

the apex, and the stigmas often forming four lobes. The species are small and very hispid or bristly, with pale yellow or purplish-blue flowers. [J. T. S.]

ARNICA. The name applied to a genus of the Composite family, distinguished by the following characteristics:—Involucre bell-shaped, of two rows of bracts; outermost florets strap-shaped, containing pistils only with rudimentary stamens; central ones tubular, five-toothed, containing both stamens and pistils; the tube of the corolla hairy; style with long arms covered with downy hairs; fruit cylindrical, tapering at each end, ribbed, hairy, and surmounted by a pappus, consisting of close rigid rough hairs arranged in one row.

A. montana, the Mountain Tobacco, is a native of Central Europe. Its roots and leaves possess powerfully acrid properties, but in small doses it is employed as a stimulant in low fevers and other conditions of debility, also in paralytic affections; externally it is much used as a tincture applied to bruises, wounds, and sprains. It promotes the speedy absorption and removal of the effused blood. The peculiar properties seem especially due to a resinous substance called *arnicin*, and to a volatile oil. [M. T. M.]

ARNOLDIA. The name of a section of the genus *Dimorphotheca*, which sec. The same name was applied by Blume to a Java plant, which is now placed in the genus *Weinmannia*.

ARNOSERIS. An insignificant native annual weed belonging to the tribe *Clethraceae*, of the order of compound flowers. It grows from six to eight inches high, with a branched leafless stem, the upper branches being hollow and singularly swollen upwards so as to assume a club-shaped form. The flowers are small and yellow. By Smith, Hooker, and others, it is placed in the genus *Lapsana*, from which it was separated by Gartner on account of the fruit being crowned with a pappus of many short entire broad scales; in *Lapsana* the fruit is naked. [C. A. J.]

ARNOTTO or ANATTO. *Bixa Orellana*.

ARONICUM. A genus of the Composite family, closely allied to, and only differing from *Doronicum*, in all the achenes being furnished with a pilose pappus, instead of those of the disk only. There are four known species, all of them pretty perennial herbs restricted to mountain districts in Central Europe and Asia. They have stems varying from three inches to two feet high, terminating in one or more yellow-rayed flower-heads, sometimes two inches across; the root-leaves are stalked, heart-shaped or oblong, and toothed, with a smooth or downy surface, and those of the stem sessile and arranged alternately—not opposite as in the nearly allied genus *Artemisa*. *A. Chussii* is a neat little Alpine species, three to five inches high, fre-

quently met with in collections of Alpine plants. [A. A. B.]

ARPOPHYLLUM. Under this name are collected about four species of epiphytal Orchids, inhabiting Mexico and New Grenada. They have slender bulb-like stems, invested with stout sheaths and one or two narrow leathery leaves at their tip. The flowers are collected in close cylindrical spikes, are small, somewhat globose, and have a rich deep crimson colour. One of the species, *A. cardinalis*, is as much as three feet high. One or two species exist in gardens, where they are valued for their elegant manner of growth. *A. alpinum* is the hardiest, inhabiting Mount Totanican, at the elevation of 10,000 feet above the sea level, where it rides on the branches of the Mexican alder, in a region where oaks refuse to grow.

ARRABIDÆA. A genus of *Bignoniaceæ*, composed of about twenty South American, chiefly Brazilian species, all of which are climbing shrubs, having, when young, pinnate or trifoliate, when old bifoliate leaves, generally furnished with tendrils. The genus may be readily distinguished from all other *Bignoniaceæ* by having by far the smallest flowers in the order, the corollas being, in some instances, only three to four lines long; also by its stamens, four of which are fertile, whilst the fifth is sterile and of equal length with the rest. The calyx is cup-shaped; the corolla hypocrateriform; the fruit a dehiscent, smooth, flattened capsule, linear in shape, and having a septum placed parallel with the valves of the latter. The flowers, though small, are arranged in large terminal panicles, and render the *Arrabidas* ornamental objects. The leaves of several have a deep rose or purplish tint, and are used for dyes. One of these species is *A. rosea*, from which a purplish colour is extracted in the forests of Rio Negro, and imported to Europe. The doubtful *Bignonia Chica*, probably also a congener, furnishes, by boiling its leaves in water, a red feculent substance, which is quickly precipitated by adding some juices of the bark of an unknown tree, called Aiyana: the Indians use it for painting their body red. It is also an article of importance to dyers. In nature it approaches the resins, but contains some peculiar properties; it gives an orange colour to cotton. *Bignonia (?) Chica*, termed 'Chica' in the Orinoco districts, is probably identical with the 'Carajura.' In the Isthmus of Panama it is known as 'Hojita de teñir,' and used for dyeing Spanish hammocks. Silk-worms fed with the leaves are stated to produce red silk. [B. S.]

ARRACACHA. A name applied by the natives of the northern parts of South America to several kinds of plants, possessing tubers or tuberous roots, but, botanically speaking, confined to a genus of Umbelliferous plants allied to the hemlock. Its principal distinguishing characteristics are—limb of the calyx entire;

petals ovate or lance-shaped, purplish, with the point bent inwards; fruit turgid, compressed from side to side, wingless, surmounted by the thickened bases of the style; albumen curved. *A. esculenta* is cultivated in the cooler mountainous districts of Northern South America, where the roots form the staple diet of the inhabitants. The plant is somewhat like the hemlock (*Conium maculatum*), but its leaves are broader, its stem not spotted, and its flowers are of a dingy purple colour; the roots are large and divided into several fleshy lobes of the size of a carrot, which when boiled are firm and have a flavour intermediate between a chestnut and a parsnip. Trials have been made to cultivate the plant in this country, but the climate has not been found suited for it. It might be tried in some of our colonies with advantage. [M. T. M.]

The name Arracacha is also given to one of the tuber-bearing species of *Oxalis*, *O. crenata*. [T. M.]

ARRÊTE-BŒUF. (Fr.) *Ononis procurrens*.

ARRHENATHERUM A genus of Grasses of the tribe *Avenaceæ*, distinguished chiefly by having two florets within the glumes, the lower of which is abortive. The only British species is the tall Oat-grass, *A. avenaceum*, which in many instances forms a very considerable portion of good meadows and pastures. Although a large growing species, and one which cattle appear to like, it is found, on being chemically analyzed, to be low in nutritive properties compared with some other kinds, consequently, it is mostly cultivated as a portion in mixtures of grasses, and never alone as a crop. For this purpose it is useful in assisting the weaker stemmed kinds to stand upright while ripening. The few species which were formally included under this genus, as defined by Beauvois, will be found described under the genus *Avena* in Steudel's *Synopsis*. [D. M.]

ARROCHE ÉPINARD. (Fr.) *Atriplex hortensis*. — FRAISE. *Bilum capitatum*. — POURPIER. *Atriplex portulacoides*.

ARROW-GRASS. A common name for *Triglochin*. The name Arrow-grass is also applied to the *Juncagraceæ* generally.

ARROW-HEAD. *Sagittaria sagittifolia*.

ARROW-ROOT. A pure kind of starch obtained from various plants, and employed for dietary and other purposes. That called Bermuda or West Indian Arrow-root is obtained from *Maranta arundinacea*. Brazilian Arrow-root or Tapioca meal is obtained from *Manihot utilisima*. Chinese Arrow-root is said to come from the tubers of *Nelumbium speciosum*. East Indian Arrow-root is obtained from different species of *Curatma*. English Arrow-root is the starch obtained from the tubers of the potato, *Solanum tuberosum*. The seeds of *Dionedule* furnish a kind of Arrow-root in Mexico. Oswego Arrow-root is obtained in

from Indian corn, *See Mays*. A kind of Arrow-root, called *Tous les mois*, which comes from the West Indies, is supposed to be the produce of *Canna edulis*, *C. Achras*, and probably of other species. That of the Sandwich and South Sea Islands comes from *Touss pinnatifida* (*oceanica*). Portland Arrow-root comes from *Arum maculatum*. Though the name Arrow-root is applied to the produce of various plants, it is more particularly associated with that of the *Maranta*. The word is said to be a corruption of the name *Ara-root*. [T. M.]

ARROW-WOOD. An American name for certain species of *Tiburnum*.

ARRUDEA. A genus of the Mangosteen family (*Clusiaceae*), differing from *Clusia*, to which it is most nearly related, in having a many-leaved calyx, a larger number of petals and stamens, as well as a stalked stigma. Three species are known; two of them found in Brazil, the other in Surinam. Their leaves are opposite, smooth and leathery, and their flowers solitary, stalked at the ends of the branches, and sometimes as large as those of a camellia. *A. clusoides*, a Brazilian species, is said to be a small tree, from the branches of which a viscid gum exudes; while *A. rosea*, the Surinam species, is said to grow on the trunks of other trees which it clasps with its long stringy roots so tightly as eventually to kill them. As in the other species, a gum exudes from the stems, which sometimes are upwards of forty feet long, while their greatest thickness is two and a half feet. The genus is named in honour of M. Arruda de Camara, who wrote on fibrous plants of Brazil. [A. A. B.]

ARTABOTRYS. A genus of plants belonging to the family of *Anonaceae*. Its name is derived from the hook-like form of the flower-stalks, by the aid of which the fruit is hung or suspended. The prominent characters of the genus are: hooked woody flower-stalks; three sepals, coherent at the base; six petals in two rows, all of the same shape, and so placed in the flower-bud that they touch by the margins only, hollowed at the base, and constricted around the ovaries; numerous densely packed stamens; ovaries indefinite in number, each containing at the base two erect ovules. The plants constituting this genus are shrubs or climbing plants, natives of India and the Indian Archipelago chiefly, but one is found in the western part of tropical Africa. *A. odoratissima* is cultivated as an ornamental shrub, and for the sake of its fragrant flowers, throughout the East, and also in hot-houses in this country. The leaves of certain kinds are highly esteemed in Java, against cholera, their value being probably dependent on the warm aromatic principle pervading them. [M. T. M.]

ARTANEMA. A genus of *Scrophulariaceae*, synonymous with *Achimenes* of Vahl. It is characterised by a five-parted subequal calyx; a funnel or bell-shaped corolla, bear-

ing four scales inside the tube, and having a four-cleft somewhat two-lipped limb, the upper segment of which is broader; four didynamous stamens inserted in the tube of the corolla, the hinder ones shorter; a simple style with a bilamellate stigma; and a two-celled ovary containing many ovules. The species are glabrous herbs of India and the East, and have opposite leaves, with terminal racemes of flowers. *A. fimbriatum* is an ornamental species, sometimes seen in gardens. [T. M.]

ARTANTHE. The name of a genus of plants belonging to the Pepper family (*Piperaceae*). They are woody plants with jointed stems, rough leaves, and spikes of flowers opposite the leaves. The flowers are perfect with pedicelate or hooded bracts. *A. elongata*, formerly called *Piper angustifolium*, furnishes one of the articles known by the Peruvians as *Matico*, and which is used by them for the same purposes as cubeba, the produce of a nearly-allied plant; but its chief value is as a styptic, the rough leaves of the plant having the power of staunching blood. The under surface of the leaf is rough, traversed by a network of projecting veins, and covered with hairs; hence its effect in stopping hæmorrhage is probably mechanical like that of lint, cobweb, and other commonly-used styptics. It has also been employed internally to check hæmorrhages, but with doubtful effect. Its aromatic bitter stimulant properties are like those of cubeba, and depend probably on a volatile oil, a dark green resin, and a peculiar bitter principle called *matinein*. *A. adnoca* is made use of in Brazil for its pungent aromatic stimulant qualities, as well as for its specific effects. Other plants appear to furnish leaves having similar properties, and called by the same name by the Columbians. See *EUPATORIUM*. [M. T. M.]

ARTEMISIA. A genus of plants commonly called Wormwood, belonging to the tribe *Senecioneae* of the *Compositae*. The Wormwoods are shrubby or herbaceous plants with their leaves usually much divided and frequently of a grey colour. The flower-heads are small, borne in panicles, and provided with an involucre of overlapping bracts; the florets are as long as the involucre, yellow or greenish, either all tubular and five-toothed, or the central ones tubular, five-toothed and barren, and the outer ones filiform or three-toothed, female and fertile; the florets are placed on a receptacle without scales, and the fruits are obovate and not provided with a pappus. The genus is widely distributed over the temperate and warmer temperate regions of the globe, and most of them are remarkable for their strong odour and bitter taste. Three or four species grow wild in this country. In certain of the Western states of North America, as Utah, Texas, New Mexico, &c., are large tracts almost entirely destitute of other vegetation than that afforded by certain kinds of *Artemisia*, which cover vast plains, and

give them an universal greyish green hue. The plants are known under various names by the trappers, who find the gnarled and interlacing branches an almost insurmountable obstacle to man or horse. The plants, moreover, are of no value as forage. The few wild animals that feed on them are said to have their flesh rendered of a bitter taste in consequence. The *Artemisia* also abound in the arid soil of the Tartarian Steppes, and in other similar situations.

The Common Wormwood, *A. Absinthium*, is found wild in some parts of Britain and cultivated in cottage-gardens. It possesses aromatic bitter and tonic properties, and was formerly much employed as a vermifuge. The active properties of the plant, and probably those of the other kinds used for like purposes, depend on a volatile oil, a peculiar bitter principle called *absinthine*, and an acid called *absinthic acid*. What is called salt of wormwood is an impure carbonate of potash, obtained from the ashes of wormwood.

A large number of the species possess similar properties to those found in the common wormwood, and are hence used for the same purposes in various parts of the world. The flower-stalks and heads of several species of *Artemisia* are sold by herbalists under the name of Wormseed: they are chiefly imported from the Levant, and are the produce of plants growing in Syria, Persia, and Barbary. Others imported from India are employed as vermifuges. *A. Moxa* is said by Dr. Lindley to be the plant used by the Chinese and Japanese in the formation of their Moxa, a small pellet of combustible material, placed on the skin and burnt there so as to produce a sore. It is used for the same purposes, and on the same principle as a blister, but it is exceedingly painful and now very rarely employed. Some of the species of *Artemisia* growing in Switzerland are used in the manufacture of the bitter aromatic, *Extrait d'Absinthe*.

The Southerawood of gardens, *A. Abrotanum*, sometimes called by country people Old Man, is a shrub with finely divided greyish green leaves, which have a fragrant aromatic odour, said to be disagreeable to bees and other insects. The plant is a native of the South of Europe.

The Tarragon, *A. Dracunculus*, differs from the majority of its fellows in that its leaves are undivided; they are narrow and lance-shaped, of a bright green colour, and possess a peculiar aromatic taste, without the characteristic bitterness of the genus. The plant is a native of Siberia. [M. T. M.]

ARTHANITA. (Fr.) *Cyclamen europæum*.

ARTHROBOTRYX. A name proposed for a small group of Indian Ferns, now referred to *Lastrea*. [T. M.]

ARTHROCNEMUM. A genus of *Chenopodiaceæ*, separated from *Salsicornia* to receive *S. fruticosa* and a few other species, which differ from the restricted *Salsicornia* in having the flowers hidden in the articulations of the branches, and not concealed

in excavations in the axis. The calyx also is trigonous or tetragonous, with three to five teeth, and without wing or appendage. The seed has a distinctly double integument, while in *Salsicornia* it is single. Otherwise the two genera agree. They have perfect flowers, without scales; one or two stamens; two styles; and an ovate one-celled and one-seeded ovary. The species are found in the salt marshes of all parts of the world. *A. fruticosum* is abundant on the British coasts. [W. C.]

ARTHROLEPIS. The name given to a genus of the Composite family (*Compositæ*). There is but one species known, a perennial herb, native of Syria, a foot high, with alternate linear pinnatisect leaves, the segments very small and closely overlapping each other. The flower-heads are single at the ends of the branches; the ray florets yellow. All the parts of the plant are covered with a white mealy pubescence. It is nearly related to the Chamomiles (*Anthemis*) and the Millifolias (*Achillea*); differing from the first in its winged achenes, from the second in its single flower-heads, and from both in the jointed scales of the involucre. The name of the genus is derived from this latter circumstance. [A. A. B.]

ARTHROLOBIUM. An unimportant genus of Leguminous plants distinguished from the equally unpretending *Ornithopus*, by the heads of flowers being destitute of a floral leaf, or bract, at the base. There are two European species, one of which, *A. ebracteatum*, grows in the Channel Isles and in Sicily. It is a small plant with prostrate stems, pinnate leaves, and minute cream-coloured flowers veined with crimson, growing in heads of four or five, and succeeded by as many jointed and curved pods, which together bear a singular resemblance to a bird's foot. [C. A. J.]

ARTHROPHYLLUM. A genus of the *Bignoniæ* family, containing five species, all of them shrubs or small trees, found in Madagascar and the islands of Eastern tropical Africa. Their leaves are compound, opposite, or alternate, and very peculiar in structure; indeed, in four of the species no true leaves may be said to be developed, but their petioles, or leaf-stalks are winged and leaf-like, with two to four joints, the segments between the joints being wedge-shaped, and the terminal one acute. In *A. Thapsarietum* leaflets are produced from the joints of the petiole. Their flowers are generally large and tubular, disposed in racemes or corymbs from the ultimate forkings of the branches. *A. madagascariense* is cultivated in England. Its flowers are pink in colour, large and tubular, the limb of the corolla five-lobed, with crisped margins. The name *Arthropodium* signifies jointed leaf. It has been changed by some authors to *Phyllarthron* because the name *Arthropodium* is given also to a genus of the *Aralia* family. [A. A. B.]

ARTERPODIUM. A genus of Australian and New Zealand *Liliaceæ*, allied to *Anthericum*, with grass-like radical leaves, fasciculate roots, and small purplish or white flowers in lax racemes or panicles; the filaments of the stamens are clothed with fine short hairs for half their length. A few of the species are cultivated in this country in greenhouses. [J. T. S.]

ARTHROPTERIS. A name proposed for a few tropical Ferns distinguished by having a jointed stalk. They are referred severally to the genera *Lastrea*, *Nephrolepis*, and *Polypodium*. [T. M.]

ARTHROSTEMMA. A genus of tropical American *Melastomaceæ*, which have little resemblance to each other, but agree in having the parts of the flower in fours, the anthers eared at the base, the ovary bristly at the apex. Some of the species are handsome, resembling the *Rhexus*. A few of the species are cultivated in our stoves and greenhouses. [J. T. S.]

ARTHIOTAXIS. A genus of *Conifereæ*, consisting of much branched evergreen trees of no great height, with short, thick, densely imbricated leaves, closely covering the branches. The male flowers form very short terminal spikes with two-celled anthers. The ripe cones are also terminal, sessile, small, and globular, with almost woody peltate scales, each bearing three to six inverted seeds. There are only three species, natives of Tasmania. The name is more correctly written *Athrotaxis*.

ARTICHAUT. (Fr.) *Cynara Scolymus*.

ARTICHOKE. *Cynara Scolymus*. —, **JERUSALEM.** *Helianthus tuberosus*.

ARTICULUS. A joint; a place where spontaneous or easy separation takes place.

ARTILLERY PLANT. *Pilea scryphillifolia*, and *hernariæfolia*.

ARTOCARPACEÆ (*Artocarpeæ*, *Artocarpæ*). A group of apetalous trees, belonging to Lindley's Urtical alliance, not unlike the plane trees of Europe, but for the most part inhabiting the tropics and always the warmer parts of the world. They abound in a milky juice, and have for the most part their female flowers collected into fleshy masses or heads. Moreover, they have great sheathing convolute stipules like those of a fig tree. The more important genera are *ARTOCARPUS* and *ARTESIAS*; which see.

ARTOCARPUS. This name, signifying Bread-fruit, is applied to the genus of trees furnishing the well-known fruit so called. It gives also the name to the order *Artocarpaceæ*, and is distinguished by having its male or stamen-bearing flowers borne on long club-shaped spikes, and the pistil-bearing ones in round heads. The male flowers have a tubular calyx of two sepals containing a single stamen; the female flowers have a simple ovary, containing a single ovule, and surmounted by a style with two stigmas curved down-

wards. These female flowers soon grow together, and form one large fleshy mass, which becomes the fruit, which is thus formed exactly in the same way as the mulberry is, but in the bread-fruit farinaceous matter takes the place of the sugar and vegetable jelly of the former.

The Bread-fruit tree of the South Sea Islands (*A. incisa*) is a moderate-sized tree, whose young branches are marked with ring-like scars indicating the spot where the large convolute stipules have been placed. The leaves are large rough dark green, divided into lobes, something like those of a fig tree. The fruit is roundish, of the size of a melon, rough on the exterior, marked with hexagonal knobs, or in some of the varieties smooth and of a green colour. The pulp in the interior is whitish, and of the consistence of new bread. It is roasted before it is eaten, but has little flavour. The best varieties contain no seeds, the tree being propagated by shoots that spring from the roots. The tree contains a viscid milky juice, containing caoutchouc, which is used instead of glue, and for caulking the canoes of the South Sea Islanders, who



Artocarpus incisa.

make use also of the timber of the tree, which is soft, and is said to attain a mahogany colour by exposure. The bark of the young tree is also fabricated into a coarse cloth. In the South Sea Islands, the Bread-fruit constitutes the principal article of diet, which is prepared by baking it in an oven heated by hot stones. The plant is now cultivated in the West Indies, but does not equal the plantain as an article of food. The history of its introduction into these islands is associated with the well-known incidents of the mutiny of the

crew of the 'Bounty,' which had been sent out under the command of Lieut. Bligh to procure Bread-fruit trees, at the earnest request of Captain Cook, and the naturalists who accompanied him in his voyages. The first attempt was frustrated by the mutiny of the crew after the plants had been procured, and all promised well. A second attempt, four years subsequently, proved successful.

The Jack, *A. integrifolia*, is a native of the Indian Archipelago; it produces a fruit like that of the above-named kind, but the leaves are not at all lobed or divided. It is cultivated in Southern India and all the warm parts of Asia. The fruit is a favourite article of food among the natives, as also are the roasted seeds. The timber is much used for making furniture; it is at first of a pale colour, but subsequently becomes dark, approaching to a mahogany tint. Bird-lime is manufactured from the juice. *A. hirsuta*, a native of Malabar, possesses similar qualities. *A. incisum* is shown in Plates 2a and 7e. [M. T. M.]

ARUM. A genus of plants of the family *Araceæ*, known by having a large spathe, whose edges are rolled over one another at the base. The flowers are unisexual, and placed on a fleshy spike or spadix, which is club-shaped and destitute of flowers at the summit, but at the lower portion bears male flowers or stamens, consisting merely of anthers, opening by lateral slits, unprovided with filaments, and not invested by a perianth. Between the male flowers and the female are a number of abortive flowers having the appearance of threads or hairs. Quite at the base of the spadix the female flowers are placed; these consist merely of ovaries, containing two to six ovules, and ripening into a berry-like fruit.

The common Arum of the hedges (*A. maculatum*), or, as it is commonly called, Lords and Ladies, or Wake Robin, is an extremely acrid poisonous plant, but by drying, or the agency of heat, the acrid matter is destroyed. It has a whitish rootstock, from which proceed ovate arrow-shaped green leaves, frequently marked with dark blotches and placed on long stalks; the spathe is green. The spadix is of various shades of purple, or more rarely of a dull yellowish colour. When the fruits are ripe, they are of a brilliant red colour, and very conspicuous, as not only the tops of the spadix, but also the investing spathes wither, and fall off as the fruit attains to maturity. From the tubers of this plant, in the Isle of Portland, a starch called Portland Arrow-root was formerly extensively prepared by pounding the tubers with water, and then straining. On allowing the strained liquid to stand the starch was deposited. Care was necessary from the extremely acrid nature of the plant. Indeed, Mr. A. Irvine, in his *Illustrated Handbook of British Plants*, records that many hours' boiling did not suffice to dissipate the acrid matter.

A. italicum has been found to grow in the

Isle of Wight. It is a much larger plant than the common *A. maculatum*, the leaves, with white veins, have the lobes at the base spreading more widely than in that species, and the spathe is rolled backwards at the point as the flowers open.

The root of *A. montanum* is used in India to poison tigers. The roots of *A. lyratum* furnish an article of diet to the natives of the Circar mountains. They require, however, to be carefully boiled several times, and dressed in a particular manner, to divest them of a somewhat disagreeable taste.

All the species of *Arum*, and those of allied genera, such as *Arisæma*, *Colocasiea*, *Caladium*, *Amorphophallus* and others, possess a similar combination of extremely acrid properties, with the presence of a large quantity of farina, which can be separated from the poisonous sugrendent by heat or water, or by merely drying in some instances.

A. Dracunculus is commonly cultivated in gardens for the sake of its large pedate leaves, its spotted stem, and purple spadix. The smell is fetid, and apt to produce headache. The *Arums* have been made use of in experimenting upon vegetable heat, as by reason of the investing spathe, the heat generated by the flowers does not so easily escape as in other plants, and its degree can the more readily be ascertained. Moreover, it appears that these plants really do generate more heat than other flowers; for instance, a difference of more than 50° is recorded between the temperature of the air and that of the flowers of *A. cordifolium*. [M. T. M.]

ARUM. ARROW. *Peltandra virginica*, —, WATER. *Calla palustris*.

ARUM D'ÉTHIOPIE. (Fr.) *Richardia æthiopica*.

ARUNDINA. Reed-like terrestrial Orchids, with slender stems and narrow-ribbed leaves. The flowers are large, thin, richly coloured with rose or purple, but very fugitive. Three or four species are known, all inhabitants of tropical Asia. The genus is nearly allied to *Bletia*.

ARUNDINARIA. A genus of Grasses belonging to the tribe *Rambusideæ*. The species are either of a shrubby or arborescent nature, with strong jointed stems, resembling those of the bamboo cane. They are mostly from the warmer parts of the globe, and in some instances attain a great size, where they grow spontaneously. *A. falcata* is one of the hardest kinds, being able to bear the cold of ordinary winters in Britain, especially in the southern counties of England and Ireland. In the county of Cork, several brakes were planted of this plant about the year 1848, and in ten years after the canes had reached a height of from sixteen to twenty feet, being nine inches in circumference at the base. The joints on the stems are nearly of equal growth, and owing to their re-

gularity the plantations present a curious appearance, to those, particularly, who have not seen tropical vegetation. In Nepal and on the slopes of the great Himalayan

purpose it is valuable, resisting, as it does, the effects of weather a long time, owing to the large amount of silica contained in the joints and on the cuticle of the stems.

Another important species is *A. Schomburgkii*, a native of Gulana, where the straight canes attain a height of sixteen feet and upwards, with a circumference of one to one and a half foot at their base. It is this plant which chiefly furnishes the tubes to the native Indians, from which they blow their poisoned arrows, which after being dipped in the deadly woorai poison, act with such fatal effect on the victims they are aimed at. [D.M.]

ARUNDO. A genus of grasses typical of the tribe *Arundineæ*. This genus, as now defined by Steudel and other authors, excludes the British species, which were formerly included in it: they will be found in the genera *Pennisetum* and *Phragmites*. *A. Donax* is one of the most important kinds, and may be seen occasionally cultivated in British gardens, for the ornamental effect it produces when growing in groups. The stems attain a height of eight to ten feet in this country; but in Spain and other parts of the south of Europe they grow much taller. The leaves are broad, of a fine glaucous green colour, and in one variety they are beautifully striped in different colours, similar to those of the common ribbon-grass of gardens (*Phalaris arundinacea variegata*). The reeds are sometimes used in making bagpipes and some other musical instruments. Lady Calcott, in the *Scripture Herbarist*, considers it probable that *A. Donax* is one of the plants alluded to in Scripture as the Reed, especially when the original word is 'kaneh.' The canes being long, straight, and light, make admirable fishing-rods, and excellent arrows: the latter quality being of great importance to the warlike Jews, after they began to practise archery with effect. The heroes of Homer made their arrows of this reed (*Iliad* xi.), and the tent of Achilles was thatched with its leaves. [D.M.]

ARVORE DE PAINA. A Brazilian name of *Chorisia speciosa*.

ASA DULCIS. A drug held in high repute among the ancients, supposed to be the produce of *Thapsia garganica*.

ASAFETIDA. A drug formed of the concreted milky juice of *Narthex*, and of various species of *Ferula*.

ASAGRÆA. A Mexican genus of plants belonging to the Colchicum family, *Melastomaceæ*. The single species of this genus, *A. officinalis*, furnishes the Cebadilla seeds from which the alkaline poison veratrine

is prepared. The plant is bulbous, with long linear grass-like leaves, and a long bractless cluster of flowers: which have a six-parted perianth; six stamens, three shorter than the remainder; anthers heart-shaped, becoming shield-shaped, and bursting vertically; and fruit consisting of three lance-shaped pointed follicles, of thin papery consistence, and containing a number of winged seeds. The seeds, called Cebadilla seeds, were formerly used to destroy vermin, but are now employed in the preparation of veratria, an alkaline substance, of a powerfully irritant poisonous nature, occasionally made use of in neuralgia and rheumatic affections. It has been given internally, but from its doubtful action and dangerous nature, it is now rarely if ever employed. [M. T. M.]

ASARABACCA. The common name for *Asarum*.

ASARUM. A genus of the order *Aristolochiaceæ*, known by its bell-shaped three-cleft perianth, twelve stamens inserted at the base of the style, and with the connective of the anthers prolonged into an awl-shaped process. The fruit is a six-celled capsule, surmounted by the persistent limb of the calyx. The species of this genus are dispersed over Europe, and the temperate parts of Asia, and North America.

A. europæum is the Asarabacca of herbals; it is said to be found wild in Westmoreland and other places in the north of England. It is a low growing plant, with a creeping rootstock, from which proceed a number of roots, and also two rounded kidney-shaped stalked leaves; between them is placed the dull brownish flower. The roots and leaves are acrid and somewhat aromatic; they contain a volatile oil, a bitter matter, and a substance like camphor. Asarabacca was formerly used as a purgative and emetic, and also to promote sneezing, but it is now rarely used, having been supplanted by safer and more certain remedies. *A. canadense* is sometimes met with in gardens; it greatly resembles the European plant, but has larger leaves provided with a short spine. [M. T. M.]

ASARINÆÆ. A synonym of *Aristolochiaceæ*.

ASCARINA. a genus of *Chloranthaceæ*, founded by Forster on a single species from the Society Islands. It is a tree with opposite, petiolate, and serrated leaves. The flowers are dioecious and unibracteate, on lax spikes. The male flower consists of a single stamen with a short filament, and a large oblong quadriloculate anther. The ovary is globular-truncate, one-celled, and one-seeded. The stigma is sessile, depressed, and obsoletely three-lobed. [W. G.]

ASCENDING. Directed upwards: as the stem, which is the ascending axis. Rising upwards with a curve, from the horizontal to a vertical position: as many stems. Simply rising upwards.

ASCI. The name of the fruit-bearing cells in the important division of *Fungi*, called *Ascomycetes*. These may be thread-shaped, cylindrical like little sausages, clavate, or subglobose. In the latter case they are mostly few in number, and are occasionally reduced to one in each cyst or perithecium, as in *Sphaerotheca*, to which genus belongs the felted mildew of Rose-leaves and the Hop mildew. [M. J. B.]

The term *Asci* is also applied to spore-cases, consisting of a long or roundish cell containing spores. These are characteristic of lichens.

ASCIDIUM. A pitcher; various modifications of leaves containing, or capable of holding fluid, such as are found in *Sarracenia*, *Nepenthes*, *Cephalotus*, or even *Utricularia*.

ASCLEPIADACEÆ. (*Asclepiadæa*, *Asclepiadea*, *Apocynæe* in part.) Among monopetalous Exogens with a superior ovary, the very large natural order which bears this name is known by its pollen being collected in the form of waxy masses or bags, derived from the separable inner lining of the anther cells; and by the fruit consisting most commonly of a pair of divaricating follicles. The species differ from *Apocynaceæ* or *Dogbanes*, in the peculiar structure of the staminal apparatus: the stamens in the latter order being distinct, the pollen powdery, the stigma not particularly dilated, and all these parts distinct the one from the other. But in *Asclepiadæa* the whole of the sexual apparatus is consolidated into a single body, the centre of which is occupied by a broad disk-like stigma, and the grains of pollen cohere in the shape of waxy bodies attached finally to the five corners of this stigma, to which they adhere by the intervention of peculiar glands.

Fully 1000 species are known, for the most part inhabiting the tropics of the Old and New Worlds. Two genera only are found in northern latitudes, one of which, *Asclepias*, has many species, and is confined apparently to North America; the other, *Cynanchum*, is remarkable for extending from 50° north latitude to 32° south latitude. *A. Stapelia* is found in Sicily. They vary extremely in appearance; many being leafless succulents, like *Stapelia*, others, and they are the more numerous, consisting of twiners, like *Hoya*; while another portion consists of upright herbaceous plants, such as *Asclepias* and *Vincetoxicum*; a few are tropical trees. As a general rule the species are poisonous; an acrid milk which pervades all their parts being eminently emetic and purgative.

The genera *Stapelia*, *Hoya*, *Asclepias*, *Vincetoxicum*, *Ceropegia*, *Periploca*, are good examples of the order. The manner in which the ovules of these plants are fertilised by the pollen is among the most curious phenomena known in plants. Instead of the grains of pollen falling on a viscid stigmatic surface, and then producing tubes of impregnation, the tubes are formed inside the pollen bags, whence

they ultimately find their way by a spontaneous emission, and reach the surface of the stigma without being projected upon it, conducted by some inherent vital power. For a full account of this extraordinary fact, see *Lindley's Introduction to Botany*, 4th edition.

ASCLEPIAS. From this genus the order *Asclepiadaceæ* takes its name. Its characters are as follow:—The corolla consists of five petals, bent downwards towards the stalk; within the petals are five curious boat-shaped processes or cups, forming what is called the coronet, and from each of these cups a curved horn-like body projects; within these are five stamens, whose filaments are united into a pentangular tube bearing five anthers, which adhere to the five-angled stigma; the pollen is also remarkable in being aggregated into two separate parcels, suspended on two threads from a sort of gland, but this is a peculiarity not confined to the plants of this genus: the fruit consists of a pair of follicles, which opening, disclose a number of seeds provided with a tuft of glossy silk-like hairs.

The genus consists of herbaceous plants with a milky juice, and which are for the most part natives of America. Several species are cultivated for the sake of their showy flowers. All of them are more or less poisonous. *A. curassavica* is employed in the West Indies as an emetic, and goes by the name of *Ipecacuanha*: the drug truly so named, however, is derived from a very different plant; see *CERHALLIS*. *A. tuberosa*, the Butterfly-weed, has mild, purgative properties, and promotes perspiration and expectoration. *A. syriaca*, a plant misnamed, as it is a native of America and Canada, is frequently to be met with in gardens; its dull red flowers are very fragrant, and the young shoots are eaten as asparagus in Canada, where a sort of sugar is also prepared from the flowers, while the silk-like down of the seeds is employed to stuff pillows. Some of the species furnish excellent fibre, which is woven into muslins, and in certain parts of India is made into paper. Some one of the species of *Asclepias* is thought to be the Soma plant so often alluded to as an object of prayer and praise by the ancient natives of India, in the Sanskrit Vedas, which some place so far back as twenty centuries B.C. The bruised stem and leaves of the Soma plant yield a juice which, by standing, ferments into an intoxicating liquor, which is supposed to gratify the gods, and animate them to extraordinary exploits. The elevation of the plant to the rank of a deity can only have originated in a stage of semi-barbarism in the same way as we can imagine that ardent spirits might have won the adoration of the North American Indians when first introduced among them. See Max Müller's *History of Sanskrit Literature*. [M. T. M.]

ASCOBOLUS. A genus of ascomycetous *Fungi*, distinguished from *Peziza* by its shooting out its asci when mature. The species grow almost exclusively on the

dung of various animals. The sporidia are often of a beautiful colour and form exquisite objects under the microscope. Few fungi are more common than *A. furfuraceus*, on old cow-dung. There are, however, a great many other species, varying much in colour and sculpture. Several have been detected in this country, and it is quite certain that the number will be much increased on closer investigation. [M. J. E.]

ASCOMYCES. A small genus of *Fungi* of the most simple construction, remarkable principally for the effect they have upon the plants upon which they are developed. The whole plant consists of a stratum of club-shaped cells filled with sporidia, with scarcely any filamentous or cellular base, developed in the shape of a white powder on the surface of the leaves, which are generally swollen and distorted, as is especially the case with blistered peach-leaves, when attacked by *Ascomyces deformans*. The asci are either accompanied by naked spores which sprout like the cells of yeast, or else the sporidia, when set free, are, propagated after the same fashion. The genus occurs on the leaves of trees, or sometimes of herbaceous plants, as *Tridentia europæa*. The most obvious examples besides those mentioned above are the *Ascomyces* of the walnut and pear, which trees are, however, far less deformed by it than the peach. As regards Peach blight, still still in attributing it to sudden checks or aphides, but M. Tulane, in a communication to the French Academy, has confirmed Mr Berkeley's report referring the fungus which produces it to the genus *Taphria*. [M. J. E.]

ASCOMYCETTES. A large division of *Fungi* distinguished by their fruit being contained in hyaline sacs (asci), and not situated at the top of certain privileged cells, as in the mushrooms and allied *Fungi*. The asci are placed parallel to each other, barren threads or sacs intervening, and are packed into a thin stratum, which equally with the fruitifying stratum of mushrooms is called the hymenium. This may be entirely exposed, or may be included in an especial organ called a perithecium. The asci are for the most part colourless, and vary from mere threads to globose sacs. The sporidia or fruitifying bodies which they contain are generally definite in number and multiples of two. Their most usual number is eight, but when they are very large these are reduced to four or two, or even one; and in other cases their number is greatly increased, so as in particular instances to be indefinite as far as our powers of observation go. In a particular condition a large proportion of these fungi produce also naked spores on distinct plants, and occasionally naked spores and asci are produced upon the same hymenium. The distinction from sporiferous *fungi* is not therefore as definite as might strictly be approached distinguishable. It is said that asci have been lately found on the gills of one at least

of the higher fungi, *Agaricus melleus*, which is largely consumed abroad under the title of hallimasch, though justly neglected here. This, however, wants confirmation, and an assurance that some parasite is not in question. Some of the moulds again produce fruit containing a single spore, or a number of asci; but whether these moulds are true allies of the *Ascomyces* or not is at present doubtful. The Morel is one of the most familiar examples of the division, and one of the most highly organised. The Truffle belongs to the same division, though so different at first sight from its near allies. [M. J. E.]

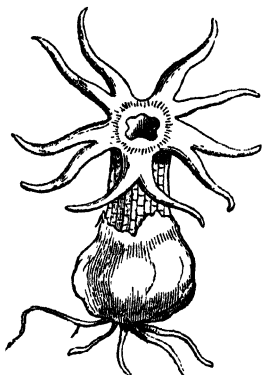
ASCOMIOPORA. A genus of vesicular Moulds (*Phycomyces*) differing from *Mucor* principally in the head being at length fixed and hanging over the top of the stem like a cap or bonnet. The Bread-mould belongs to this genus, and there are one or two more species of some consequence. A singular fact about some of the species is that the fruit upon the sides of the stem is different from that at the apex, retaining its globular form, and containing sporidia of a different size. *Ascomiophora elegans* is a most beautiful object, from the repeated and regular forked branching of the lateral threads, each division of which is terminated by a fertile vesicle. The Bread-mould is easily cultivated, and the whole development of the plant in consequence readily traced, up- cultivated on rice paste under a bell glass, and are interesting objects of study. [M. J. E.]

ASCYRIUM. A genus of St. John's wort family (*Hypericaceæ*), numbering five species, all of them American, with a distribution from the N. United States southwards to N. Grenada. All the species have been cultivated in Britain, and one of them (*A. Cruz Andree*) is called St. Andrew's Cross, from the circumference of the four pale yellow petals approaching each other in pairs, so that they appear like a cross with equal arms. Collectively, they are called St. Peter's worts.

The species are all undershrubs, resembling the St. John's worts in general appearance, having opposite sessile leaves, sprinkled below with black dots, and large terminal yellow flowers, singly or three together. The genus is characterised by the tetramerous (four part) arrangement of the calyx and corolla; the two exterior sepals much larger than the inner; the deciduous petals cruciate; the stamens indefinite; the ovary ovoid, one-celled, two to four lobed, with as many styles, and numerous ovules; and the capsule enveloped in the enlarged calyx. [W. C.]

ASERÖE. A genus of phalloid *Fungi*, distinguished by the blind rays of the receptacle. The species, which may probably

fresh. They are confined to the islands of the southern hemisphere. The genus de-



Asarë pentactina.

wands more especial notice here, as one of the species appeared in great perfection some years since in one of the stores at Kew. [M. J. B.]

ASEXUAL PLANTS. This term was once applied to Cryptogams, but since the discoveries which have been made during the last thirty years, it is no more applicable to them than to Phanogams. Sexual organs have now been discovered in every branch of cryptogams. Amongst *Fungi* alone they are still obscure in several divisions, but if such genera as *Leptomitia* really belong to *Fungi*, of which there is little doubt, there is even among them the same type as amongst the higher cryptogams.

It is, moreover, singular that the impregnation of cryptogams comes nearer the type of that in animals than in phanogams. Their spermatozooids resemble closely those of animals, and indeed are often more complicated. Amongst *Fungi* alone, and lichens, which nearly approach *Fungi*, they are mere cells, without motion, analogous to pollen-grains, though they do not germinate like them, at least, so far as has been observed at present. [M. J. B.]

ASH. The common name for *Fraxinus*. —, **BITTER.** A West Indian name for *Simarouba excelsa*. —, **CAPE.** *Ekebergia capensis*. —, **HOOP.** *Celtis crassifolia*. —, **MANN.** or **FLOWERING.** *Orius europæa*. —, **MOUNTAIN.** The Rowan tree, *Pyrus Aucuparia*. —, **POISON.** *Rhus venenatum*. —, **PRICKLY.** *Xanthoxylon fraxineum*. —, **RED.** *Alphitonia excelsa*.

ASH-WEED. An old English name for *Epipodium Podagraria*.

ASPALATHE. (Fr.) *Caragana frutescens*.

ASPALATHUS. A large genus of S. African shrubs or under-shrubs belonging to the Pea-flowered tribe of the Leguminous family. Their leaves are commonly heath-like, often three together (ternate), or sometimes tufted, that is, a number of additional small leaves grow from nearly the same point. The flowers are terminal, racemed, or spiked, and generally yellow, but sometimes bluish purple, red, or white. About 150 species are known, many of them not unlike dwarf furze bushes. [A. A. B.]

ASPARAGUS belongs to the natural order *Liliaceæ*, and represents the sub-order *Asparagææ*, which consists of lilies with succulent fruit. The genus includes many species, but only one is cultivated for use, the Common Asparagus, *A. officinalis*, so well known for its powerful diuretic properties, which are ascribed to the presence of a peculiar principle called *asparagin*. See Lindley's *Vegetable Kingdom*, p. 205. Some of the species are ornamental creepers. *A. asiaticus* and *A. racemosus* are common in hilly jungles of Western India.

The Common Asparagus is a native of several places in Britain near the sea: such as the Isle of Portland, and Kynance Cove, near the Lizard, Cornwall. In the southern parts of Russia and Poland the waste steppes are covered with this plant, which is there eaten by horses and cattle as grass. It is also common in Greece, and was formerly much esteemed as a vegetable by the Greeks and Romans. It appears to have been cultivated in the time of Cato the Elder, 200 years B.C.; and Pliny mentions a sort that grew in his time near Itavenna, of which three heads would weigh a pound.

In this country Asparagus is reckoned among the oldest and most delicate of our culinary vegetables; and in its cultivated state the whole plant has a very graceful appearance. It is noticed by Gerard in 1597; and in 1670 forced Asparagus was supplied to the London market. At Mortlake, Battersea, and other places near London, where the soil is suitable, Asparagus is extensively cultivated, and by skilful management is brought to a higher degree of perfection, perhaps, than in any other part of the world. The part of the plant which is used is about six or eight inches of the young shoot, which is considered to be fit for cutting when it has emerged two or three inches out of the ground, and has a firm, compact, roundish point, of a fine green colour, slightly tinged with purple. In preparing Asparagus for table, its delicate flavour is rather deteriorated than improved by the additions which skilful cooks deem necessary for it and other vegetables. It is usually boiled and served alone with melted butter and salt, or on toasted bread with white sauce; and the smallest heads are sometimes cut into small pieces and served as a substitute for green peas. Its virtues are well known; as a diuretic it is unequalled; and for those of sedentary habits who suffer from symptoms of gravel, it

has been found very beneficial, as well as in cases of dropsy.

Prussian *Asparagus*, which is brought to the markets in Bath, is not a species of *Asparagus* at all, but consists of the spikes, when about 8 inches long, of *Ornithogalum pyrenaicum*, which grows abundantly enough in hedges and pastures in that locality, to be worth gathering for sale. [W. B. B.]

ASPASIA. Under this name are collected a few species of epiphytal orchids of the Vandeeus sub-order, with a lip half united to the column. They have broad oval thin pseudobulbs, and flowers mottled with purple on a violet ground. The most important species is *A. epidendroides*, a plant from Central America. The other species are from the tropics of the same continent.

ASPEN, or ASP. *Populus tremula*.

ASPERGE. (Fr.) *Asparagus officinalis*.

ASPERGILLUS. A genus of filamentous moulds, characterised by the hyaline or brightly-coloured jointed thread being swollen at the apex, and there studded with radiating cells, each of which produces a necklace of spores. The most common species, *A. glaucus*, distinguished by its globose echinulate spores, is one of the *Fungi* which produce the well-known blue mould, and whose spores form occasionally a part, with other common species, of the substance called yeast. It is distinguished from the genus *Rhizotrichum*, formerly associated with it, by the fertile radiating cells, which in *Rhizotrichum* are replaced by a few apicules. There is some reason to believe that there is a second form of fruit in *Aspergillus*, which constitutes the genus *Eurotium*, but this requires confirmation. [M. J. B.]

ASPERIFOLIÆ. An old name for what are now called Borageworts, or *Boraginaceæ*, derived from the remarkable roughness of the leaves of the greater part of the species.

ASPERUGO. A genus of *Boraginaceæ*, consisting of a single species, *A. procumbens*, which occurs in Britain as well as the whole of Europe and a great part of Central Asia. It is an annual plant with trailing dichotomous stems, which, as well as the obovate leaves, are rough with curved bristles; the flowers are very small, bluish-purple. The calyx is curious; it enlarges as the fruit ripens, and takes the form of two large jagged valves, which are triangular and marked with prominent veins; these valves are applied flat to each other, and enclose the fruit, which has the structure common to the order. [J. T. S.]

ASPERTULA. A family of Galliceous herbs, with square stems, whorled leaves and four-cleft flowers, which are either pure white, white tinged with purple externally, or more rarely blue or yellow. Many of the species are ornamental, and well fitted by their habit for the decoration of rock-work. *A. odorata*, Woodruff or

Woodrowel (so called from the resemblance between its whorled leaves and the rowel of a spur), is a common woodland plant, conspicuous in May and June by its brilliantly white flowers, and at other seasons by its bright green leaves, arranged in a star-like form round the stem. The flowers are sweet-scented, but the plant derives its name from the fragrance of its leaves. This is not perceptible while the herbage is fresh, but after being gathered a short time it gives out the perfume of new hay, and it retains this property for years. Woodruff is a useful plant in shrubberies, increasing rapidly and thriving under the shade of most trees, even the beech. It is used in Germany to impart a flavour to some of the Rhine wines. *A. cynanchica*, a small trailing plant with slender stems, very narrow leaves, four in a whorl, and small white flowers delicately tinged with pink, occurs on chalky downs in many parts of Britain. It owes its specific name, and its popular name Quinsy-wort, to its supposed virtues in curing quinsy. In the time of Gerard, *A. arvensis*, a species with blue flowers, grew in many places of Essex and divers other parts, in sandie ground. It was also found during the present century in a slate-quarry in Devonshire, but has disappeared. Most of the foreign species are hardy, and may be raised from seed. [C. A. J.]

ASPHODEL. *Asphodelus*. —, BOG, or LANCASHIRE. *Narthecium ossifragum*. —, FALSE. An American name for *Toxicaria*. —, SCOTCH. *Toxicaria palustris*.

ASPHODELUS. The Asphodel. A genus of *Liliaceæ*, distinguished by having a six-leaved equal spreading perianth; six hypogynous stamens, of which the alternate ones are shorter, the filaments declinate; a filiform or subclavate style, with a capitate three-lobed stigma; a three-celled ovary, with three collateral ovules in each cell. The species are perennial herbs of Southern Europe, with fleshy, fasciculated roots; radical, subulate, triquetrous, or linear-lanceolate leaves; and a simple or branched scape bearing the white flowers in close racemes. There are several species. *A. albus* is a common garden plant, formerly called King's Spear; and this, and *A. ramosus*, which is probably only a branched variety of it, are very ornamental plants. It is stated on the authority of Symonds to cover large tracts of land in Apulia, an ancient province of Italy, and to afford good nourishment to sheep. [T. M.]

ASPHYXIA. Plants, like animals, require free access to atmospheric air, and if this is impeded, or the air is loaded with noxious gases, a greater or less degree of mischief is sure to follow. Death may not be the immediate consequence, but the tissues may be so impaired that there is only a short respite. The communication between these tissues is carried on in phenogams, and many cryptogams by means of the stomates. If, therefore, these

are clogged up, the proper degree of attraction cannot take place, and since the same apertures are the safety-valves for the discharge of superabundant moisture or gases which have performed their office, the whole system becomes gorged, and the proper functions impeded. In such cases a true asphyxia or suffocation takes place; and the same effect may be produced by the air-passages being filled with gummy matter, or their apertures covered by parasitic fungi, as *Antennaria*, *Cynoditum*, *Cladospodium*, &c. Plants may also be drowned by a few days' immersion in water, though in some instances there is a provision by which such an effect is altogether prevented. [M. J. B.]

ASPIC. (Fr.) *Lavandula Spica*.

ASPIDIEÆ. A section of polypodiaceous Ferns, in which the sori are punctiform, or dot-like, and covered either by reniform or peltate indusia. [T. M.]

ASPIDISTRA. A genus of *Liliaceæ* found in China and Japan. They are stemless glabrous herbs, with oblong-lanceolate striate leaves, and radical one-flowered peduncles, bearing a single dull purple flower. The perianth is bell-shaped, six to eight cleft, with spreading segments; the stamens six to eight, inserted in the tube of the perianth; the ovary small, cylindrical, three to four celled, with two ovules in each cell; the style short, thick, continuous with the ovary, terminated by a large discoid, radiate, lobed stigma. Three or four species are known. [T. M.]

ASPIDIUM. The name formerly given to a group of polypodiaceous Ferns, including all those in which the dot-like or punctiform sori were covered by a roundish cover or indusium. In this sense it is synonymous with the modern section *Aspidieæ*. It is now, however, generally divided into a greater or lesser number of genera, according to the views of individual pteridologists. The smallest amount of division is adopted by those who separate the group into two, having the indusia respectively peltate or reniform, the first being then called *Aspidium*, and the second *Nephrodium*. Those who subdivide more extensively, and separate the free-veined from the net-veined species, restrict the name to a few typical kinds having the indusium orbicular and peltate, and the veins of the fronds compoundly reticulated, with free included veinlets, which are divaricate or variously directed. Thus limited it comprises about a dozen species, with as many more doubtful ones, chiefly found in India and the east, but also occurring in South America and the West Indian Islands. The majority of the species are strong-growing pinnate ferns, with the pinnae sometimes lobed. The typical *A. trifoliatum* is sometimes seen cordate and undivided, a stunted condition, caused probably by the depressing influences under which the plants are grown; sometimes three-leaved, which seems to have been the form originally described;

and sometimes decidedly pinnate, with the pinnae more or less deeply lobed, all these forms being sufficiently developed to become fertile. These facts clearly show the variableness to which the species of ferns are liable. *A. singaporianum*, a simple-fronded species, has the fronds very remarkably narrowed at the base, and is furnished with very numerous evenly arranged sori. [T. M.]

ASPIDOSPERMA. A genus of *Apocynaceæ*, consisting of about twenty-five species of trees, from tropical America. The leaves are alternate, and mostly entire. The flowers are small and arranged in solitary or numerous dichotomously-branched cymes, at the ends of the branches. The calyx is five-partite; the corolla is hypogynous, sub-infundibuliform and five-lobed; the five included stamens are inserted in the middle of the corolla tube, and bear ovate sub-sessile anthers; there are two ovaries, with many ovules attached to the ventral suture. The fruit is a double, rarely a single follicle, compound, obovate, and woody, with numerous membranaceous seeds. The wood of this genus is valuable. *A. excelsum*, called by the colonists Paddle-wood, is remarkable for its singularly fluted trunk, composed of solid projecting radii, which the Indians use as ready-made planks. [W. C.]

ASPLENIDICTION. A synonyme of *Hemidictyum*, a genus of large growing asplenium-like Ferns. [T. M.]

ASPLENIEÆ. A section of polypodiaceous Ferns, in which the simple linear or oblong sori are parallel with the veins, and oblique to the midrib, produced on one side of the vein, and covered by indusia of the same form. The modern group, *Aspleniceæ*, is nearly synonymous with the genus *Asplenium* of the older and some modern writers. [T. M.]

ASPLENIUM. A genus of polypodiaceous ferns established by Linnæus, and, as originally defined, synonymous with the modern group *Aspleniceæ*, including the *Scolopendrieæ*, and *Diplazieæ*. In this sense it included all the ferns with lines of fructification lying parallel, or nearly so, on the disk of the frond (not marginal). The group is now considerably subdivided, and the name *Asplenium* restricted to those species in which the veins of the frond are free, the sori are linear or oblong, and lying obliquely on the parts of the frond, and the indusia are simple and distinct. Even thus reduced it is a very extensive family, found in all parts of the world, mostly evergreens, numbering about 800 species, of which nine are natives of Great Britain. As might be anticipated in so large a family, the species are exceedingly varied, especially as to division, some being simple, others lobed, or pinnate, or bipinnate, or tripinnate, or even decomposed; and while some are delicately membranaceous in texture, others are of a stouter herbaceous character, and some are thick and leathery. *A. Adiantum nigrum*, the

Black Maidenhair Spleenwort, one of the commoner British species, has bipinnate fronds; another common one, *A. Trichomanes*, the common Maidenhair Spleenwort, has pinnate fronds; while *A. septentrionale*, one of the rarer native species of northern habitats, has the fronds reduced to the appearance of two or three forked rigid ribs. Some of the exotie species are very beautiful in form; and many of them are cultivated on account of their beauty in our gardens and hot-houses. Several species have the very singular property, strongly developed, of bearing little buds on their surface, from which young plants are formed even while they are retained upon the parent frond. The genus has been named *Asplenium*, or Spleenwort, on account of some supposed potency in the plants over diseases or affections of the spleen; but, as in many other instances, these virtues are both fanciful and fabulous. The principal genera, separated from *Asplenium* by modern pteridologists, are *Diplazium*, *Athyrium*, *Thamnopteris*, *Hemidictyum*, *Allantodia*, *Ceterach*, and *Culipteris*. [T. M.]

ASSAGAY-TREE. *Curtisia faginea*.

ASSARACUS. A subdivision of the genus *Narcissus*, including *N. capax* and *N. velleus*, in which the segments of the perianth are semi-reflexed, and the coronot poeciliform, about equalling the perianth segments. [T. M.]

ASTELIA. A genus of sedge-like *Liliaceae*, from the Islands of the Southern Ocean, with polygonous-dioecious flowers, having a six-parted perianth of glaucous texture; ovary three-celled or one-celled by the incompleteness of the partitions; fruit berry-like; stem very short; leaves broadly-linear, lustrous, very silky at the base. *A. alana* has leaves three-quarters of an inch broad, and an extremely short flattened scape, crowned by a dense panicle of rather large chestnut-coloured flowers. The leaves of this species, which grows on the sand-hills of the coast of Tannania, are edible, and are said to have a nutty flavour. [J. T. S.]

ASTEMON. A genus of Labiates, found in Bolivia, and related to *Colebrookia*, from which it differs in having a non-plumose calyx, and a five-lobed, not four-lobed, corolla. The calyx is tubulose-campanulate, with five subequal lanceolate acuminate teeth. The corolla tube is as long as the calyx, the limb short and nearly equally five-lobed, and the throat bearded. The stamens, described as wanting, are in reality reduced to four small distant stalkless anthers, adnate to the corolla-tube. *A. graveolens* is a shrub six to eight feet high, having an unpleasant odour; the leaves oblong-lanceolate, attenuately acute, green and smoothish above, whitish and tomentose beneath; and the flowers small, white, in a terminal panicle, which is still more densely clothed than the stems and leaves with white tomentum. [T. M.]

ASTEPHANUS. A genus of *Asclepiadaceae*, containing thirteen species, natives chiefly of the Cape of Good Hope and Madagascar, but found also sparingly in America. They are climbing or decumbent under-shrubs, with small opposite leaves, and interpetiolar umbels, consisting of a few small and generally white flowers. The calyx consists of five acute sepals; the corolla is campanulate and has no squamæ within the tube (the character by which this genus is distinguished from *Metastelma*). There are ten small pendulous masses of pollen. [W. C.]

ASTER. A well-known genus of the Composite family, numbering nearly 200 species, which are distributed sparingly over Europe, Asia, and S. America, but occur in great abundance in N. America, where three-fourths of them are indigenous. They are perennial (rarely annual) herbs with alternate and simple entire or toothed leaves, and panicled, racemed, or corymbose star-like flower-heads, having an involucre of numerous imbricated scales, enclosing many florets, the outer row strap-shaped and pistil-bearing, those in the centre tubular, and all having more or less flattened achenes crowned with a pappus of numerous capillary bristles. From their time of flowering, *Asters* are often called *Michaelmas Daisies* and *Christmas Daisies*, some of them continuing in flower in the open air in mild seasons up to the latter period; and for this reason they are valuable garden plants, because there are few things but themselves which flower so late in the year. The *Seaside Aster*, *A. Tripolium*, is the only British species. It is a pretty plant, six inches to two feet high, with linear or lance-shaped smooth and fleshy leaves, and stems terminating in corymbs of purple-rayed flower-heads, rather more than half an inch across. It occurs pretty generally over all the British as well as European coasts. The *Alpine Aster*, *A. alpinus*, is the type of a small group which inhabit Alpine regions alone. It is found on the mountains of Central Europe, Asia, and N. America, growing from three inches to a foot high, the stem furnished with lance-shaped or linear leaves, one to two inches long, and terminating in a blue-rayed flower-head, one to two inches across. The remainder are mostly branching plants, from one to ten feet high, with heart-shaped, willow or heath-like leaves, and starry flower-heads, always with the central tubular florets yellow, and the rays varying from white to lilac blue or purple. There is a great sameness about many of the species, and they are most difficult to determine. We can only name as some of the more showy kinds *A. spectabilis*, *A. Nova-Anglicæ*, *A. versicolor*, and *A. turbinellus*, all North American; *A. sikkimensis*, from the Sikkim Himalaya and the Italian Star-wort, *A. amatus*, found in the South of Europe. [A. A. B.]

ASTER, CAPE. *Agathæa amabilis*. →

CHINA. *Callistephus chinensis*. — GOLD-EN. A common name for *Chrysopsis*. — WHITE-TOPPED. An American name for *Leucocorypha*.

ASTERACEÆ. (*Compositæ*, *Synanthèreæ*.) This is the largest natural order of plants, the species occurring in all parts of the world, and in all places, and forming a total equal to about a tenth of the whole vegetable kingdom. They are recognised by their monopetalous flowers, growing in close heads (*capitula*), and having at once an inferior one-celled ovary, and stamens whose anthers cohere in a tube (i.e. are synergous). De Candolle states as the result of his examination of their natural habit, that out of 8,523, 1,229 were annuals, 243 biennials, 2,491 perennials, 2,264 undershrubs from 1 to 3 feet high, 380 shrubs from 4 to 15 feet high, 72 small trees, 4 large trees above 25 feet high, 81 woody plants, 126 twiners or climbers, and 1,201, about which nothing certain could be ascertained. According to Mr. Benthams the species are nearly equally divided between the New and the Old World, there being known about 430 genera with 4,700 species in the former, and 410 genera containing 4,400 species in the latter. There are about 75 genera common to the two divisions; but the identical species in the two, and those chiefly arctic or high northern, are not more than 79 out of at least 9,100. The uses of the order, real or imaginary, are very numerous and conflicting. Some are tonic and aromatic like Wormwood (*Artemisia Absinthium*, and others); or vermifuges like those other *Artemisias* known in foreign pharmacy as *Semen-contra*, or *Semen-cine*. A few are powerful rubefacients, as Pellitory of Spain (*Anacyclus Pyrethrum*), and various kinds of *Spilanthes* which excite salivation. *Arnica montana* is powerfully narcotic and acrid. Similar evil qualities belong to *Orepis lacera*, a most venomous species, said to be no infrequent cause of fatal consequences to those who, in the South of Europe, incautiously use it as salad. Nor are *Hieracium vicosum* and *H. sabaudum* altogether free from suspicion. Some species of *Pyrethrum* have the power of driving away fleas. Many yield in abundance a bland oil when their achenes or 'seeds' are crushed: such are the Sunflower (*Helianthus annuus*), the Til or Ram-till (*Verbesina sativa*) largely cultivated in India, and *Madia sativa*. A purgative resin is obtained from some allies of the Thistles; others, as *Aucklandia Costus*, now referred to *Apiotaxis Lappa*, have aromatic roots, and are looked upon by Orientals as aphrodisiacs. Finally, under the name of Artichoke, Succory, Scorzoneria, Endive, Salsify, and Lettuce, we have some of our most harmless and useful esculents. Botanists adopt various modes of classifying this immense mass of species; but all are subordinate to the four following capital groups, viz.:—**CIRONORACEÆ**: florets all ligulate; **CORYMBIFERÆ**: florets tubular in the disk; **CYRACERÆ**:

florets all tubular, with an articulation below the stigma; **LABIATIFLORÆ**: florets bilabiate.

ASTERANTHOS. A genus represented by a single Brazilian shrub, whose true affinities have not yet been established, the natural order *Bevisiæ* (provisional to some extent, and by recent authorities merged in *Myrtacæ*), has been created to receive it, and the allied genus *Napoleona*, both possessing sufficient characters to separate them from every known family. This genus has alternate, ovate-lanceolate, entire, and shortly petiolate leaves, and solitary axillary flowers. It has a short campanulate, many-toothed calyx, adherent to the ovary, and a simple many-lobed corolla. The indefinite stamens are inserted at the base of the corolla, and have filiform filaments, and oblong anthers. The inferior ovary has a simple style, and an obtusely six-lobed stigma. [W. C.]

ASTERE D'AFRIQUE. (Fr.) *Agathæa amelloides*.

ASTEROLINUM. A genus of the Primrose family, with a single species, *A. stellatum*, found in S. Europe and Asia Minor, chiefly on the sea coast. It is a little erect or decumbent annual, one to three inches high, with opposite linear leaves, one-sixth of an inch in length, bearing in their axils single stalked minute flowers, whose greenish-white corollas are nearly hidden by the calyx. The minute corollas and few-seeded capsules are the chief distinguishing marks between this genus and *Lysimachia*, in which the plant was placed by Linnæus with the name *Lysimachia linum-stellatum*, alluding to its flax-like leaves and starry flowers. [A. A. B.]

ASTEROSTEMMA. A genus of *Asclepiadaceæ*, having the following distinguishing characters: the coronet of the stamens five-lobed, fleshy, short, coloured, and cup shaped, its lobes crescent-like, or three-toothed, opposite to the anthers, which latter are terminated by a membranous crest; the pollen masses are erect. *A. repandum* is a climbing shrub inhabiting Java. [M. T. M.]

ASTEROSTIGMA. A genus of the family *Aracææ*, comprising one or two Brazilian species, which have a tuberous rootstock, from which arise the leaves and also the stalked spadix, encircled by a spreading purplish spathe. The male flowers are at the upper part of the spadix; the anthers open by a terminal pore. The ovaries which are placed at the lower part of the spadix surrounded by abortive stamens, are three or four-celled, each cell containing a single erect ovule. The style is short and terminated by a flattened stigma, which is divided into three or four segments, each of which is again divided into two, giving to the stigma that star-like or radiating appearance denoted by the name of the genus. [M. T. M.]

ASTRAGALUS. A genus of perennial

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plants belonging to the Papilionaceous subdivision of the Leguminous family. They have woody roots; unequally pinnate leaves; flowers in axillary clusters; a tubular or bell-shaped calyx, with five teeth; a corolla with the standard larger than the wings, and a blunt keel; stamens in two parcels; a curved fruit or legume, divided into two cavities by the projection inwards of the hinder wall of the fruit. They have compound leaves, aromatic entire branches.

These species distributed all over Europe, Central and Northern Asia, North America, the Andes, penetrating into the Arctic regions, ascending high Alpine summits, and abundant in the hot rocky districts of the Mediterranean region. A great number are cultivated in this country, and three species are found wild. One, *A. glycyphyllos*, has long stems, trailing on the ground like those of a pea, large leaves, and yellow flowers. The other two are humble plants with small leaves: *A. hypoglottis* has purplish flowers and erect pods, rather longer than the calyx; and *A. alpinus*, which is only found in the Clova mountains, has pendulous pods, which are three times the length of the calyx.



Astragalus gummiifer.

The gum-like substance called Tragacanth is the produce of *Astragalus gummiifer*, and other species growing in Persia, Asia Minor, Kurdistan, etc. The gum exudes naturally from the bark in the same way that gum exudes from the bark of cherry or plum trees. The seeds of *Astragalus baccatus* are used in place of, and sometimes mixed with, coffee; the plant is cultivated for those seeds in certain parts of Germany and Hungary. [M. T. M.]

ASTRANCE (Fr.) *Astrantia*.

ASTRANTIA. A genus of Umbelliferae, native of Europe and Western Asia, con-

taining some ten or twelve species. They are perennial herbs, with black, aromatic roots, palmflobed, petiolate, radical leaves, and few generally sessile stem leaves. The umbels have a leaf-like involucre, and few umbellules consisting of many white or rose-coloured, often polygamous flowers, surrounded by a conspicuous involucre, consisting of many membranaceous, whitish or slightly-coloured leaves. The tube is tuberculated on

country, growing from the middle. The mericarp, without vittæ, has five prominent toothed jugs, with smaller jugs in the intervening spaces. [W. C.]

ASTRAPÆA. A genus of small trees, belonging to the natural family *Sterculiacæ*. Their leaves are alternate, stalked, cordate, and from three to five-lobed, generally hairy or viscid, and having at their base large stipules. The peduncles are axillary, long, pendulous or erect, bearing on their apex an umbel of large sessile flowers, enclosed in a leafy involucre. *A. Wallichii* has large leaves and bright red flowers, nearly as large as those of some rhododendrons; the leaves are sometimes one and a half feet long, and of the same breadth. It has long been in cultivation in England, is an elegant plant, and the drooping heads of flowers give it a peculiar appearance. *A. viscosa* has erect peduncles and much smaller flowers, which are white with a pink centre. The bark of *A. cannabina* is used in Madagascar (where all the species are found) for making cords. [A. A. B.]

ASTROLOMA. A genus of *Epacridaceæ*, containing eight species, natives of New Holland and Tasmania. They are low under-shrubs, often prostrate, with crowded alternate linear or obovate-lanceolate and mucronate leaves; and with solitary axillary flowers of a reddish colour. The calyx is five-partite, with four or more bracteoles. The corolla is hypogynous and tubular, distended above the middle, and with a short five-cleft limb; it has five bundles of hairs in the inside near its base. There are five included stamens, with linear filaments, and oblong simple anthers. The disk is hypogynous and cyathiform. The ovary is five-celled, with one ovule in each cell; the style is simple, and the stigma capitate. The fruit is a drupe, composed almost entirely of solid putamen with five cells. [W. C.]

ASTRONIA. A genus of Melastomaceæ trees, from the Moluccas, with the habit of *Melastoma*. The leaves are opposite, long-stalked, three-ribbed, oblong acuminate; the flowers small, purplish, in terminal panicles; petals five or six; stamens ten or twelve; fruit a three or four-celled many-seeded berry, branches four-angled, and, as well as the peduncles and calyx, with dark scales. *A. papetaria* has subacid leaves, which are cooked as a sauce to fish. [J. T. S.]

ASTROPHEA. A section of the genus *Passiflora*, characterised by the absence of cirrhi and involucre, and by its ten parted calyx and five stamens. The species are South American trees. [W. C.]

ASUL. The Arabic name of *Tamarix orientalis*. Also an Indian name for *Tamarix foras*, a nut-gall tree.

ASYSTASIA. A genus of Acanthaceous plants, natives of the East Indies, the warmer and temperate parts of Asia and Africa. They are herbaceous, or shrub-like, with slender branches; axillary or terminal clusters of flowers, which are blue or yellowish, and handsome, with a regularly five-parted calyx, a somewhat funnel-shaped corolla, with a limb divided into five nearly equal segments; stamens four, united in pairs at their base; anthers two-celled; cells parallel, thickened or provided with an appendage at the base; stigma capitate two-lobed. Capsule compressed, slender, and seedless below; above somewhat four-cornered, two-celled, four-seeded. Seeds with a prominent angle at the base. [M. T. M.]

ATACCIA. A genus of the small order *Tuccaceae*. The tube of the perianth is in these plants connate with the ovary, and the six-parted limb has the inner segment larger reflexed and persistent. The flowers contain six stamens, inserted at the base of the segments of the limb, and having broad filaments concave above; the style is short, thick, three-furrowed, with a capitate three-lobed stigma; the ovary is sub-three-celled, containing numerous ovules, and becomes a semi-three-celled many-seeded berry. There are few more remarkable-looking plants than *A. cristata*, sometimes met with in gardens under the incorrect name of *Tucca integrifolia*. It has a short conical underground caudex, or rhizome, and produces from this caudex three or four large oblong acuminate purplish-green stalked leaves. The scape is about as long as the leaves, erect, stout, angled, dark purple, terminated by a large four-leaved involucre, of which the two outer leaflets are dark purple, opposite, sessile, and spreading; and the two inner much larger, placed side by side, green with a deep purple base and stalk. The numerous flowers form a drooping one-sided umbel; the perianth dark purple, with a turbinate six-angled tube, and a six-parted limb suddenly reflexed. The segments arranged in an outer smaller, and an inner larger series, the rim of the mouth forming a crenated ring. This plant is a native of the islands of the Malayan Archipelago, and one or two other species are Indian. Of no known utility, but highly curious in structure. [T. M.]

ATALANTIA. A genus of Aurantiaceous plants, known by their undivided leaves, few stamens, united below into a tube, and one ovule in each cell of the ovary. The trees and shrubs of this genus are natives of the East Indies. The wood

of *A. monophylla*, a native of Coromandel, furnishes a heavy closely grained yellow wood, suitable for cabinet work. The fruit is called WIM Lime by the Hindoos. [M. T. M.]

ATAZIA. A genus of Grasses of the tribe *Phalarideae*, with the inflorescence in thyrsoid panicles; spikelets three flowered; inferior flower male, with two pales, intermediate neuter with one pale, and the terminal hermaphrodite, triandrous; glumes unequal. Steudel describes four species, none of which are British. *A. Hornefeldii*, a native of Java, has the peculiar property of emitting, when bruised, a similar odour to that given out by the English sweet scented vernal grass, which is supposed to result from the presence of a portion of benzoic acid (?) in their tissues. This fragrant principle is called coumarin. [D. M.]

ATCHAR or ACHAR. A condiment prepared from *Bambusa arundinaria*.

ATHANASIA. A genus of yellow-flowered Composites, consisting chiefly of greenhouse evergreens of shrubby habit, from Southern Africa, and a single annual species from Barbary, the *A. annua*, formerly much more cultivated than at present on account of the long duration of its flowers. It attains a height of about two feet or more, with diffusely branched furrowed stems; pinnatifid fleshy foliage, with linear segments; and corymbs of clustered flower-heads on long foot-stalks, the florets being all tubular. Though of somewhat rambling habit, the small amount of care it requires, and the lasting character of its blossoms, render it deserving of some attention. The cut flowers preserve their freshness for a long period. The genus derives its name from the Greek *Ἀθάνατος*, signifying immortality, in allusion to the unfading nature of its flowers. [W. T.]

ATHERANDRA. A genus of *Asclepiadaceae*, containing two species, from the Moluccas: climbing shrubs, with slender branches, ovate and opposite leaves, and few flowered axillary cymes. The calyx consists of five lanceolate sepals, and the corolla of as many linear-lanceolate lobes. The filaments are free above, and the anthers are adpressed to the stigma, and more or less connate among themselves. There are twenty granular masses of pollen. [W. C.]

ATHEROSPERMAEAE. (*Plume Nutmegs*.) A small natural order of trees from Australia and Chili, deriving their English name from their aromatic nuts, being furnished with a permanent style, clothed with long hairs. Only three genera are known: *Atherosperma*, *Laurelia*, and *Doryphora*, which see. Their flowers are insignificant. They are placed by Lindley in the *Menispermata* alliance of delicious *Exogens*.

ATHEROSPERMA. A genus of *Atherospermaeae*, containing a single species from New Holland. It is an aromatic tree with four-cornered branches, opposite leaves,

and pedicellate axillary solitary flowers, with two deciduous bracteoles. The flowers are monoecious. The male flower is campanulate, with a very short tube, and eight lobes; and the ten to twelve fertile stamens are mixed with scale-shaped barren ones. The calyx of the female flower is the same as in the male; the ovaries numerous, sessile, and distinct, with one cell and one ovule. [W. C.]

ATHROTAXIS. See *Arthrotaxis*.

ATHYRIUM. A genus of polypodiaceous Ferns of the section *Aspleniceæ*, closely allied to *Asplenium*, with which some have united it. It agrees with that genus in the peculiarities of having free veins, and simple distinct indusia; but the sori are lunate or more or less horse-shoe-formed (hippocrepiform), this distinguishing character being most strongly developed in the sori which are placed more immediately in the neighbourhood of the principal veins. The species, several in number, found in various parts of the world, are mostly deciduous in habit; and one of them, *A. Filix-ferina*, the Lady Fern, is plentiful in Great Britain, where it assumes a great variety of beautiful forms, which will be found described in Moore's *Handbook of British Ferns*, or more fully, accompanied in many instances, by figures, in the *Octavo Nature-Printed British Ferns*. The Lady Fern has bipinnate or tripartite fronds of delicate texture, and of a remarkably elegant pliant character. [T. M.]

ATLEE GALL. A gall nut produced abundantly by *Tamarix orientalis*, which is called Atle by the Egyptians. It is filled with a deep scarlet liquid.

ATRACTYLIS. A genus of prickly-leaved thistle-like plants belonging to the Composite family (*Compositæ*). They are perennial or annual herbs, from three inches to one and a half foot high, with toothed or pinnatifid leaves, their margins often spiny. The flower-heads are terminal, solitary, or three to four together, having a double involucre, the scales of the external one pinnatifid and leafy, with spinous teeth, standing apart from the inner involucre, and forming, as it were, a fence round the flower head. The scales of the inner involucre are ovate or lanceolate, terminating in a spinous point. The florets are generally of a pink colour. One species is found in North China, and all the others are natives of the Mediterranean region, abounding in Algeria, and growing chiefly in arid desert places. [A. A. B.]

ATRAGENE. A genus of somewhat woody-stemmed *Ranunculaceæ*, of climbing habit, differing from *Clematis* only by having petals, which, however, are small and pass gradually into stamens. The sepals are large and coloured, usually purple as in the solitary flowered species of *Clematis*; the leaves opposite, compound, ternate, the leaf-stalks twining round supporting bodies. They occur in the temperate regions of both the New and Old Continents, in the northern hemisphere.

One species, *A. alpina*, is not uncommon in gardens. [J. T. S.]

ATRAPAXIS. A genus of Asiatic and Cape of Good Hope *Polygonaceæ*, forming low shrubs with rigid much-branched often spiny stems, and small entire oblong leathery leaves; stipules sheathing, with a small free appendage on each side; flowers fasciculate near the end of the branches, on short peduncles; calyx coloured, four-leaved, the two inner divisions largest, conspicuously so in front (they are probably really petals); stamens six; styles two; fruit a small lens-shaped nut, included between the two large ovate deltoid calyx segments. A few species are cultivated as greenhouse plants, but their scrubby stems and small flowers present few attractions. *A. spinosa* is a dwarf hardy shrub. [J. T. S.]

ATRIPLEX. Orache. A genus of *Chenopodiaceæ*, with the foliage covered with a granular meanness. The Oraches are chiefly distinguished by the two bracts or small leaves, enclosing the fruit, and enlarging after flowering; they are frequently dotted with large-coloured warts, which give them a peculiar appearance. The genus possesses several species, which are very variable in form, according to soil and situation. They inhabit waste places or mud banks by the sea shore, rarely occurring inland, with the exception of the *Atriplex patula*, which accompanies arable cultivation, especially in wet sandy clays. There are five British species:—*A. patula*, of which several more or less distinct forms are described; *A. littoralis* and *A. laciniata*, sea-coast plants, the latter silvery-white all over, as if frosted; *A. portulacoides*, a shrubby much-branched species called Sea Purslane; and *A. pedunculata*, distinguished by its pedicellate fruit. [J. B.]

The Garden Orache, or Mountain Spinach (*A. hortensis*), is a tall erect-growing hardy annual, a native of Tartary, introduced in 1648. It is not much cultivated in this country, but in France, under the name of *Arroche*, it is grown to some extent for the sake of its large and somewhat succulent leaves, which are either used alone as spinach, or mixed with sorrel, for the purpose of correcting its acidity. The quality of the spinach yielded by Orache is far inferior to that of the common spinach (*Spinacia oleracea*), or even of the New Zealand spinach (*Tetragonia expansa*); but its leaves being produced abundantly during summer, it is occasionally found useful for culinary purposes. There are several varieties of this plant cultivated, but they do not differ in any other respect, excepting in the colour of their stems and leaves, which vary from pale green to a red or lurid purple, and are very ornamental. The seeds are said to be so unwholesome as to excite vomiting. See Lindley's *Vegetable Kingdom*, p. 573. [W. B. B.]

ATRIPLICES. A synonyme of *Chenopodiaceæ*.

ATROPA. A genus of plants of the natural order *Solanaceae*; or by Miers made the type of a new family called *Atropaceae*. The genus is known by its five-parted calyx; its bell-shaped corolla formed of five united petals; five stamens adhering to the lower part of the tube of the corolla, with their anthers opening by long slits; a two-celled ovary and succulent fruit, each containing several seeds.

The Deadly Nightshade (*A. Belladonna*) is found wild in Southern Europe and Western Asia, also in this country, frequently on chalky soils, and not uncommonly in the vicinity of ruins. Though the stems die down annually, they spring from a perennial rootstock, and form in summer time a bushy plant, with stalked egg-shaped entire leaves of a dull green colour, and a peculiar heavy smell. The flowers are borne on short drooping flower-stalks in the axils of the leaves, or in the forks of the stem; they have a widely-spreading bell-shaped calyx, deeply divided into five pointed segments, and a bell-shaped corolla, somewhat less than an inch in length, and of a dull purplish-brown colour, but whitish or yellowish at the lower portion (uppermost as the flower hangs on the bush). The berry is of a dark shining black colour, about the size and form of a cherry, of a sweet or mawkish taste, and placed at the bottom of the permanent spreading calyx. All parts of the plant are poisonous. It is supposed to have been the plant which produced such remarkable and fatal effects on the Roman soldiers during their retreat from the Parthians under Mark Antony, as recorded in Plutarch's life of Antony. Buchanan relates the destruction of the army of Sweno the Dane, when it invaded Scotland, by the berries of this plant. They were mixed with the drink which the Scots, according to the terms of the truce, were to supply to the Danes.

When taken in large or poisonous doses, *Belladonna* produces a peculiar form of delirium, widely-dilated pupils, great thirst and dryness of the mouth, and ultimately coma and death. The poisonous principle is an alkaloid called *atropin*, which exists in all parts of the plant, and is of a frightfully poisonous nature. *Belladonna* is much used in medicine in small doses in the shape of an extract; this and the alkaloid *atropin* are also used as an external application. *Belladonna* is employed as a sedative to allay pain and spasm, and to relieve incontinence of urine, for which purpose it has a remarkable effect. It is frequently smeared round the eye in cases where it is necessary to dilate the pupil, this being one of the peculiar effects of *Belladonna*. It is said by homœopaths to act as a preventative of scarlet fever, as the use of *Belladonna* causes dryness and redness of the throat, such as also occurs in scarlet fever; hence, on the principle of like curing like, the use of *Belladonna* is recommended for this disease. It has been recently discovered that quantities of *Belladonna*, which would seriously affect

adults, can be taken with impunity by children, and also that the action of *Belladonna* and of *Opium* are so mutually antagonistic that the one may be employed as an antidote to the other. Valuable as *Belladonna* is as a remedy, it is obvious that it should never be employed except by a duly qualified person. In cases of poisoning by *Belladonna*, the stomach-pump and emetics should be had recourse to as speedily as possible.



Atropa Belladonna.

The mandrake was formerly referred to this genus, but is now included in the genus *Mandragora*. [M. T. M.]

ATROPAL. An ovule which never alters its original position; same as *Orthotropal*.

ATTALEA. The name of a genus of lofty Palms, natives of tropical South America. The leaves are large and pinnate. The fruits hang in large clusters, each but consisting of three cells, and containing as many seeds, a circumstance which serves to distinguish the genus from all its allies.

A. funifera, called by the Brazilians *Piasaba*, yields a fibre of much value, derived from the decaying of the cellular matter at the base of the leaf-stalks, and the consequent liberation of the fibrous portions. This fibre is much used in Brazil for the purpose of rope-making, and in this country is employed for making brooms to sweep the streets. A fibre, having the same name, is also produced from another palm called *Leopoldinia Piasaba*.

The seeds of *A. funifera* are known as *Coquilla* nuts; they are three or four inches long, oval, of a rich brown colour, and very hard in texture; hence they are much used in turnery for making the handles of doors, umbrellas, &c. The seed-vessels of *A. compta*, the *Pindova* Palm of Brazil, are

eaten as a delicacy; the leaves of the same plant are used for thatching, for making hats, &c. *A. speciosa* and *A. excoela* furnish nuts, which are burnt to dry the juice of *Siphonia elastica*, which furnishes India rubber. *A. Cokune*, a native of Honduras, produces nuts called Cahoun nuts, which yield a valuable oil. [M. T. M.]

ATTRAPE-MOÛCHE. (Fr.) *Apocynum androsaemifolium*; also applied to *Arum crinitum*, *Dionaea muscipula*, *Lychnis Viscaria*, and *Silene muscipula*.

ATWISHA. An Indian poison, supposed to be *Aconitum ferox*.

AUBAINE ROUGE. (Fr.) A kind of wheat.

AUBE'PINE. (Fr.) *Orategus Oxyacantha*.

AUBERGINE. (Fr.) *Solanum esculentum*, sometimes called *S. Melongena*.

AUBOUR. (Fr.) *Cytisus Laburnum*.

AUBRIETIA. A section of the Cruciferous genus *Farsetia*, from which it is separated by having the valves of the oval pod convex and not flattened. The outer sepals bulging at the base, and the shorter stamens with a tooth on the filaments, distinguish it from the allied genera. The species are low diffuse plants, with greyish leaves, and handsome purple flowers. *A. deltoidea*, a native of the eastern Mediterranean region, is a pretty spring-flowering plant, often introduced on rockwork, as are also *A. græca*, *A. purpurea*, and others. [J. T. S.]

AUCKLANDIA. *Aptotaxis*.

AUCUBA. A genus of evergreen shrubs, referred to the order *Cornaceæ*, and distinguished by their dioecious flowers, of which the males have a small four-toothed calyx, a four-petaled corolla, and four short stamens alternating with the petals; and the females have, instead of the stamens, an inferior one-celled ovary, surrounded by a fleshy epigynous disk, the style short thick tumid at the base, the stigma orbiculate, and the ovary containing a single ovule. The fruit is a one-seeded berry. The *Aucuba japonica* is a well-known shrub of vigorous habit, highly prized for its capability of enduring and even thriving in the atmosphere of towns and cities. It forms a dense roundish bush, furnished with large glossy leathery leaves of an elliptic form, remotely serrated, and in the original garden form conspicuously blotched with pale yellow though green-leaved forms, and others distinctly and handsomely variegated, are now becoming common. The flowers are inconspicuous, but since the introduction of the male or pollen-bearing plant, in 1861, by Mr. E. Fortune, we have been enabled to secure the beautiful coral-red berries, which are borne in profusion, and render the bushes

of Good Hope. It is a small shrub erect branches, spirally arranged imbricate leaves, and purple flowers in a terminal oblong capitulum. The calyx tube is short and adherent to the ovary, the limb being deeply five-partite. The corolla consists of five spreading unguiculate petals. The five stamens are shorter than the petals and alternate with them. The ovary is slightly three-lobed, and three-celled, with two ovules in each cell. There is a single trigonous style, with three small papilliform stigmas. [W. C.]

AUGEA. An annual glabrous fleshy herb, with the aspect of a *Mesembryanthemum*, but with small inconspicuous green flowers, without petals, ten short stamens, and a ten-celled superior ovary. It forms a genus of *Zygophyllaceæ*, and is a native of sandy saline wastes in the Cape Colony.

AUGUSTIA. A genus of Begoniads, separated by some modern botanists from *Begonia*, and consisting of succulent tuberosous plants found at the Cape of Good Hope. The staminate flowers have two, the pistillate five sepals; anthers small, elliptical, lengthened into an obtuse cone; filaments long, not united; style persistent, its branches furnished with a continuous papillose band, making two spiral turns; placentas split lengthwise, their transverse section ovate-oblong; seed vessel with three nearly equal wings. There are four species known, viz.—*A. Dregei*, *A. Cofra*, *A. suffruticosa*, found at the Cape, and *A. natalensis* at Port Natal. The genus is named after Dr. August of Berlin. [J. H. B.]

AUGUSTINIA major (or *Bactris major* of Jacquin) is the only known representative of a genus of Palms inhabiting Venezuela and New Grenada, and bearing an edible fruit of a pleasant acid flavour. It grows from twelve to twenty feet high, and its cane-like trunk, several of which spring from the same root, form thick bushes, quite impenetrable on account of the spines with which the plant is clad. The leaves are pinnate. The inflorescence, enclosed in a double spathe, is axillary; the flowers are monœcious; and the fruit is a dark violet-coloured smooth drupe, about the size of a pigeon's egg. [H. B.]

AULACOSPERMUM. A genus of *Umbelliferae*, containing two species of perennial, glabrous, herbaceous plants, with bipinnate leaves, natives of Altai. The limb of the calyx is five-toothed or obsolete. The petals are ovate and entire. The fruit is ovate and slightly compressed; each mericarp has five longitudinal winged ridges, with intervening vittate furrows; the commissure is plain. [W. C.]

AULAYA. A genus of *Scrophulariaceæ*, containing eight species, natives of the Cape of Good Hope. They are parasitic herbaceous plants, having the habit of *Orobanche*, with imbricate scale-like leaves, and gaudy flowers. The calyx is campanulate and five-cleft, with two bracteoles. The

AUDOUINIA. A genus of *Bruniaceæ*, containing a single species, from the Cape

tube of the corolla is clavate at the base, and inflated upwards; the limb is spreading and five-cleft. There are four included didynamous stamens, inserted in the base of the tube. The anthers have two cells, the one being perfect, ovate-acuminate, the other abortive, longer and subulate. The ovary is two-celled, and contains many ovules; and the style is terminated by a clavate involute stigma. [W. C.]

AULNE. (Fr.) *Alnus glutinosa*. — NOIR. *Rhamnus Frangula*.

AUNE'E. (Fr.) *Inula Helenium*.

AURANTIACEÆ. (*Aurantia*, *Citron-vorts*) The Orange, Lemon, and similar fruits, are produced by trees belonging to this natural order of the Rutal alliance. They are all bushy or woody plants, having the leaves filled with transparent oil-cysts, giving them a dotted appearance, a definite number of hypogynous stamens, and a fruit more or less pulpy. Less than 100 species are known. The various genera are almost exclusively found in the East Indies, whence they have in some cases spread over the rest of the tropics. Mention is made of a wild orange of Brazil, which has a mawkish taste, but must have been introduced. The *Skimmias*, included by Bentham and Hooker in *Toddalia*, a tribe of *Rutaceæ*, have been classed with the *Aurantiaceæ*.

AURICULA. *Primula Auricula*, a favourite garden flower.

AURICULARINI. An order of hymenomycetous *Fungi*, distinguished by the hymenium being destitute of gills, pores, prickles, or other decided prominences. In a few species of one genus only there are a few obscure folds or papillæ. The nobler species have the hymenium inferior, as in the Mushrooms, &c.; but as the order contains a great mass of a low condition of organisation, very many of the species are permanently glued to the substance from which they spring. But even amongst these there is a tendency to become free at the margin, and to reflect it so as to take the hymenium away from the light. Several of the species are amongst the most common of fungi. The yellow *Stereum hirsutum* grows on almost every oak log, and the purple *Stereum purpureum* on every fallen poplar. The dark Indigo-blue *Corticium caruleum*, so common on damp rotten rails, is said to be occasionally phosphorescent. The order is distinguished from the *Tremellini* by the expanded horizontal hymenium, which is, besides, more definite, and formed after the same type as that of the higher orders of the family, whereas in the *Tremellini* the fruiting cells or sporophores are of unequal length. There is, moreover, in the higher *Auricularini* a distinct pileus, while in the *Tremellini*, with the exception of *Hirniola* and *Exidia*, where there is often a distinct barren outer coat, as in *Perisia*, the whole surface, even in the highest species, bears fruit. No plant of the order is known to have any economical use. [M. J. E.]

AURICULATE. Having a pair of small round lobes or ears, as is the case with many leaves.

AURONE FEMELLE. (Fr.) *Santolina Chamæcyparissus*. — MÂLE. *Artemisia*

AVA. A kind of pepper, called *Macropiper Methysticum*. The name is also given to a spirit distilled in the Sandwich Islands from the root of a species of *Cordyline*.

AVANT-PÂQUES. (Fr.) *Tulipa sylvestris*.

AVENA. Oat grass. A genus distinguished by large membranaceous outer pales, enclosing from two to three florets, each armed with a bent more or less twisted awn.

Meadow species: *A. pubescens*, Downy Oat Grass; leaves downy, with soft hairs; a common meadow-grass in limestone pastures, which should be included in the seeds for such situations. *A. pratensis*, Narrow-leaved Oat Grass; leaves hard and rigid; a denizen of moors and poor clays. Its specific name is inappropriate as its favourite habitat is seldom worthy of the name of meadow. *A. alpina*, Great Alpine Oat Grass; a larger and coarser form than the preceding, of which it is probably a mountain variety. *A. flavescens*, Yellow Oat Grass; flowers small yellow; an upland pasture grass of considerable merit.

Agrarian species: *A. strigosa*, Bristle-pointed Oat; seeds much like those of Corn Oats, the awned inner pales with two long bristly points; occasionally met with in corn-fields, where it has probably been introduced with foreign seed. *A. fatua*, Wild Oat; awn much bent, the lower half twisted, the inner pales covered with stiff hairs. These peculiarities give the seed so much the appearance of a fly, that the rustics often make use of it in trout fishing, and as the twisted awn uncoils when it comes in contact with the water, the fish is deceived by its apparent struggling; this property of the awn has likewise caused it to be used as a hygrometer; it is a common weed in clay soils.

The two latter species have lately attracted considerable attention from their connection with agriculture. Dr. Lindler, in an article in Morton's *Cyclopædia of Agriculture*, suggested that the cultivated Oat 'is a domesticated variety of some wild species, and may be not improbably referred to *Avena strigosa*;' but perhaps, after all, the *A. strigosa* may be but a variety of *A. fatua*, from the cultivation of which it has been shown that Cereal or crop Oats may be grown, in illustration of which we here give a short account of our own experiments.

In 1852 we sowed a plot of the seeds of *A. fatua*, collected in 1851; they grew well, but were scarcely different from the wild plant, except in a tendency to an increased plumpness of grain. The produce of this

crop was preserved throughout the winter, and sown in a different part of the garden in the spring of 1833; we repeated the process with successive crops in 1834 and 1835, in each of which we noted an increase of tendencies in the following direction: 1. a gradual decrease in the quantity of hairs on the pales; 2. a more tumid grain, in which the pales were less coarse and the awns not so strong and rigid; 3. a gradual increased development of kernel or flour. The produce again sown in 1836 had so far advanced, that we collected poor, but still decided samples of what are known as the Potato and Tartarian forms of Oat. These we have gone on improving until, in 1860, we had a quarter of an acre each of good white Tartarian and Potato Oats, as a farm crop, which had been derived from the wild example. This is the more interesting, because farmers have always stated, especially on the poor lins clays of Gloucester and Worcester, that they could not grow oats without leaving behind a quantity of wild or weed oat; and our subsequent inquiries have convinced us that shed oats in some situations do really degenerate into wild ones, and the first stage in the process of degeneration will be observed in an accession of hairs at the base of the grain, which good cereal oats never possess.

We may then view the different forms of crop Oats, as induced varieties from the *A. sativa*. In cultivation, it would appear that the best and plumpest oats are grown in North Britain; here they make a good meal, which is much used as human food, Oatmeal, 'parritch' being indeed an article of diet far more nourishing than the potato, which is the more usual food of the southern.

[J. B.]

AVENS. The common name for *Geum*.

AVERRHOA. A genus of *Oxalidaceæ*, consisting of a few small trees, originally from the Moluccas and Ceylon, but cultivated throughout India. They have evergreen alternate pinnated leaves, somewhat like those of the ash, or rather the sumach, and small purplish flowers in racemes. The fruit is like a cheikin in shape, very acid, but pleasant when made into syrup, candied, or pickled. The leaves are slightly sensitive. *A. Bilimbi*, the Blimbing, has many pairs of leaflets, and the flowers produced from the trunk. *A. Carambola*, the Carambola, has only from two to five pairs of leaflets, and the flowers produced from the branches. [J. T. & J.]

AVET. (Fr.) *Abies pectinata*.

AVICENNIA. A genus of *Verbenaceæ*, the Vervain family. The plants here included are often called White Mangroves, and, like the true Mangroves, are found in the tidal estuaries of most tropical countries. They are small trees, with opposite evergreen leaves, which are oblong, entire, and covered beneath with a white pubescence. Their flowers are inconspicuous, and arranged in closely-packed

terminal bunches. Their roots stand out of the mud in which they grow, overarching each other in erect angled masses, and sending up asparagus-like shoots from their underground parts. *A. somaliensis* is in great reputation in Rio for tanning. The native washermen of India (dhobies) make a preparation from the ashes of the wood, which they use in washing or cleaning cotton cloths. The green fruits boiled with butter form poultices, used in native practice. In N. S. Wales the wood is valued for stone-masons' mallets, on account of its toughness. *A. nitida* is called Courida in British Guiana. The wood is used for the foundations of buildings and underground work, on account of its power of resisting damp; exposed to the atmosphere it soon perishes. The bark is used for tanning in the W. Indies. [A. A. B.]

AVIGNON BERRIES. The yellow dyerberries of the Buckthorn, *Rhamnus infectoria*.

AVOCATIER. (Fr.) *Persea gratissima*.

AVOINE. (Fr.) *Avena sativa*. — **A. CHAPELET.** *Avena bulbosa*. — **DE HONGRIE.** *Avena orientalis*.

AWL TREE. The Indian Mulberry, *Morinda citrifolia*.

AWL-WORT. The common name for *Subularia*.

AWN. The beard of corn, or any such slender process.

AXIL, AXILLA. The angle formed between the axis and any organ that grows from it; the base of a lateral ascending organ, on the upper side.

AXILE, AXIAL. Of or belonging to the axis.

AXILLARY. Growing in the axil of anything.

AXIS. The stem, including the root; or any centre round which leaves and other organs are arranged. The stem is called the ascending axis, the root the descending axis. — **ACCESSORY.** An axis of a second rank; secondary to some principal axis. — **APPENDAGES OF THE.** All the leafy or thin expansions that grow upon a stem, such as leaves, and the parts of a flower.

AYAPANA. The sudorific *Eupatorium Ayapanum*, which is said to be a valuable remedy for the bites of poisonous snakes.

AYART. (Fr.) *Acer opulifolium*.

AYDENDRON. A genus of tropical American trees of the Laurel family, *Lauro-raceæ*. They have a funnel-shaped, six-parted perianth, containing twelve stamens in four rows; the nine outer stamens have anthers, the three innermost are sterile; of the fertile stamens the three innermost have glands on each side at the base, and their anthers open outwardly; the remainder have no glands, and their anthers open

inwardly. The fruit is succulent, at first concealed within the base of the perianth, which afterwards falls off, leaving only a portion surrounding the base of the fruit.

Cujumary beans are the seeds of *A. Cujumary*, and are esteemed in Brazil as tonics and stimulants in cases of weak digestion. [M. T. M.]

AYER AYER. The esculent fruit of some species of *Lansium*.

AYLMERIA. A genus of *Paronychia*-ceæ, consisting of two species of Australian annuals, with much-branched stems, opposite or verticillate leaves, small scarious stipules, and terminal corymbose cymes of rose-coloured or purple flowers on long stalks. [J. T. S.]

AZADIRACHTA. A genus of the order *Meliaceæ*, represented by an Indian tree with unequally pinnated leaves, whose leaflets are oblique. The young shoots are smooth, not covered with down as in the allied genus *Melia*. The flowers are small, white, borne in axillary panicles; they differ from those of *Melia* in having a three-celled ovary, and a three-lobed stigma, and also in the fruit, which is purple when ripe, of the size of a small olive, one-celled, one-seeded.

The bark of *A. indica* is used in India as a tonic, the root as a vermifuge, and the leaves as an application to glandular swellings, bruises and rheumatism. They have also been employed successfully in some forms of skin disease. From the fruit an acrid oil is obtained for burning in lamps, and for dyeing cotton cloths. A stimulant gum exudes from the bark. The seeds are used as a poison for insects, and mixed with water as a hairwash. A kind of toddy is said to be prepared from the young trees. [M. T. M.]

AZALEA. A genus of *Ericaceæ*, established by Linnæus, and including many plants which have since been separated and arranged under different genera. So conflicting are the opinions of botanists as to the set that should retain the original Linnæan name, that it seems in danger of being lost altogether. Some seek to retain it for *A. procumbens*, as the only plant to which it is truly applicable, and propose the name *Anthodendron* for the showy shrubs so well known in our gardens as *Azalea*; whereas others, because of the almost universal application of the name to these plants, and to prevent unnecessary confusion in the synonymy, have given the name *Louiseleuria* to the small genus containing the single species, *A. procumbens*, and retained the original name for the showy American shrubs. This course being adopted generally by continental botanists, as well as by many in Britain and America, it seems better to consider the genus as so limited.

Azalea are upright shrubs with alternate and obovate or oblong deciduous leaves, which are entire, ciliate, and mucronate, with a glandular point. The flowers are large

and showy, often glandular, and glutinous outside; they rise in unbelled clusters from large scaly imbricated terminal buds. The calyx is five-parted, often minute. The corolla is funnel-shaped, with five spreading lobes. The stamens are five in number, with long exserted filaments, and short ovate anthers, opening by terminal pores. The ovary is five-celled, with many ovules; the style is simple. The pod is five-celled and five-valved, and contains many scale-like seeds. There are about twenty species, natives of North America and Asia. They are largely cultivated as ornamental shrubs, on account of the abundance of their flowers, and the fragrant smell of most of the species. Some possess dangerous narcotic qualities. Pallas was of opinion that *A. pontica* was the plant from whose flowers the bees of Pontus collected the honey that produced the extraordinary symptoms of poisoning, described as having attacked the Greek soldiers, in the famous retreat of the Ten Thousand. Xenophon says that after eating it, the men fell stupified in all directions, so that the camp looked like a battle-field covered with corpses. The natives are aware of the deleterious qualities of the plant. Cattle and sheep which browse on its leaves are poisoned. [W. C.]

AZARERO. (Fr.) *Cerasus lusitanica*.

AZARA. A genus of Chilian shrubs, belonging to the *Flacourtiæ* family, having twin or solitary alternate leaves, generally toothed and varying in form from egg-shaped to almost linear. Their flowers are small and yellow, destitute of petals, and arranged in axillary bundles. A few of the species are in cultivation in English gardens. *A. Gilliesii* is the most handsome. Its leaves are evergreen and somewhat like those of the holly, bearing in their axils roundish fascicles of yellow flowers. About a dozen species are known. The leaves of many have a bitter taste. [A. A. B.]

AZAROLE. The fruit of *Cratogeomys Azarolus*.

AZEDARACH *Nolia Azedarach*.

AZEROLIER. (Fr.) *Cratogeomys Azarolus*.

AZIMA. *Monetia*. The plant is placed by Wight in a separate order, *Azi*.

AZOLIA. A very curious genus belonging to the marsileaceous division of the pseudo-ferns. Its habit is that of a floating pinnately-branched *Jungermannia*, with two or four-ranked imbricating leaves; but its fructification is totally different, and is nearer to that of *Salvinia* than of any other genus, and with which it forms a distinct section or order, according to the views of authors. Indeed, its peculiarities are such that it has been sometimes supposed to constitute a distinct order by itself. The species float upon the water, forming green or reddish patches, which are frequently several yards across, throwing down rootlets on the under side,

amongst which are situated, principally in the axils of the leaves, the organs of fructification. These are twofold:—1. Thin membranous sacs bearing on a short cylindrical axis, springing from the base, stipitate globose cysts, filled with angular bodies, which are furnished either with curious arrow-headed or root-like appendages. These armed granules are doubtless the antheridia, though their spermatozooids have not yet been discovered. 2. Ovate sporangia, divided within by a transverse partition, which incloses below, a grumous or at length pulverulent mass, and gives off from its centre above a column fringed at the apex with a tuft of hair, and having attached to it from three to nine dependent spores, which are at length exposed by the separation of the upper half of the sporangium at the above-mentioned partition. The species occur from Australia and New Zealand as far as New York. One has been found in Western Africa by Vogel. It has been supposed that the differences in the antheridia and the number of spores, accord with the geographical distribution of the species, which may accordingly be separated into two genera; but this is at present more than doubtful. [M. J. B.]

BABEER. A Syrian name for *Papyrus*.

BABIANA. A genus of bulbous-tuberous *Iridaceæ*, found in South Africa, and having two-ranked sword-shaped plicately-nerved leaves, and flower-stems terminated by a loose subscand or two ranked spike of flowers, which consist of a funnel-shaped tube, with a dilated throat, and a six-parted regular or somewhat two-lipped limb of nearly equal segments; they are furnished with three stamens, and the three-lobed many-ovuled ovary is terminated by a filiform style, dividing at top into three conduplicate wedge-tongue-shaped undivided stigmas. The flowers are large and showy, and in some of the species sweet-scented. There are upwards of thirty species, many of which have been in cultivation in this country, and some are still occasionally met with, but, like many others, they have been undeservedly neglected in the rage for novelties which distinguishes the present age, so that they are less frequently seen than they deserve to be among the ornaments of our greenhouses. *B. plicata*, which may be taken as an illustration of the genus, is a slender plant, of six inches to a foot high, everywhere pubescent, with oblong lanceolate leaves, and pale violet-coloured flowers, the lower segments of which are streaked with yellow in the middle, and spotted with brown at the base; these flowers have the odour of cloves. [T. M.]

BABINGTONIA. This genus of *Myrtaceæ* was named after Professor Babington, a well-known English botanist. It is allied to the genus *Backea*, but differs from it in the stamens being collected in groups of three, opposite the petals. The anthers also are placed directly on the top of the filaments, and open by pores. The style

seems to be a direct prolongation of the placenta; it protrudes through a hole in the top of the ovary, and does not even touch the carpels. *B. camphorosma* is a graceful greenhouse shrub, with white or pinkish flowers, and has been introduced from Holland. [M. T. M.]

BABOOL. The Indian name for the gum-bearing *Acacia arabica*.

BABOUNY. A name used in Egypt for the flower heads of *Santolma fragrantissima*, a substitute for chamomiles.

BACCA. A berry; that is to say, a succulent seed-vessel, filled with pulp, in which the seeds nestle, as in *Solanum*. — **CORTICATA.** A berry having a rind; as an Orange. — **SICCA.** A fruit which is a berry when unripe, but becomes a dry body when ripened. — **SPURIA.** Any fleshy fruit, which is not a true bacca or berry; as the Juniper, Strawberry, Raspberry, &c.

BACCATE. Having a pulpy texture; a term only applied to the parts of a flower or fruit.

BACCATE SEEDS. Seeds with a pulpy skin.

BACCAULARIUS. Such a fruit as that of the Mallow; viz. several one or two-seeded dry carpels cohering round an axis.

BACCHARIS. A large and natural genus of the Composite family, distinguished from its allies by having male flowers only on one plant, and the females on another. Upwards of 200 species are known. They are herbs, shrubs, or sometimes small trees, many of them smooth and covered with a resinous substance, which gives to the leaves a glossy appearance. The latter are generally alternate, rarely opposite, and vary much in form. In one section of the genus they are three-nerved, and ovate or lanceolate in form; in another, one or three-nerved, and wedge-shaped; in a third they are very small, or absent altogether; while in a fourth the stems are winged and leaf-like, performing the functions of the leaves, which are small or almost absent. The flower-heads are arranged in various ways, and the florets are generally white in colour. The species are confined to the New World, and are found, in greater or less number, from the United States to the extreme south of the continent. Many of them are found at an elevation of 12,000 feet above the sea level in the Andes, and a few of them reach the snow limit. Immense tracts are covered on the plateaus of the Cordillera with plants of this genus, and shrubby grounds, taking the same place there that the heaths do on our moors. In Peru and Bolivia, the shrubby species are known by the names of *Tola*, or *Chilca*, and by the latter name in N. Grenada and Chili. The resinous species are almost universally used as firewood for ovens. An infusion of the winged stems of *B. trimera* is used by the Brazilians as a sudorific and tonic; while another, also with

winged stems, *B. microcephala*, is used in Parana for curing rheumatism, by putting bushes of it in warm baths. A bitter is extracted from *B. genistilloides*, which is held in great reputation in Brazil when used with a specific aroma in cases of intermittent fever. Horses devour this herb with avidity, and it is further reckoned of great service in curing chronic diseases in that animal. *B. Douglasii* is remarkable as being found in California, and appearing again in Chili, without being found in any intervening place. [A. A. B.]

BACHE. A South American name for *Mauritia flexuosa*, an economical species of palm.

BACHELOR'S BUTTONS. The double-flowered forms of *Ranunculus acris* and *Lycnis diurna*; also *Centaurea nigra*, &c.

BACILLARIA. A genus of diatomaceous *Algae* consisting of a single species, which occurs on our coasts, known by its linear rectangular articulations, which are at first joined by the longer sides into a straight tabular series, and then slip over each other so as to make oblique series. The articulations or frustules, individually, are not so beautiful in respect of structure as many others of the group; the chief point of interest consisting in the curious manner in which the articulations or frustules incessantly slip backward and forward over each other, with a more or less isochronal motion, yet so as always to adhere to each other. The whole mass is thus in motion, though the several groups of frustules, of which it is composed, may be moving in opposite directions. An obstacle, says Mr. Smith, is not evaded but pushed aside; or, if sufficient to avert the onward course, the latter is detained for a time equal to that which it would have occupied in its forward progress, and then retires from the impediment as if it had accomplished its full course. The motion is about one two-hundredth of an inch per second. [M. J. B.]

BACILLE. (Fr.) *Crithmum maritimum*.

BACILLI. The separable moving narrow plates, of which the genus *Diatoma* is composed.

BACILLUS. The little bulbs found on the inflorescence of some plants; a term rarely employed.

BACKHOUSIA. Four shrubby cymose-flowered Myrtaceous plants have been associated in this genus, which is named in honour of the late James Backhouse, who travelled much in Australia and South Africa, and otherwise contributed to advance botanical science. The principal characters of the genus are: the tube of the calyx covered with dense hairs, the five segments of the limb large, whitish, and petal-like; the petals themselves small and comparatively inconspicuous; the stamens very numerous, and longer than the calyx or the corolla; the ovary

adherent below to the tube of the calyx, but free at its upper portion, very hairy on the exterior, the interior containing several seeds in each of its two compartments. *B. myrtifolia* is a small tree, with opposite ovate pointed leaves, and stalked corymbs of whitish flowers, and is cultivated as a greenhouse plant. [M. T. M.]

BACTRIDIIUM. A very curious genus of *Fungi*, of rather doubtful affinity, but supposed to belong to the division coniomycetes, and to be allied to *Coryneum*. The plant consists almost entirely of oblong septate hyaline spores, which radiate from a little dot-like receptacle. The spores in our most conspicuous native species, *B. farum*, which occurs in this country, although but rarely, on dead elm stumps, are of a pale yellow. We have a species from Venezuela, with enormous spores, one-sixteenth of an inch long, which afford an interesting microscopic object under a low magnifying power; in this the spores, when seen en masse, are of a pale fawn colour. [M. J. B.]

BACTRIS. A genus of slender Palms, natives of the West Indies, Brazil, and other tropical countries on the eastern side of South America; generally growing in low marshy places, or inundated tracts of land, upon the banks of rivers, and on the sea coast. There are about forty species, but very few of them attain anything like the majestic proportions of the generality of palms, the majority having thin reed-like stems, not much exceeding the height of a man. A few, however, grow to a height of forty or even fifty feet, with trunks averaging about four inches in diameter. Almost all of them are armed with sharp black or brown spines, several having their stems encircled with bands of them, placed at short intervals all the way up, whilst others have them only at their summits; and, as they usually grow together in large masses, and throw up numerous suckers from their creeping roots, they offer a really formidable and often impassable barrier both to man and beast. Their flower-spikes are produced either from the apex of the trunk or from the bases of the leaves, and while young are enclosed in a double sheathing spathe, which, in nearly all the species, is densely covered with short black spines. The male and female flowers are borne upon the same spike, and are yellow, green, or rose-coloured; the males have a three-parted thin calyx, and three fleshy petals, and contain from six to twelve stamens; the females have a cup-shaped or cylindrical calyx and corolla, three-toothed at the apex, and they contain a triangular ovary, with three sessile stigmas. Their fruits are generally small, seldom exceeding a pigeon's egg in size, and frequently not larger than a pea, mostly of a bluish black colour, having a thin coating of white fibrous pulp surrounding a hard black stone, which has three small holes at the top, and contains a single seed. Their leaves do not fall away from the trunk like those of many other palms, but remain

attached long after they have withered, hanging down and concealing the trunk; they are nearly always pinnate, and from two to eight feet long; in a few species, however, the leaves are nearly entire, or merely divided into two broad sharp-pointed lobes.

B. Maraja, the Marajah Palm of Brazil, grows upon the banks of the Amazon and other rivers. It is the largest species of the genus, its trunk attaining a height of fifty feet. It is thickly armed with spines, and has a succulent rather acid but agreeably tasted fruit, from which a vinous beverage is prepared. *B. minor* has a stem about twelve or fifteen feet high, and seldom more than an inch in diameter. It is common in Jamaica and some parts of tropical South America, growing in open places in the vicinity of woods. Its stems are used for walking-sticks, and are said to be sometimes imported into this country under the name of Tobago canes. [A. S.]

BADAMIF. An Indian name for Oil of Almonds.

BADDERLOCKS. *Alaria esculenta*.

BA'DEK. A fermented liquor prepared in Java from rice.

BADGER'S-BANE. *Aconitum meloctonum*.

BADHAMIA. A genus of gelatinous Puffballs (*Myzogastrea*), named after the late Dr Badham, remarkable for its spores being contained in little groups in distinct hyaline sacs or asci, whereas in most of the immediately allied fungi they are naked. The species were formerly referred to *Physarum*. Other instances of asci occur in the same division, as in the genus *Enerthenema*, separated from *Stemonitis*. The most common species, perhaps, is *B. hyalina*, which is known by its delicate peridia as well as by its long confluent yellowish stems. [M. J. B.]

BADIANE. (Fr.) *Illicium*.

BADIERA. A genus of the Milkwort family (*Polygalaceae*), which includes three species, all of them natives of the West Indian Islands. They are woody plants with evergreen leaves, and axillary corymbs of white or greenish-yellow flowers, differing chiefly from the common Milkworts (*Polygala*), in having a large oily aril to the seed which fills the upper part of the cell, and in the anthers opening inwards by an oval partitioned slit. The bark of *B. diversifolia* is acrid and bitter, like that of the Lignum Vita, and is called Bastard Lignum Vita, in Jamaica, on this account. [A. A. B.]

BADIOUS. Chestnut-brown.

BADULA. A genus of the *Myrsine* family, of which seventeen species are enumerated. They are evergreen shrubs or small trees, with smooth entire dotted leaves, having short and broad foot-stalks. Their flowers are numerous, disposed in axillary or terminal panicles, and either white, dotted or streaked with pink, or entirely of a pink

colour. The fruits are small scarlet or black berries, containing few seeds. They are nearly related to *Ardisia*, and differ chiefly from that genus in their short round-headed stigma, and few seeds. Their distribution is unusual, one being found in the Philippine Isles, a considerable number in Mauritius, Bourbon, and Madagascar, but the greatest number in the West Indies, Peru, and Brazil. [A. A. B.]

BÆA. A small genus of *Gesneraceae*, consisting of herbaceous plants, with short stems or stemless, and having crowded leaves. The calyx is five-partite and persistent; the corolla is campanulate, the tube scarcely as long as the calyx, while the subbilabiate limb is five-parted with roundish lobes. There are two fertile stamens with very short filaments, and large cordate-ovate anthers. The lanceolate ovary is one-celled, with two parietal placentae. The capsule is elongated and pod-shaped, and the two valves, after dehiscence, are spirally twisted to the right. The oblong seeds are numerous and very small. This genus differs from *Streptocarpus* chiefly in the length of the corolla tube. [W. C.]

BÆCKEA. The name of a genus of plants belonging to the *Myrtaceae*. The flowers are sessile or stalked; the limb of the calyx five-cleft, persistent, its tube top-shaped; petals five, longer than the stamens, which are from five to ten in number, and distinct; stigma capitate, capsule many-seeded. The plants are small shrubs, with opposite leaves, and white flowers. They are natives of New Holland and China. Some of them are in cultivation as pretty greenhouse plants. [M. T. M.]

BÆOMETRA. Certain bulbous plants, belonging to the order *Melanthaceae*, are so called. From the bulbs or corms arise narrow sheathing leaves and spikes of flowers, each of which latter has a six-parted petal-like spreading deciduous perianth, into the base of the segments of which the six stamens are inserted. The ovary is somewhat triangular, and terminated by three recurved spreading stigmas; it ripens into a cylindrical capsule, its three compartments separating one from the other at the top, so as to liberate the numerous seeds, which are of a compressed four-cornered shape, arranged in two lines along the inner edge of each compartment. They are all natives of South Africa. [M. T. M.]

BÆOMYCES. A small genus of Lichens, distinguished amongst *Lecidinei* by their subglobose terminal fruit, which is supported by a short unbranched stem. The disc is generally bright-coloured, as rose, chestnut, &c. *B. roseus* and *B. ericetorum*, which abound in heaths, are often taken at first-sight for fungi. [M. J. B.]

BAERIA. A genus of Composites, allied to *Callichroa*, of which but a single species is known, the *B. chrysotoma*, from California. It is a pretty dwarf annual, of

slender erect habit, with downy stems about a foot high; linear opposite entire leaves and solitary terminal bright yellow flowers, an inch across. Botanically, the genus is distinguished by an involucre of about ten leaflets, arranged in two series, a conical naked receptacle, and an elongated fruit without pappus. It differs from *Callicroa*, not only in its general habit, but also by its smaller flower-heads, and the oblong-pointed form of the ray florets, the florets of the latter being wedge-shaped. [W. T.]

BAGASSA. An imperfectly-known genus of *Artocarpaceae*, comprising one or more species of trees, with opposite leaves, deciduous stipules, and orange-shaped fruit, consisting of egg-shaped, pointed achenes, clustered around a thick central receptacle. This fruit is eaten in Guiana, where the tree is a native. [M. T. M.]

BAGUENAUDIER. (Fr.) *Colutea arborescens*. — **DETHIOPIE.** *Sutherlandia frutescens*.

BAJREE. *Penicillaria spicata*, a bread-corn cultivated in India.

BALANITES. The name given to a thorny shrub or small tree, with a very forbidding aspect, growing almost always in dry barren places. Its leaves grow in pairs (binate), the leaflets oval, or oblong, stalked, and pubescent when young. The flowers are small, greenish, white and fragrant, arranged in short axillary racemes. The fruit is oval, about one and a half inch long, and when ripe of a greyish colour. The plant is a native of many parts of India, Egypt, Senegambia, and the W. coast of Africa. The leaves in the Egyptian variety are slightly acrid and anthelmintic, and the bark is used by the Ryots in India as a medicine for their cattle. The young fruits are purgative, but when ripe are edible, and formed into an intoxicating drink by the negroes on the W. coast of Africa. In India the nut, which is very hard, is employed in fireworks. A small hole being drilled in it, and the kernel taken out, it is filled with powder and fired, bursting with a loud report. An oil, called by the negroes *Zachun*, is obtained from the seeds, and the wood, which is yellow, hard, and durable, is used in Africa for household work. The place of the plant in a natural arrangement has been considered as somewhat doubtful, but recent authorities place it in the *Simarubaceae*. [A. A. B.]

BALANOPHORACEÆ. (*Cynomorphae*.) A small natural order, consisting of about thirty species, of singular-looking succulent leafless plants, usually highly coloured, of various shades of yellow or red; all parasites on roots, and rising from an inch or two to about a foot above ground. Their colour and consistence, the absence of all leaves, excepting in some species, imbricated scales of the colour of the rest of the plant, and the greatly reduced structure of induced some botanists to

consider them as cryptogams allied to fungi; but their structure is now much better understood, and has been fully described, especially by Dr. J. D. Hooker. He has shown them to be most nearly connected with *Haloragaceae*, and to have no real affinity with *Rafflesiaceae*, *Orobanchaceae*, or any other root parasites, which assume sometimes a similar colour and consistence. The flowers are, in nearly all the species, unisexual, of very simple structure, and produced, in considerable numbers, in compact terminal heads or cones; the small perianth, usually simple and inferior in the females, more or less three-cleft or six-cleft in the males, is in some species wholly wanting; the stamens, usually few, are very variable in number and form; the ovary has one or two styles, and always a single cavity with one pendulous ovule.

The *Balanophoraceae* are natives of hot climates, in various parts of both the New and the Old World, one species only, the *Cynomorium coccineum* or *Fungus meliense* of old authors, being found as far north as the southern shores of the Mediterranean. They have been distributed into fourteen genera. The most remarkable for the size or beauty of the species, or for the use made of them, are *Sarcophyte*, *Lophophytum*, *Ombrophytum*, *Langsdorfia*, and *Cynomorium*.

BALANOPHORA. Singular leafless parasitical plants, giving their name to the order *Balanophoraceae*. These plants are found on the roots of oaks, maples, vines, and other trees in tropical countries, especially in mountainous districts. One species is found in Australia. Some of the Himalayan species cause the formation of large knots on the roots of oaks and maples, which are much sought after by the natives for the manufacture of wooden cups, in general use in the Himalaya and Tibet. Some of the species, as *B. elongata*, furnish wax in great abundance, which is used for making candles in Java. [M. T. M.]

BALANSEÆ. A genus of *Umbelliferae* or *Apiaceae*, consisting of one species, inhabiting North Africa. It has a tuberous root, large broadly cut leaves, and hermaphrodite flowers. Each half of the fruit is compressed laterally, elongated into a conical 'stylod', terminated by an erect style, and marked by five prominent thread-like ridges, in the intervals between which, in the rim, run solitary channels, or 'vitæ', filled with volatile oil, while in the commissure are two such channels; albumen furrowed. [M. T. M.]

BALANTIUM. A name proposed for a genus of Ferns, now considered synonymous with *Dicksonia*. It is represented by the *Dicksonia Culeita* of Madeira. [T. M.]

BALATA. A kind of caoutchouc yielded by *Eupota Mulleri*.

BALAUSTA. The pomegranate fruit.

BALAUSTION. A Greek word for the pomegranate, but applied by Sir W. Hooker to another genus of *Nyctagaceae*. *B*

pulcherrimum, the only known species, is described as being one of the most lovely of plants. It is a shrub, with a thick twisted stem, numerous slender branches crowded together in places, and short linear leaves, dotted with resinous fragrant cysts. The flowers are abundant, placed towards the end of the branches, in shape and colour like those of the dwarf pomegranate, but drooping on short stalks, with two small coloured bracts beneath the calyx, which has a cup-shaped tube, adherent by the base only to the ovary; the remainder is detached, and the limb divided into five ovate membranous spreading segments; the petals are five, oval, slightly larger than the calyx, and of a deep scarlet or crimson colour. The stamens are very numerous inserted in one row at the throat of the calyx; anthers inserted on the awl-shaped filaments by their backs, the lobes parallel, splitting by a long cleft. Ovary small, top-shaped, with three compartments, each containing about six ovules, placed one over the other in a double line; style thread-shaped; stigma rather dilated. A native of South-western Australia. [M. T. M.]

BALD-MONEY, or BAWD-MONEY. *Meum athamanticum*.

BALFOURIA. A genus of the natural family *Apocynaceae*, consisting of shrubs with opposite narrow sickle-shaped leaves. The flowers are arranged in cymes at the end of the branches, or from their side, and have a five-parted calyx, a funnel-shaped corolla, with its limb divided into five straight equilateral lobes, having also at its throat a small coronet or tube with a wavy margin. The five stamens are inserted on the throat of the corolla, from which they protrude. The anthers are arrow-shaped, provided with a sharp point or murro, and adherent to the angular stigma; style thread-shaped; ovaries with two compartments. They are natives of tropical Australia, and have not yet been introduced into cultivation. [M. T. M.]

BALISIER. (Fr.) *Canna indica*.

BALLOTA. A family of herbaceous plants belonging to the Labiate order, among which they are distinguished by the strongly ten-ribbed salver-shaped calyx. They are natives of the temperate regions of the Eastern hemisphere, and are remarkable for nothing but their strong offensive odour, on account of which they are for the most part rejected by cattle; hence the name from the Greek *ballo*, to reject. *B. nigra*, Black Stinking Horsehound, a common wayside perennial, has stout-branched stems, egg-shaped wrinkled leaves, and whorls of numerous dull purple flowers. The whole plant is as offensive in odour as it is unattractive in appearance, and suffers little from being generally covered with dust. It is mostly found growing near towns and villages, and has accompanied our colonists to many remote countries. In Gotland, according to Don, it is a universal remedy

in disorders incident to cattle. French *Ballote*: German, *Zahnlose*. [C. A. J.]

BALLOTE. (Fr.) *Ballota nigra*.

BALM. *Melissa officinalis*. —, BASTARD. The common name for *Melittis*. —, FIELD. *Calamintha Nepeta*. —, HORSE. An American name for *Collinsia*. —, MOLDAVIAN. *Dracocephalum moldavicum*. —, MOLUCCA. The common name for *Moluccella*. — of GILEAD. A resinous product of *Balsamodendron gileadense*, and *B. Opobalsamum*, called sometimes Balm of Mecca; also, a garden name for *Dracocephalum canariense*; also, an American name for *Populus canadensis*. — of GILEAD (AMERICAN). A resin obtained from *Teica carana*. — of MECCA. The same as Balm of Gilead, a resinous product of *Balsamodendron*.

BALOGHIA. The name given to a tree of the Spurgewort family (*Euphorbiaceae*), which attains the height of twenty to thirty feet, and has opposite entire oblong leaves, which are stalked, and have at their base two membranaceous stipules which fall early. The flowers are numerous, and are disposed in terminal cymes, the males having a calyx of five divisions, five petals longer than the calyx, and a large number of stamens, their stalks united at the base, while the calyx and corolla of the female flowers are as in the male, and their ovary is three-celled, each cell containing one ovule. *B. lucida* is the only species known, and it is found in Norfolk Island, where it is called Blood Wood, as also in the colony of Queensland, in N. Holland. The wood is close-grained, impregnated with a resinous substance, and burns readily in a green state. A blood-red sap oozes from the trunk when cut, and is obtained in the following manner in Norfolk Island: 'A knife, similar to a farrier's, is used, but stronger, fixed upon a handle four to five feet long, which enables the workman to reach high up the trunk of the tree. A perpendicular incision is made through the bark, an inch wide at the surface, but tapering to a point near the wood, and from eight to ten feet long, forming the main channel through which the sap flows to the base of the tree, where a vessel is placed for its reception; branch channels are cut on each side of the main one, leading obliquely into it, six or eight inches apart, and extending nearly two-thirds round the trunk. The sap generally flows from these channels for about twelve hours, when it is collected. The quantity produced by each tree varies: sometimes about a pint, but on an average about a gill.' The sap forms an indelible paint, and was formerly used in the island for marking bags, blankets, and other articles. [A. A. B.]

BALSAM. A name given to various gum-resinous or oleo-resinous vegetable substances. —, BAYEE. A product of *Balsamodendron pubescens*. —, CANADIAN. A product of *Abies balsamea*. —, CARPATHIAN. A product of *Pinus Cembra*. —, COPALM. A product of *Liquidambar styraciflua*. —, GARDEN. *Impatiens Bal-*

samina, sometimes called *Balsamina hortensis*. —, HUNGARIAN. An oleo-resinous product of *Pinus Pumilio*. — of ACOUCHI. A product of *Icica Aracouchini*. — of CACAIVA. An acrid product of various species of *Cupasfera*. — of MARIA. A product of *Verneillaria acuminata*. — of PERU. A product of *Myrospermum peruvianum*. — QUINQUINO. A product of *Myrospermum pubescens*, sold as White Balsam. — of TOLU. A product of *Myrospermum toluiferum*. — of UMIRI. A product of *Humirum floribundum*. —, TAMACOARI. A product of a Brazilian species of *Caraipa*. —, WHITE. The Balsam of Quinquino.

BALSAM BOG. *Bolax glebaria*.

BALSAM HERB. A garden name for *Justicia comata*.

BALSAM SEED. A garden name for *Myrospermum*.

BALSAM TREE. A common name for *Cissia*, and *Balsamodendron*.

BALSAM WOOD. An American name for *Gnaphalium polycephalum*, a plant used in the manufacture of paper.

BALSAM WOOD. A garden name for *Myroxylon*.

BALSAMINACEÆ. (*Hydroceræ*). The large genus *Impatiens*, and a single species separated from it under the name of *Hydrocera*, included by Jussieu in the *Geranium* family, have been raised to the rank of a distinct order, on account of the remarkable irregularities in the flowers, which have been variously explained by different botanists. The sepals and petals, all coloured, consist usually of six pieces, two outer ones, small, flat and oblique, the next large, hood-shaped, ending below in a conical spur; the fourth opposite to it, small, but yet very broad and concave, the two innermost very oblique, and more or less divided into two unequal lobes. It has been a matter of much dispute which of them should be considered as sepals and which as petals. It has now, however, been proved by the examination of some Asiatic species, where there are two additional small sepals, and especially of the *Hydrocera*, where the flowers are less irregular, that the two outer pieces, and the large spurred one, with the two occasional additional ones, are the sepals, that the two innermost lobed pieces consist each of two united petals, and that the broad concave one is the fifth petal, thus bringing the structure more in conformity with that of true *Geraniaceæ*, with which Balsams agree also in their ovary, and in the fruit which, in bursting open, leaves the attachment of the seeds adhering to the persistent axis. The *Balsaminaceæ* may therefore be again considered as a tribe only of *Geraniaceæ*.

BALSAMINA. A name sometimes given to the garden Balsam, and some few species resembling it in habit, but which are, how-

ever, more usually and correctly referred to *Impatiens*. [T. M.]

BALSAMINE. (Fr.) *Impatiens Balsamina*.

BALSAMITA. A genus belonging to the natural order *Compositæ*, belonging to that group in which the florets are all hermaphrodite, and distinguished by having a naked receptacle, no pappus, and an imbricated involucre, &c. One species of this genus, grown for culinary purposes, the common Costmary or Alecost (*Balsamita vulgaris*), is a native of Italy, from whence it was introduced in 1568. It is a creeping-rooted hardy perennial, from two to three feet high, remarkable for the strong balsamic odour of its leaves, which are roundish, oblong, and toothed, and were formerly put into ale and negus; hence its old English name of Alecost; whilst that of Costmary is from the old Latin name *costus amarus*, or the French *coste amère*. Although common in every cottage garden, it is almost entirely discarded from the plants that are grown for culinary purposes; and even in France it is only used occasionally to mix in salads. The plant is the *Pyrethrum Tunacum* of Linnaeus. [W. B. B.]

BALSAMOCARPON belongs to the Pea family (*Legum. rosæ*), and is a native of the province of Coquimbo, in Chili, where it is common in dry hilly places. There is but one species, *B. brevifolium*, the Algarrobo of the Chilians. It is a shrub with undivided elongated branches, having many tubercles; from these the leaves proceed, and are accompanied with two or three short spines. The leaves are simply pinnate, and are not more than half an inch long, the leaflets six in number and very small. The flowers are large, yellow, and arranged in few-flowered clusters at the ends of the branches, their calyces covered with long glandular hairs. The pods are thick, short and sessile, and are remarkable for being almost entirely transformed into a cracked resinous substance, which is astringent, and used commercially for dyeing black and making ink. [A. A. B.]

BALSAMODENDRON. A word, as the name implies, applied to certain balsam-bearing trees, of the natural order *Amyridaceæ*. Their foliage is generally scanty, pinnated, and the branches frequently spiny. The flowers are small, green, axillary, often unisexual, with a four-toothed persistent calyx, four narrow petals bent inwards, and eight stamens, inserted with the petals beneath a circular cup-shaped disc, from which arise eight small lobes, which alternate with the stamens. The fruits are small, oval and drupe-like, with four sutures. The nut is thick and hard, two-celled or sometimes one-celled by abortion; each cell contains one seed.

B. Myrrha, a plant growing wild in Arabia Felix, is supposed to yield some of the gum resin known as Myrrh. *B. glaucodes* and *B. Opobalsamum* are stated to

produce Balm of Gilead, or Balm of Mecca, sometimes called Opobalsamum, a gum resin obtained by incision into the bark, and considered by the ancients as a panacea for almost all the ills that flesh is heir to. *B. Kataf*, one of the plants supposed to yield Myrrh, has a red resinous wood, which is a common article of sale in Egypt. *B. africanum*, a species found in Abyssinia and Western Africa, yields a resin known as African Bdellium, and the Indian drug of the same name is the produce of another species of this genus, *B. Roxburghii*, or of the closely allied one *Amryia*. Bdellium is like myrrh in its properties, but is not considered so good; it is moister than myrrh, not brittle, and has not so agreeable an odour. It is rarely used in this country.

B. Mukul yields a resin known in Scinde under the name of Googul, and in Persia as Mukul. The late Dr. Stocks has shown that this is identical with the Bdellium of Dioscorides and of the Scriptures. The tree producing it is abundant in Scinde, in rocky ground, and the resin is collected by making incisions into the tree and letting the resin fall on the ground, hence it is mixed with much dirt and many impurities. The resin has cordial and stimulant properties. It is given as a medicine to horses in Cabul; it is also used as a plaster for boils. It is burnt as incense, and is mixed by builders with the mortar used in the construction of houses, when durability is an object. A similar resin with the same native name is obtained in other parts of India, from other species of the genus.



Balsamodendron Mukul.

B. pubescens, according to Dr. Stocks, furnishes Bayee Balsam, which is brittle, but tasteless and inodorous. The bark of this tree peels off in thin layers like that of the Birch. As is so frequently the case, there is considerable doubt as to the plants producing these several gum-resins, though it is agreed on all hands that the plants, whatever their species may be, belong to this genus; nay, it is not unlikely that more than one species may furnish the same kind of resin. *B. sesianicum* is cultivated in this country as an ornamental stove plant. [M. T. M.]

BALSAMORRHEZA. A genus of the Composite family (Compositæ). Seven species are enumerated, all of them dwarf

perennial herbs, with fleshy radical leaves, which are heart-shaped with long stalks, or pinnatifid. Their stems are simple, usually bearing a solitary flower-head, which is about two inches in diameter, having the appearance of a small sunflower. All the florets are yellow in colour, and the greater part of the species are covered with a whitish pubescence. They are found on the west side of the Rocky Mountains, in Oregon and California. The thick roots of *B. Hookeri*, which is found on gravelly banks of the Columbia river, yield a copious pellucid resin, which has a powerful turpentine-like odour, while those of *B. incana* and *helianthemoides* are eaten by the Indians in Oregon. They are cooked on hot stones, and have a sweet and rather agreeable taste. The name is given from the occurrence of a balsamic resin in the roots of some of the species. [A. A. B.]

BAMBOO. The common name of *Bambusa*. Bamboo-canes are the stems of different kinds of *Bambusa*. —, SACRED, of the Chinese: *Nandina domestica*.

BAMBUS. A genus of Grasses, typical of the tribe *Bambusaceæ*. This tribe is remarkable among those belonging to the great family of Grasses, in consequence of the gigantic size some of its species attain. The flowers are hexandrous, more rarely triandrous, and are produced in panicle spikelets. Occasionally some are neuter, and others male only. Steudel describes thirty-three species, which are all natives of warm countries, and have an extensive range over the surface of the globe. It is *B. arundinacea*, which is generally considered to be the species the largest and best canes are produced from, but frequent errors regarding it no doubt occur, and the canes of other species are mistaken for it. *B. vulgaris*, with *culmi inermes*, appears to be the species which is generally cultivated in British gardens, whereas the *B. arundinacea* is described with *culmus spinosus*. In the East and West Indies the canes frequently grow from fifty to sixty feet high; and even in this country they have been known to grow forty feet in one season, in some of the large Palm-houses. The finest known species is, perhaps, *B. latifolia*, a native of the Orinoko, which produces much thicker and larger canes in every way than those of *B. vulgaris* or *B. arundinacea*. A fine plant of the large sort is growing in the Botanic Garden at Berlin.

The variety of purposes to which the Bamboo is applied is almost endless. The Chinese use it, in one way or other, for nearly every thing they require. The sails of their ships, as well as their mats and rigging, consist chiefly of Bamboo, manufactured in different ways. Almost every article of furniture in their houses, including mats, screens, chairs, tables, bedsteads, and bedding, are made of the same material. (See *Library of Entertaining Knowledge*.) A similar extensive use of the hollow reed is made in Japan, and also in



VEGETATION OF RAMBOOS IN JAVA (After Blume)

Java, Sumatra, and other eastern countries. Although the Bamboo grows spontaneously and most profusely in nearly all the immense districts included in the southern portion of the Chinese empire, the people do not rely on the beneficence of nature, but cultivate the gigantic reed with much care. They have treatises and whole volumes solely on this subject, laying down rules derived from experience, and showing the proper soils, the best kinds of water, and the seasons for planting and transplanting the useful production. (*Ibid*) A view of the Bamboo vegetation of Java is given in Plate 4. See Gen. Munro's valuable *Monograph of Bambusa*, in *Trans. Linn. Soc.* (xxv. 1). [D.M.]

BANANA. *Musa sapientum*.

BANANIER. (Fr.) *Musa*.

BANNETTE. (Fr.) *Dolichos melanophthalmus*.

BANARA (including *Asca*, *Bosca*, *Kuhlia*, and *Pineda*). A genus of *Samydaceae*, confined to the tropical parts of America, and consisting of about fifteen species, all of which are either small trees or shrubs, with ovate leaves, and paniculate, racemose or fasciculate flowers. The calyx is four to five cleft; the petals from four to five in number; the stamens disposed in several rows, inserted in a perigynous disk, and indefinite. Uses unknown. [B.S.]

BANDAKAL. The fruits of *Abelmoschus esculentus*.

BANDED. Marked with cross-bars of colour.

BAND-SHAPED. Narrow and very long.

BANDALA. The strong outer fibre of *Musa textilis*, from which Manila white rope is made.

BANDOLIER FRUIT. The berries of *Sanonina indica*.

BANEBERRY. *Actaea spicata*.

BANG. A narcotic preparation from the leaves of the Hemp, *Cannabis sativa*.

BANGIA. A genus of *Algae*, which deserves notice as connecting the filamentous with the membranous series, the perfect plant of *B. atropurpurea*, closely resembling very young examples of the common *Porphyra*, which produces the laver of our oil shops. Like *Porphyra* its place is doubtful, as it has almost equal claims to be ranked amongst the green and rose-aped genera. Both, however, are usually placed amongst *Chlorosperma*. *B. atropurpurea* is a common species on old jetty piles, &c., and is a pretty microscopic object. We do not consider such species as *B. setulina* belonging to the same section. See ULVA and PRASIOLEA. [M. J. B.]

BANISTERIA. A name applied to a genus of the natural family *Malpighiaceae*, consisting of trees or shrubs, frequently climbing, with simple stalked leaves, often provided with glands on the stalks. The

have a five-parted with glands at its base external petals are furnished with long stalked claws; there are ten stamens, frequently somewhat coherent at the base; the styles, often leaf-like at their extremities; and three carpels, each containing one seed, and terminating in a simple membranous wing. The seed-leaves or cotyledons are thick and unequal. The plants are natives of Brazil and the West Indies; several are in cultivation for the sake of their pretty yellow flowers, and, in some instances, fine foliage. [M. T. M.]

BANKSIA. A genus of *Proteaceae*, established by the younger Linnæus, and named in honour of Sir Joseph Banks. It is distinguished by having four-parted apetalous flowers, the anthers of which, four in number, are subsessile and attached one to the concave apex of each sepal; the style is filiform or subulate, with a clavate or cylindrical stigma. The seed-vessel, which is termed a follicle, is large and woody, and contains large winged seeds which are generally black. The genus is peculiar to Australia and Tasmania. In the former colony it is very generally distributed throughout the extratropical portion, while only two intertropical species have been discovered, viz.:—*B. compar* at Keppel Bay, on the east coast, and *B. dentata* at Arnheim's Land, on the north coast, and at Endeavour River, on the north-east coast. There are upwards of fifty species known, of which only a few become trees. Mr. C. Frazer mentions having seen a specimen of *B. grandis* which he considered to be fifty feet in height, and with a stem two and a half feet in diameter. The other arborescent species are *B. littoralis*, *B. cylindrostachya*, *B. australis*, *B. prionotes*, *B. Menziesii* and *B. ilicifolia*. The remainder are more generally shrubs of from fifteen to twenty feet in height, though in some instances, as *B. nutans*, *B. pulchella* and *B. sphaerocarpa*, of much humbler growth. The foliage is remarkable for its harsh rigid coriaceous character, and the leaves are generally dark green on the upper surface, and clothed with a white or rufous down beneath, their margins being either deeply serrated or only spinous, rarely entire. Their form is singularly variable, thus in *B. Meisneri* they are small, reflexed and sharp pointed; in *B. spinulosa* and *B. ericifolia* they are linear, three to four inches in length, and about an eighth of an inch in breadth. *B. latifolia* is distinguished by having lanceolate leaves, nearly a foot long and three inches broad, covered with a rich rufous down on the underside. *B. Solandri* has broad ovate leaves, deeply sinuated. *B. speciosa* and *B. Victorii* have long linear leaves (fourteen inches) covered with whitish down beneath. *B. dryandroides* and *B. Brownii* have very elegant foliage, the latter bearing very much the appearance of a species of *Mimosa*. *B. coccinea* is remarkable for its large head of deep red flowers. One species, *B. integrifolia*, is named the Honeysuckle by the

australian colonists, in consequence of the great quantity of honey which the flowers contain. These plants, from their handsome and peculiar foliage, have always been great favourites in gardens. The appearance of the *Bankasia* in their native habitats is shown in a view of the vegetation of New South Wales, taken near Port Jackson, which forms the subject of Plate 5. [It. H.]

BANQUOIS. A name given in the Mauritius to a species of Screw-pine, *Pandanus vacua*, the leaves of which are used for making sacks.

BANYAN-TREE. *Ficus indica*.

BAOBAB-TREE. *Adansonia digitata*.

BAPHIA. A genus of Leguminous plants (*Fabaceae: Papilionaceae*), ten species of which are described, all of them Tropical African; one species, *B. racemosa*, extending to Natal. They are either trees or shrubs, and have unifoliate leaves. Their flowers are produced in clusters, upon short stalks at the bases of the leaves, each flower having two small bracts underneath its calyx; they have a sheathing calyx which splits along the underside, and is either entire or five-toothed; their corolla is papilionaceous; and they have ten free stamens, all fertile. The fruit is a narrow flattened pod, of a leathery texture, and having its edges slightly thickened; it contains numerous seeds, and splits open when ripe.

B. nitida, which produces the Camwood or Barwood of commerce, is an erect shrub, eight or ten feet in height. It has ovate or oblong shining green leaves, four to six inches long, composed of two pairs of leaflets, with an odd one, and its yellow flowers bear some resemblance to those of the common laburnum of our gardens. About 300 or 400 tons of the wood of this tree are annually imported from Sierra Leone, being collected from various parts of the coast between that place and Angola. In 1838 the imports were 464 tons, valued at 13,333. It usually comes in trimmed logs, about four feet in length and a foot in diameter, but sometimes, though rarely, in the form of balls or cakes, made of the roughly powdered wood. It is of a deep red colour, and yields a brilliant but not permanent dye; with a mordant of sulphate of iron it produces the red colour of the English Bandana handkerchiefs, and dyers generally employ it for much the same purposes as the better known Brazil-wood. The native women on the West coast of Africa use the pounded wood for painting their bodies; amulets are also made of it, and it is used in their Fetish ceremonies. [A. S.]

BAPTISIA. American herbaceous plants belonging to the order *Leguminosae*, among which they are distinguished by their two-tipped calyx, by their petals, which are equal in length, their deciduous stamens, and swollen pod, which is supported by a stalk, and many-seeded. All the species are her-

baceous, and, with one exception, *B. p. foliata* (in which the leaves are simple and entire), have trifoliate leaves. They grow from one to two feet high, and bear blue or yellow flowers, either solitary or in clusters. They are ornamental border flowers, and being perennial may be increased by division of the roots. One species, *B. tinctoria*, a native of dry hilly woods from Canada to Carolina, has been used as indigo by dyers, and from this the name (from the Greek *bapto*, to dye) was given to the genus. The root and leaves are said to possess astringent and antiseptic properties. The species most frequently cultivated are *B. australis* (French, *Baptiste de la Caroline* or *Podalyre*), a pretty border plant, with large blue flowers, tinged on the keel with greenish white, and arranged in a long cluster; and *B. minor*, a smaller plant with blue or white flowers. [C. A. J.]

BARANETZ, or BAROMETZ. *Cibotium Barometz*, called the Scythian Lamb. *Barun* is Russian for Lamb.

BARBA JOVIS. *Anthyllis Barba Jovis*.

BARBACENIA. A genus of monocotyledonous plants, related to *Vellonia*, and referred with some doubt to the order *Hamodraceae*. It consists of perennial herbs, with simple or dichotomously-branched stems, which sometimes attain two or three feet, or sometimes more, in height, and are furnished at the ends with spirally disposed firm spreading narrow acutely-keeled leaves, from amongst which issue one-flowered scapes, which are usually clothed with glandular and resiniferous hairs, especially towards the top. The flowers are large and generally showy, and consist of a funnel-shaped perianth, resinously-hairy on the outside, the base of the tube confluent with the ovary, and the limb spreading, of six equal segments; there are six included stamens, having plano-compressed filaments, which are three-toothed at the apex, the middle tooth being the smaller and bearing the anther. The ovary is three-celled, containing numerous ovules affixed in the central angles of the cells, and becomes a cylindraceo-three-cornered capsule. The style is triquetrous, three-parted, and the stigma is capitate, three-cornered. There are upwards of a dozen species, all South American, and nearly all found in Brazil, where they occur in hot dry mountain regions, lying between 14° and 20° S. lat. *B. Alexandrinae*, found in the southern parts of British Guiana by Sir R. Schomburgk, is stated to grow from ten to twelve feet high. *B. purpurea*, one of the most familiar species, is frequently met with in hothouses, and affords a very good illustration of the family. This has a short dichotomous striated stem, bearing numerous linear acuminate rigid leaves, sheathing at the base, and minutely spiny-toothed at the margin. The flower-stalks are longer than the leaves, one-flowered; the flowers erect, rich violaceous purple, with lanceolate segments, the three inner of which are broader and more erect than the

outer three, which are narrower and spreading. It is a plant of ornamental character. *B. squamata* is similar in habit, but is dwarfer, with a more scaly stem, and smaller reddish flowers. Between these species some very showy hybrids have been raised in gardens. [T. M.]

BARBADOS PRIDE. *Poinciana pulcherrima*.

BARBAREA. Winter-cress. A herb held in some repute in the days when the field or brook furnished the only salads, but banished from the table by vegetables of better flavour. The common species, *B. vulgaris*, is a weed frequent in gardens and waste grounds, where the soil is damp. In winter and early spring it is a tuft of pinnate glossy leaves, of a dark green hue, sending up in May an erect leafy stalk, having numerous yellow flowers, which are succeeded by largish four-angled pods. *B. praecox*, Early Winter-cress, is a smaller plant of similar habit; it is well-distinguished by the slender divisions of its upper leaves, and its very narrow pods. This, which is sometimes called Land-cress, to distinguish it from Water-cress, to which its leaves bear some resemblance, though common enough in the West of England, is considered a relish of cultivation. A variety of the common species is sometimes cultivated for the sake of its double flowers, under the name of Yellow Rocket Herb (French, *Julienne jaune*). The French name of the wild plant is *Barbarrée* or *Herbe de St. Barbe*: German, *Winterkresse*. [C. A. J.]

BARBATE. Having long weak hairs in one or more tufts.

BARBE-DE-BOUC. (Fr.) *Spiraea Aruncus*. — **DE CAPUCIN.** *Nigella damascena*. — **DE-CHEVRE.** *Eryngium campentre*, also *Spiraea Aruncus*. — **DE JUPITER.** *Anthyllus Barba Jovis*, also *Centranthus ruber*.

BARBEAU. (Fr.) *Centaurea Cyanus*. — **JAUNE.** *Centaurea Amberboi*. — **MUSQUE.** *Cent ureau moschata*. — **VIVACE.** *Centaurea montana*.

BARBELLÆ. The hairs of the pappus of Composites, when they are short, stiff, and straight.

BARBELLULÆ. Small conical spine-like processes of the pappus of Composites, as in *Aster*.

BARBERRY. The Berberry, *Barberis vulgaris*.

BARBON. (Fr.) *Andropogon*.

BARBS. Hooked hairs.

BARBULA. The inner row of fringes or teeth in the peristome of such Mosses as *Forcula*. Also the name of a genus.

BARBYLUS. A genus now united with *Fraxillita*, a member of the natural family *Melissaceae*. Its describer speaks of the single species, *B. Jamaicensis*, as a tree in-

habiting Jamaica, with a rough bark, alternate pinnate leaves, and the flowers in racemes. The calyx is bell-shaped, four to five-cleft; the corolla, with four or five petals, arising from the margin of the calyx; stamens eight to ten, arising from the bottom of the calyx; ovary free; style and stigma simple; capsule with three two-seeded compartments. [M. T. M.]

BARCLAYA. A singular genus of *Nymphaeaceae*, not much resembling ordinary water-lilies in appearance, though botanically allied to them. It consists of aquatic plants with tuber-like root-stocks, whence the leaves and flowers spring. The calyx is composed of five distinct sepals; the corolla is tubular at the base, and united below to a disc surrounding the ovary, the limb being divided into five red-coloured petals; stamens numerous, in several rows, inserted in the tube of the corolla, the upper ones sterile; the anthers are without appendages. Fruit adhering to the fleshy disc, composed of several carpels, with radiating stigmata. Each compartment of the fruit contains several seeds, which are albuminous internally, and externally covered with thick bristles. These curious plants are natives of the East Indies, and are especially remarkable for the calyx consisting of distinct sepals detached from the ovary, while the petals are united together below, and are attached to a disc in which the ovary is immersed, so as to give an appearance as though it were inferior, which, however, is not the case. [M. T. M.]

BARDANA. The Burdock, *Arcium Lappa*, or *Lappa major*.

BARDANE. (Fr.) *Arcium Lappa*, or *Lappa major*.

BARDANETTE or **B. FAUSSE.** (Fr.) *Echinopspermum Lappula*.

BARK. All the outer integuments of a plant beyond the wood, and formed of tissue parallel with it. The only true bark is that of *Exogens*. In *Endogens*, False Bark, also called Cortical Integument, stands in place of bark, from which it is known by the fibrous tissue of the wood passing into it obliquely.

BARK. The official name given to the cortical layers of various plants, used chiefly for medicinal and tanning purposes. The name is, *par excellence*, applied to the Peruvian or Cinchona barks, the source of quinine. Of these there are many varieties, namely:—*Calisaya*, Royal Yellow, *Cinchona Calisaya*; Light *Calisaya*, *C. boliviana*, *scrobiculata*; Peruvian *Calisaya*, *C. scrobiculata* *β. Delondriana*; Carabaya, Ash, Jaen, *C. ovata*; Dark Jaen, *C. villosa*; Hard Carthagena, *C. cordifolia*; Woody Carthagena, *C. Condaminæ*; Spongy Carthagena, Coquette, Bogota, *C. lanceolata* = *Condaminæ* *β.*; Crown, *C. Calisaya*; Select Crown, *C. chahuanguera*; Ashy Crown, *C. macrocalyx*, *rotundifolia*; Fine Crown, *C. crispata*; Loza Crown, *C. Condaminæ*; Wiry Crown, *C. hirsuta*; Cinnamon, *C. coccinea*;

Cusco, Arica, *C. pubescens*; Red Cusco, St. Ann's, *C. scrobiculata*; Huanuco, Grey, *C. micrantha*, *glandulifera*, *nitida*; Original Loja, *C. urubitinga*; Negrilla, *C. heterophylla*; Red, *C. conglomerata*; Genuine Red, *C. succubra*; Spurious Red, *C. magnifolia*. The principal sorts are sometimes classed thus:—GREY BARKS: Crown or Loza, *C. Condaminea*, *scrobiculata*, *macrocalyx*; Lima, Huanuco, Silver, *C. micrantha*, *lanceolata*, *glandulifera*, and probably *purpurea*. RED BARKS: *C. nitida*. YELLOW BARKS: *C. Calisaya*, *micrantha*, *Condaminea*, *lanceifolia*. RUSTY BARKS: *C. hirsuta*, *micrantha*, *ovalifolia*, and probably *purpurea*. WHITE BARKS: *C. ovata*, *pubescens*, *cordifolia*. For a complete account of the medicinal cinchona barks, see Mr. Howard's splendid volume, entitled *The Nueva Quinologia of Pavon*.

The following Barks are also employed officially or economically:—ALCORNOCO or ALCORNOQUE. The astringent bark of several species of *Byrsomima*; or, according to some authorities, of *Bowdichia virgiloides*.—ANGOSTURA. The febrifugal bark of *Galipea cusparia* or *G. officinalis*.—BABUL. The astringent bark of *Acacia arabica*.—BASTARD CABBAGE. The bark of *Andira inermis*: same as Worm Bark. —BASTARD JESUITS. The bark of *Iva frutescens*.—BONACE. The bark of *Daphne tinifolia*.—CANELLA. The stimulant aromatic bark of *Cunella alba*.—CARIBBEAN. The astringent bark of *Ezootemma caribbeum*.—CASCARILLA or SWEET WOOD. The aromatic bark of *Croton Cascarilla* and *C. pseudo-china*.—CHINA. The febrifugal bark of *Buena hexandra*.—CONESSI. The astringent bark of *Wrightia antidysenterica*.—CULILAWAN. The aromatic stimulant bark of *Cinnamomum Culilawan*.—ELEUTHERA. The aromatic bark of *Croton Cascarilla*.—FALSE ANGOSTURA. The bark of *Strychnos nuxvomica*.—FRENCH GUIANA. The febrifugal bark of *Portlandia hexandra*.—JESUITS. The same as Peruvian Bark. —JURIBALI. An astringent bark of Demerara, supposed to be the produce of some Cedrelaceous plant. —MELAMBO. The aromatic febrifugal bark of some species of *Galipea*, or one of its allies. —MEZEZEUM. The acrid irritant bark of *Daphne Mezereum*.—MONESIA. The bark of some S. American *Sapotaceae*.—MURUXI. The astringent bark of *Byrsomima spicata*, used by the Brazilian tanners. —NIEPA. The febrifugal bark of *Samadera indica*.—PANOCOCCO. The sudorific bark of *Swartzia tomentosa*.—QUERCITRON. The yellow dye bark of *Quercus tinctoria*.—QUILLAI. The bark of *Quillata saponaria*, used as a substitute for soap. —STRINGY, of Tasmania. *Eucalyptus gigantea*.—SWEET WOOD. The same as Cascarilla Bark. —NINE. An American name for *Spiraea opulifolia*.—WHITE WOOD. The same as Canela Bark. —WINTER'S. The tonic aromatic bark of *Drymis Winteri*.—WORM. The bark of *Andira inermis*, formerly used as an anthelmintic.

BARKERIA. A small genus of beautiful Orchids, from Mexico and Central America, differing in little from *Epidendrum* except in the column being bordered by a broad membranous wing. About half-a-dozen species are known, of which *B. spectabilis*, called in Guatemala Flor de Isabel, is the finest. It is one of the votive offerings of the Catholics in that country.

BARKLYA *syringifolia*, the only species of a genus belonging to the section of the Pea family bearing regular flowers, is a large tree, with alternate simple coriaceous leaves, which have long stalks, and are in form like those of the lilac (*Syringa*), but have seven radiating nerves. The flowers are golden yellow, very numerous, and disposed in axillary or terminal racemes. The pods are stalked, about half an inch long, thin, and containing few seeds. The tree has been lately introduced into English gardens. It is a native of Eastern Australia, and is found near the Brisbane river. The genus bears the name of Sir Henry Barkly, formerly governor of the colony of Victoria. [A. A. B.]

BARLERIA. A large genus of herbs or shrubs, natives of the tropical regions of both the Old and New Worlds, and belonging to that division of the *Acanthaceae* in which the corolla lobes are imbricate or twisted in the bud, and not contorted, and the seeds are inserted on hooked retinacula. The flowers of this genus are axillary, or in terminal spikes or heads, and have herbaceous or pungent bracts. The calyx has four sepals, the two outer being larger than the others; the corolla has a long tube, and five nearly equal spreading lobes. Of the four stamens the upper pair are sometimes abortive; the anthers are linear and parallel. The two-celled ovary has two ovules in each cell; the style is entire with a truncate stigma. The capsular fruit is acuminate. The allied genera all have a distinctly two-lipped corolla, and are thus easily distinguished. [W. C.]

BARLEY. The common name for *Hordeum*, a genus of corn-producing Grasses. Pearl Barley is the grain of the common Barley deprived of its hard integuments.

BARNADESIA. A genus of the Composite family, belonging to that section of the order which has two-lipped corollas. All the species are spiny bushes, furnished with entire generally elliptical or lanceolate pointed leaves, each having at its base two spiny stipules. The flower-heads are terminal and elongated. The florets and often the involucre are purple or pale pink in colour. The pappus is feathery, and the achenes are clothed with silky hairs. *B. rosea* has delicately flesh-coloured florets, which are covered with silky hairs, and is a favourite plant in the tropical houses of English gardens, being a very free bloomer. The species, nine in number, are natives of tropical S. America. The genus is named in honour of Michael Barnades, a Spanish botanist. [A. A. B.]

BARNARDIA. A genus of *Littaceæ*, containing rather small bulbous plants, resembling *Scilla*, natives of China and Japan. They have linear cuspidate radical leaves, and scapes bearing small pink flowers in racemes; filaments winged and ciliated at the base; ovary three-celled, each cell with one ovule erect from the base—which distinguishes it from its allies. *B. scilloides* is a pretty fringe plant. [J. T. S.]

BAROMETZ. *Cibotium Barometz*.

BAROSMA. This name has been applied to a genus of *Rutaceæ*, on account of the heavy powerful odour that the species possess. The genus is botanically characterised by an equally five-parted calyx; five oblong petals; ten stamens, of which five are sterile and petal-like, alternating with the five shorter fertile stamens; the style of the same length as the petals; and the ovary five-lobed. The species are small evergreen shrubs, with opposite or alternate simple dotted leathery leaves, in the axils of which the flowers are placed on stalks. They are all natives of the Cape of Good Hope, where the leaves, which have a rue-like smell, are used by the Hottentots to perfume themselves with!



Barosma crenulata.

They also use a tincture of the leaves as an application to wounds, and in urinary diseases. Several species are used by the Hottentots under one common name of Bucku. The Bucku leaves of commerce are produced chiefly from *B. crenulata*, *B. crenata*, and *B. serratifolia*. Bucku leaves are much used in medicine as a stimulant and tonic, and appear to have a specific effect in chronic diseases of the bladder, their action probably being dependent on the powerfully-smelling volatile oil which they contain. [M. T. M.]

BARRALINGUE. (Fr.) A kind of Olive.

BARRAS. The French name of the resinous exudation of *Pinus maritima*, the bark of Burgundy Pitch.

BARRENWORT. The common name for *Epidemium*.

BARRINGTONIACEÆ. (*Barringtoniads*.) A small family consisting of about five-and-twenty species, usually considered as forming a tribe of *Myrtaceæ*, with which they agree in the structure of their ovary and perianth, and in the very numerous perigenous stamens, turned inwards in the bud. They differ chiefly in the presence of albumen in the seed. Their leaves are also alternate, not dotted, and often serrated, but these characters occur also occasionally in true *Myrtaceæ*. They are all trees or shrubs, inhabiting the tropics in the New and the Old World, some of them bearing large flowers of considerable beauty. The principal genera are *Barringtonia* and *Careya* in the Old World, and *Gustavia* in the New.

BARRINGTONIA. This typical genus consists of trees, sometimes of large dimensions, with alternate opposite or whorled leaves, often of large size and generally obovate in form, their margins toothed or entire. The flowers are in spikes or racemes, generally large and handsome, and in colour pink, scarlet, or white. The stamens are very numerous and form a conspicuous feature in the flower, from the great abundance of yellow anthers; the filaments, being slightly united at the base, fall off in the form of a ring when the flower fades, and have the appearance of a painter's brush. Their fruits are one-seeded, fleshy, more or less four angled, and in the larger-flowered species about two inches in length, tapering towards the base. They are found in many parts of India, but in the greatest numbers in the Malayan peninsula and the islands of the Indian Ocean; two species are present in N. Australia, and one grows on the banks of the Zambesi River in East Africa. Without exception they are beautiful objects when in flower.

The bark of a number of the species has narcotic qualities. *B. acutangula*, an Indian species, grows to a large size, and bears some resemblance to an oak in its branching. It yields a solid durable wood, useful for ordinary purposes; and from the leaves an extract or juice is obtained which, when mixed with oil, is used in native practice for eruptions of the skin. The kernels, powdered and prepared with sago and butter, are used in diarrhoea; mixed with milk they promote vomiting. Young plants of this species are shown in Plate 10, figure 4. *B. spectiosa*, a native of the Moluccas, and one of the handsomest of the genus, attains the height of forty or fifty feet, with a circumference of ten to fourteen feet; it is generally found near the sea. From its seeds a lamp-oil is expressed; mixed with bait they are used to inebriate fish, in order to facilitate their capture.

The root of *B. racemosa* has a bitter taste, and is used by Hindoo practitioners on account of its aperient and cooling qualities. The seeds and bark are also used in native medicine, the latter is of a reddish colour, and is said to possess properties akin to those of quinine (*Cinchona*). The pulverised fruit is used as snuff, and, com-

bined with other remedies, is applied externally in diseases of the skin. The genus



Barringtonia speciosa

was dedicated to the Hon. Daines Barrington, the English antiquary. [A. A. B.]

BARROWIA. A genus of *Asclepiadaceae*, containing a single species, from the Cape of Good Hope. It is a slender branched and climbing plant, with oblong-lanceolate leaves, and three or more white flowers on interpetiolar peduncles. The calyx is five-parted, with lanceolate erect sepals. The funnel-shaped corolla is slightly swollen at the base, and the limb is cleft into five lanceolate spreading divisions. The gynostegium is included, and has the sinuous staminal corona attached to its base. The ovoid pollen masses are attached to a small corpuscle by slender processes, and have a projecting pellucid apex. The stigma is five-sided, with a slightly projecting central cone. [W. C.]

BARTERIA. Two tropical African shrubs, with alternate glabrous entire or crenate leaves, and rather large sessile axillary flowers, forming a genus of *Passifloraceae*, allied to *Smacthmannia*, but differing chiefly in the stigmas being consolidated into one large terminal capitate mass, exceeding the ovary in diameter, and in the fruit, which is said to be an indehiscent berry the size of a pigeon's egg.

BARTHOLINA. This is one of a singular race of terrestrial Orchids, peculiar to the Cape Colony, with solitary shaggy leaves, small white flowers, and a great lip cut into narrow strips, resembling the teeth of a comb. They have been grown in this country, but perish after having been imported for a year.

BARTLINGIA. This genus was founded upon some specimens collected by Sieber in New South Wales, in very young bud only. They had been referred to *Rhynchospora* by Sieber, who named them *Cryptandra obovata*. Brongniart subsequently referred them to *Boronia* (near *Amphidulia* and *Chrysodulnea*), under the name of Bartlingia. Reichenbach

referred the plant to *Nyrtaceae*, in which he was confirmed by Schauer. Benthams, however, has discovered that it is the leguminous *Pultenaea obovata*, in a young and uncharacteristic state. [J. Br.]

BARTONIA. A showy group of annual North American *Loasadeae*, of which the *B. aurea*, a Californian species, is one of the best known. The most important features of the group are, a cylindrical or club-shaped calyx tube, with a five-parted persistent limb; five or ten flat spreading equal petals; numerous stamens; and a capsule having the seeds arranged in two rows on each of the parietal placentae, opening at the summit when ripe. The *B. aurea* is a succulent branched spreading plant, of a greyish-green aspect, growing two feet high, with lanceolate pinnatifid roughish foliage, and large lustrous golden yellow blossoms in terminal clusters, expanding only in the middle of the day. When in perfection, it is really a splendid plant, and may be made to contribute greatly to the gaiety of the borders; for, although its habit and foliage are less attractive than those of some other annuals, in size and brilliancy of blossoms it is inferior to none. There are several other species peculiar to the Western and North Western States, of which the most remarkable is the *B. ornata*, with very large white flowers, figured many years since in the *Botanical Magazine*, under the name of *B. decapetala*, from dried specimens, but apparently unknown in England in the living state. By some botanists the *Bartonia*s are not considered distinct from *Mentzelia*. See also *Centaurella*. [W. T.]

BARTRAMIA. A genus of Mosses, included in the order *Bryaceae*.

BARTSIA. Unpretending annuals, belonging to *Scrophulariadeae*, and distinguished from *Rhinanthus* (Yellow Rattle) by having the upper lip of the corolla arched, and not laterally compressed. *B. Odontites* is a common weed by waysides and in corn-fields, growing from six to eight inches high, with an erect branched stem, bearing many one-sided clusters of inconspicuous dull purple flowers; the foliage is scanty, and the whole plant roughish, and tinged more or less with purple. A less common species is *B. viscosa*, which grows in marshes and damp pastures to the height of six to twelve inches, and bears numerous bright green leaves, which are narrow, cut at the edges, and taper to a point: it is very common in many parts of Devon and Cornwall, where it sometimes grows two feet high. The flowers are solitary, imbedded among the leaves, and much larger than in the last. The whole plant is singularly clammy to the touch. *B. alpina* is a rare species, found only in rocky mountainous pastures in the north. All the species turn black in drying. [C. A. J.]

BARU. A woolly material, found at the base of the leaves of *Saguera saccharifer*, sometimes called *Arenga saccharifera*.

BARWOOD. An African dye wood, produced by *Baphia nitida*.

BARYA. A genus of begoniads, established by Klotzsch, and consisting of herbaceous plants, found on the mountains of Peru. The staminate flowers have four, and the pistillate five sepals; anthers elliptical and short; filaments united; style persistent, with elongated branches, surrounded by an interrupted papillose band, making five spiral turns; placentas stalked, with two lamellae. There is one known species, namely, *B. monadelphica*, gathered by Ruiz, under the name of *Begonia monadelphia*, near Muña, in Peru. The genus is named after Dr. Ant. de Bary, a patron of botany. [J. H. B.]

BASAL. Growing at the base of anything, as ovules at the base of an axile placenta.

BASELLACEÆ. (Basellads.) A small family, chiefly distinguished from *Chenopodiaceæ* by what has been called a double calyx, and perigynous stamens; but the so-called outer calyx consists merely of the two bracts, which are here adnate to the perianth, instead of being free, or at some distance from it; and more or less perigynous stamens occur also in other chenopodiaceous genera. *Basellaceæ* have therefore been now re-united with that family as a tribe. They are mostly herbaceous climbers, with more or less succulent leaves, and small inconspicuous flowers. The perianth is usually thick and fleshy, and the style is three-cleft, whilst in true *Chenopodiaceæ* it is more frequently (but not always) only two-cleft. There are sixteen or seventeen species, all tropical, and they have been distributed into six genera, of which the most important are *Basella*, *Boussingaultia*, and *Auredera*.

BASELLA. A genus of climbing plants, belonging to the order or tribe *Basellaceæ*. The simple ovary becomes converted into a membranous fruit, which is adherent to the inner part of the persistent calyx, and contains a single seed, with little or no albumen, and an embryo, coiled up spirally, like a watch-spring. *B. alba* and *B. cordifolia* are cultivated in the East Indies as pot herbs, and are used as a substitute for spinach. *B. rubra*, a variety of *B. cordifolia*, yields a rich purple dye, but it is difficult to fix. These plants are grown in India over trellis-work, where the succulent shoots and leaves form an agreeable protection from the sun. Some of the species have tuberous roots. *B. alba* is in cultivation, and might with advantage be more frequently grown from a suspended basket, as its appearance when in bloom is elegant. [M. T. M.]

BASIBRACTEOLATE. A term applied chiefly to the involucre of a composite, when it is surrounded at the base by a distinct order of bracts, as in dandelion.

BASIDIA. Little elevations found among fungals, consisting of a single

cell, having one or more points at its apex, each bearing a spore: synonymous with Sporophores.

BASIDIOSPORES. The spores which stand upon the basidia.

BASIFIXUS. Attached by the base.

BASIL, BUSH. *Ocimum minimum*, a dwarf pot-herb. — **SWEET.** *Ocimum Basilicum*, an aromatic pot-herb. — **WILD.** *Calamintha Clinopodium*.

BASILAR. Seated at the base of anything.

BASILIC COMMUN. (Fr.) *Ocimum Basilicum*. — **DE LA CHINE.** *Plectranthus nudiflorus*. — **PETITE.** *Ocimum minimum*. — **ROMAIN.** *Ocimum Basilicum*.

BASIL-THYME. *Calamintha Actmos*.

BASINERVED. When the ribs of a leaf all spring from its base, as in most Melastomads.

BASISOLUTE. A term applied to leaves which, like those of *Sedum* and *Echeveria*, are extended downwards below their true origin.

BASSIA. A genus of the natural order *Sapotaceæ*, consisting of tropical trees, with alternate entire leaves, and whitish axillary stalked flowers, having a calyx of four or five sepals, a fleshy corolla, tubular below, but divided at its limb with eight segments. Stamens numerous; ovary terminated by a tapering style, and containing six to eight compartments, of which three or four undergo an arrest of growth, so that the pulpy fruit does not contain more than three or four one-seeded cells.

B. butyracea, the Indian Butter tree, or Phulwara, is a native of Nepal, and the Almorah hills. From its seeds when bruised and pressed is squeezed out a fatty substance of the consistence of hog's lard and of a white colour. It is used to adulterate ghee, and is considered serviceable in rheumatism, and as an application to the hair. It makes good soap, and is adapted for burning. It is soluble in warm alcohol, and does not become rancid when kept, but is completely melted at a temperature of 130°. From the juice of the flowers a kind of sugar is prepared.

B. latifolia, the Mahwah tree of Bengal, furnishes a hard and strong timber used for the wheels of carriages, &c. The flowers are sweet-tasted and are eaten raw, and they are also largely made use of in the distillation of an ardent spirit like whisky, which is consumed in great quantities by the natives of Guzerat, &c. When fresh it is very deleterious to Europeans. The seeds yield an oil used for lamps, in the manufacture of soap, and for culinary purposes; but it is thick, coarse, and only used by the poorer classes. The Bheels are stated to collect the sweetly tasting flowers of this plant, and dry them to store as a staple article of food; and hence, 'in expeditions undertaken for the punishment or subjection of these tribes when unruly, their

Bassa trees are threatened to be cut down by the invading force, and the threat most commonly ensures the submission of the tribes.—(*Gibson*.)

The flowers of *B. longifolia* are roasted and eaten in Malabar and Coromandel; they are also bruised and boiled to a jelly. The leaves as well as the milky juice of the unripe fruit are used medicinally. The bark contains a gummy juice which exudes and is used in rheumatism; the bark itself is likewise employed as an astringent, and as a remedy for the cure of the itch. The seeds furnish an oil like that of the other kinds, but of an inferior quality.

The Shea tree or Butter tree of Africa, whose seeds produce the Galam butter, mentioned by Mungo Park in his travels, is a species of this genus, *B. Parkii*, or of the closely allied one, *Lucuma*. The seeds are boiled in water to extract the butter from them. This fatty substance is of a white colour, and agreeable taste, and keeps well, hence it is an important article of commerce in Sierra Leone. Some of the species of this interesting genus are in cultivation. [M. T. M.]

BASSIN D'OR. (Fr.) *Ranunculus repens*.

BASSINET. (Fr.) *Ranunculus repens*.

BASSORA GUM. A partially soluble gum of uncertain origin, supposed to be the produce of a *Cactus* or *Mesembryanthemum*.

BASS-WOOD. The American Lime or Linden, *Tilia americana*.

BAST A strong woody fibre, much used for brooms, brushes, &c., obtained from the leaf-stalks of *Aitaea funifera*, and of *Leopoldinia Pissaba*. Also, the inner bark of the Lime tree, of which the Russian mats used in gardens are made. — CUBA. The fibrous inner bark of *Paritum elatum*, much used for tying up cigars, and in gardens for tying plants, as also is the bast of the Lime tree.

BATARREA. A genus of *Fungi* allied to the Puffballs. Its most striking characteristics are a thick gelatinous volva, a tall rigid stem, and a hemispherical cap-shaped peridium. Some of the filaments, moreover, have a spiral structure, a very rare circumstance amongst *Fungi*. The British species is extremely rare, and occurs on sandhills, for the most part near the sea, or amongst the vegetable soil in hollow trees. The habit is that of *Phallus*, and the volva with its intermediate gelatinous coat is precisely the same. The early stage of this plant has not been observed since the true structure of the hymenium in the higher fungi has been ascertained; but there can be little doubt that it resembles that of the true puffballs. [M. J. B.]

BATATE. (Fr.) *Batatas edulis*, formerly *Convolvulus Batatas*.

BATATAS. A genus of Bindweeds (*Convolvulaceae*), of which about twenty species are described, mostly natives of tropical

America. They are creeping or twining, herbaceous or shrubby plants. Their flowers have a bell-shaped corolla, enclosing the stamens, and a four-celled ovary, with a single style and a two-lobed capitate stigma.

The most interesting species is *B. edulis*, the tuberous roots of which, under the name of Sweet Potato, are extensively used in many warm countries in the same way that we use common potatoes. The plant has a creeping or sometimes twining stem five or six feet long, and either running along the ground, or rambling over other shrubs. Its leaves are about six inches long and heart-shaped at the base; and its flowers resemble those of the common *Convolvulus*, of a pale purple colour, and arranged in threes or fours on a stalk. This plant has been so long cultivated and naturalised in various tropical countries, that its precise origin is somewhat obscure, but probably it is indigenous to both hemispheres. The first mention of it is said to be by an author named Pigafetta, who went to Brazil in 1519, and found it in use among the Indians as an article of food. It was soon afterwards introduced into Spain, where it is still cultivated. The roots were known in England before the introduction of the common potato, with which they were frequently confounded by early writers. They were imported in considerable quantities from Spain and the Canary Islands, and, when steeped in wine, or made into sweetmeats, were supposed to have the effect of restoring decaying vigour. At the present day Sweet Potatoes are largely cultivated in many tropical and sub-tropical countries; such for instance as India, China, Japan, the Malayan Archipelago, &c., in the east; and in the west, very generally throughout tropical America, also in Texas, Alabama, Carolina, and other Southern States of America, extending even as far north as New York, where, however, they are not found to be a profitable crop: they are also grown to a small extent in the south of



Batatas edulis.

Europe, and more extensively in the Canary Islands, Madeira, and North Africa. There are several varieties, some having

white roots and others red. The roots grow to a very great size; according to Crawford they sometimes attain the enormous weight of fifty pounds in Java; but in the United States the general weight is from three to twelve pounds each tuber, and the yield per acre is estimated at from 300 to 800 bushels. They have an agreeable sweetish taste, and contain rather more flesh-forming matters than the common potato, considerably more sugar, and a slight excess of starch.

B. Jalapa has large tuberous roots and creeping stems like the last. The leaves of this species are heart-shaped, of a deep green upon the upper surface, and covered with a white woolly down beneath; and the flowers are either white or rose-coloured, and very showy. It is a native of Mexico, growing commonly in the vicinity of the town of Jalapa, whence the specific name *Jalapa* is derived. It was formerly supposed to produce the Jalap of the Pharmacopœia, but that drug is now known to be derived from another plant of the same natural order; the roots of *B. Jalapa*, however, possess purgative properties, and are probably sometimes substituted for true jalap.

B. paniculata has thick smooth twining stems and large hand-shaped leaves; and its flowers are very handsome and of a fine purple colour. It is a native of India, Java, New Holland, Mauritius, West Africa, Guiana, Brazil, &c.; and is the species commonly cultivated for food in Western tropical Africa. From the seeds of a species of this genus is obtained what is called Natal Cotton, a textile material resembling true Cotton. [A. S.]

BATEMANNIA *Colleyi* is an inconspicuous Orchid with dull brownish-purple flowers, from Demerara. It differs in little from *Mazillaria*, excepting having an anther-bed with a membranous border. Some other plants bearing this name belong to the genus *Galeotia*.

BATEMIUM. A name given by Link to a group of large-growing Ferns now included in *Aspidium* and *Sagenia*. [T.M.]

BATIDÆÆ. The *Batis maritima*, a low shrubby succulent plant, with opposite leaves, abundant in the salt-marshes on the sea-coasts of the West Indies, has much puzzled botanists as to its real affinities. They have therefore, in compliance with a custom now very prevalent in similar cases, endeavoured to solve the

The females have a two-lobed sessile stigma, without either perianth or stamens. The seed has no albumen, and the embryo is but little curved; yet Grisebach is probably right in proposing once more to include it among the *Chenopodiaceæ*, with which it accords in outward appearance.

BATIS. This genus of *Exogonæ* has a structure so anomalous that it has been separated as a distinct order, *Batidææ*. The leading features have been just explained; in addition to which it may be remembered that the naked ovaries adhere to each other in the form of a short green four-angled cone. Each ovary consists of two carpels, the stigmas being only two; but it is four-celled, with one ovule in each cell, in consequence of the dorsal rib of each carpel being inflexed so as to form a partition, the partition passing between the two ovules, making the two-celled ovary four-celled, with one ovule in each cell. The ovule is erect from the base of the cell. The seed contains no albumen, and the embryo has an inferior radicle. The position of the *Batidææ* in the natural system is a question of much interest with botanists, who have assigned it widely different stations. There is no doubt, however, that it has some relation with the *Callitrichaceæ*, and in common with that order shows some resemblance to the *Coryophyllaceæ*. The writer has also suggested a very near affinity with the *Verbenaceæ*, which have the same kind of four-celled ovary. (*Trans. Linn. Soc.* xxii. 411). The plant is sometimes used in making West Indian pickles, and its ashes yield large quantities of barilla. [B. C.]

BATODENDRON. A name applied to a genus of *Vacciniaceæ*, more commonly considered as a section of the genus *Vaccinium*. It is known by its flowers being borne on long thread-like stalks, in leafy or leafless clusters; the corolla five-lobed, spreading, bell-shaped; filaments hairy; anthers provided with two long awns bent backwards; fruit berry-like, almost tasteless, its cells few-seeded by abortion. The species are all natives of America and Mexico. [M. T.M.]

BÂTON BLANC or **ROYAL**. (Fr.) *Asphodelus ramosus*. — DE JACOB. *Asphodelus luteus*. — DE SAINT JEAN. *Polygonum orientale*.

BATRACHOSPERMEÆ, BATRACHOS-

the small green flowers half buried in a succulent spike, give it a great general resemblance to *Silicornia*; but the ovary having (according to Torrey) four cells with one erect ovule in each, differs materially from that of *Chenopodiaceæ*. The flowers are in unisexual cylindrical spikes. The males, solitary, under imbricated bracts, have a two-lobed calyx and four stamens, alternating with as many minute scale-like petals, or rather staminodia,

inct groups, in one of which the frond is cartilaginous, solid or hollow, with the outer coat cellular; in the other it is made up of a central articulated axis coated with close-packed descending threads, covered with whorls of necklace-like brachlets at regular intervals. In both, the fruit consists of chains of spores, which are external in the latter, internal in one genus, at least, of the former. *Batrachospermum* belongs to the second group. Its species

which are highly gelatinous, vary from black to nearly violet, but are never of a deep rose as in the analogous rose-spored *Alga*. *B. montiformis* is a common inhabitant of our rivulets, where it is found attached to stones or roots, and never fails to obtain admiration when closely examined. Most of the species grow in fresh water. The genera of the first group will be noticed under *Lemanea*. [M. J. B.]

BATSCHIA. A genus of *Menispermaceæ*, allied to *Abuta* and *Anelasma*, but differing from both in its three to five-nerved leaves, which are almost glabrous. The genus is imperfectly known. Mr. Benthams is of opinion that it should be merged with *Abuta*. The plants included in it are natives of Darlen. The name has been applied to certain Boraginaceous plants now included under *Lathospermum*, and also to a group of *Leguminosæ*, now referred to *Stumboidia*. [M. T. M.]

BAUDRIER DE NEPTUNE. (Fr.) *Laminaria saccharina*.

BAUBERACEÆ. The genus *Bauera*, belonging to the *Hydrangeæ* family (or tribe of *Rubi* (*Fraxinæ*)), has by some botanists been thought to possess distinctive characters sufficient to establish it as a separate family under the name of *Baueraceæ*, which has not, however, been generally adopted.

BAUERA. A genus of *Hydrangeaceæ*, consisting of small shrubs found in Australia. They have opposite sessile trifoliate leaves, with oblong undivided leaflets, and no stipules; and the flowers are handsome nodding, rose-coloured or purple, axillary, solitary on rather long stalks, rarely terminal and clustered; calyx with six to ten segments, adhering to the base of ovary; corolla of six to ten petals; stamens numerous; styles two. [J. T. S.]

BAUHINIA. This genus of Leguminous plants (*Fabaceæ*: *Cæsalpiniæ*) was selected by Plumier to bear the name of two brothers, John and Caspar Bauhin (celebrated botanists of the sixteenth century), in consequence of most of the species having their leaves composed of two lobes, which are either quite separate, or, more frequently, joined together by a portion of their inner margins, and which Plumier thought symbolic of the united labours of the two Bauhins in the cause of science. The numerous species are extensively diffused throughout the tropics, particularly in Brazil and India. They are generally climbers, frequently attaining a gigantic size; some few, however, form trees or large shrubs. Their flowers are produced either singly or in racemes opposite the leaves, and have a calyx with a cylindrical tube split on one side, or rarely five-parted; five unequal spreading petals, inserted along with the stamens into the top of the calyx-tube; ten stamens, which are either joined together at the base or distinct, a portion of them being sometimes barren; and a long-

stalked ovary, which ultimately becomes a many-seeded two-valved pod.

B. tomentosa is a native of Ceylon, where it forms a small tree, growing about fifteen feet high, and having pale yellow flowers spotted with crimson, which has given rise to the superstitious idea that they are sprinkled with the blood of St. Thomas, hence the tree is called St. Thomas' tree. Its leaves are composed of two oval, blunt-topped leaflets joined together for more than half their length, and hairy on the under side. The dried buds or flowers, and also the leaves, are employed by the native Indian doctors as a remedy against dysentery.

B. Vahlia is the Maloo climber of India, a plant whose gigantic shrubby stems often attain a length of 300 feet, and climb over the tops of the highest trees of the forest, twisting so tightly round their stems that they not unfrequently strangle and cause death, the stems ultimately decaying and leaving a sheath of climbers standing in their place. The young shoots and leaves are covered with a rust-coloured scurf, and are furnished with tendrils. The leaves are very large, often more than a foot in diameter, composed of two oval-shaped lobes joined together for about half their length, and heart-shaped at the base. The flowers are snowy-white, and arranged in racemes. The exceedingly tough fibrous bark of this species is employed in India for making ropes, which, from their great strength, are used in the construction of the suspension bridges across the river Jumna. The bark of another Indian species is used for making the slow-matches used with native guns.

B. variegata is a small tree of about twenty feet in height, a native of India, China, and the Molucca Islands, and now naturalised in some of the West India Islands. It has two broadly egg-shaped leaflets joined for about one-third their length; and its rose-white flowers are produced in twos upon a forked stalk. The wood of this species is of a dark colour, and forms one of the many woods called Ebony; the bark is used medicinally in India, and also for dyeing and tanning leather. [A. S.]

BAUME A' COCHON. or **A' SUCRIER.** (Fr.) A balsaminous resin produced by *Hedwigia balsamifera*. — **A' SALADE.** *Mentha viridis*. — **COQ or GRAND Balsamita vulgaris**, or *Pyrethrum Tanacetum*. — **DE CANADA.** *Abies balsamea*. — **DE PÉROU.** *Myrropernum peruviferum*. — **DE PÉROU FAUX.** *Neliotus caruii*. — **DE VANILLE.** A liquid which exudes from the Vanilla. — **DES JARDINS.** *Mentha rubra*. — **D'ORMEAU.** A balsaminous product contained in galls borne by the Elm, *Ulmus campestris*, in Italy, France, Persia, &c. — **SAUVAGE.** *Mentha rotundifolia*.

BAUMIER. (Fr.) *Populus balsamifera*. — **DE GILÉAD.** *Abies balsamea*.

BAWCHEE SEED. An oil seed, the produce of *Psoralea corylifolia*.

BAWDMONEY, or BALDMONEY. *Moum Athamanticum*.

BAXTERA. A little known genus of *Asclepiadaceæ* from Brazil, containing a single species, an erect shrub with opposite cordate-elliptical leaves, and reddish flowers in terminal umbels. The calyx is five-parted. The tube of the corolla is dilated below, and the limb is five-cleft. The staminal corona consists of five fleshy leaves. The anthers are terminated by a membranaceous appendage. [W. C.]

BAY, INDIAN or ROYAL. *Laurus indica*. —, **LOBLOLLY.** *Gordonia las-anthus*. —, **RED.** *Laurus carolinensis*. —, **ROSE.** *Epilobium angustifolium*. —, **SWEET, or BAY-TREE.** *Laurus nobilis*; also an American name for *Magnolia glauca*.

BAYBERRY. *Myrica cerifera*.

BDELLIUM, AFRICAN. A gum resin obtained from *Balsamodendron africanum*; also applied to that obtained from *Ceradia furcata*. —, **INDIAN.** A resinous product of *Balsamodendron Roxburghii*, or *Amyrs Bdeillum*.

BEAD TREE. The common name for *Melia*.

BEAKED. Ending in a long sharp terete, or angular point.

BEAK-SEDGE. A common name for *Rhynchospora*.

BEAM TREE. *Pyrus Aria*.

BEAN. The common name for *Faba*. —, **BOG.** The Buckbean, *Menyanthes trifoliata*. —, **CUJUMARY.** The tonic seed of *Andendron Cujumary*. —, **EGYPTIAN, or PYTHAGOREAN.** The fruit of *Nelumbium speciosum*. —, **FRENCH.** *Phaseolus vulgaris*. —, **HARICOT.** The seed of *Phaseolus vulgaris*. —, **INDIAN.** An American name for *Catalpa*. —, **KIDNEY.** The common name for *Phaseolus*, especially for those kinds cultivated as esculents. —, **LIMA.** An American name for *Phaseolus lunatus*. —, **LOOUST.** The pod of *Ceratonia Siliqua*. —, **MO- LUCCA.** The seed of *Gulandrina Bondu- cella*. —, **ORDEAL, of Old Calabar.** The seeds of *Physostigma venenatum*. —, **OX-EYE.** The seed of *Mucuna urena*. —, **PICHULIM.** A commercial name for the cotyledons of *Neelandra Puchury*. —, **SACRED.** The common name for *Nelumbium*. —, **SAHUEA.** *Saja hispida*. —, **ST. IGNA- TIUS.** The seed of *Ignatia amara*, alias *Strychnos Ignatia*. —, **SCARLETRUNNER.** *Phaseolus multiflorus*. —, **TONKA, or TON- QUIN.** The seed of *Dipteris odorata*. —, **UNDER-GROUND KIDNEY.** *Arachis hypogæa*. —, **WATER.** An English name for the family of *Nelumbiaceæ*. —, **WILD.** An American name for *Ajios*.

BEAN CAPER. The common name for *Zygophyllum*.

BEAN TREE, Swedish. *Pyrus intermedia*. —, *of Australia.* *Castanopernum australe*.

BEAN TREFOIL. The common name for *Anagyris*; sometimes also applied to *Menyanthes trifoliata*, and anciently to *Cytisus Laburnum*.

BEAR-BANE. *Aconitum arctophonium*.

BEARBERRY. *Arctostaphylos*.

BEARBIND. The common name for *Calystegia*.

BEAR'S BREECH. *Acanthus*.

BEAR'S EAR. *Primula Auricula*.

BEAR'S FOOT. *Helleborus fetidus*.

BEAST'S BANE. *Aconitum therio- phorum*.

BEATONIA. A genus of bulbous *Iridaceæ*, containing a single species, *B. purpurea*, found in Mexico. This has a simple flower-stem about six inches high, a few platted leaves, and one or two terminal flowers, which are crateriform, rosy-purple, whitish and dotted with purple near the base. The perianth is very irregular, almost as in *Tigridia*; the filaments cylindraceously connate, and the style slender, with a three-lobed stigma, the lobes of which are split and recurved. [T. M.]

BEATSONIA. A genus of *Frankeniaceæ*, scarcely differing from *Frankenia*, but having two styles, with globular stigmas, and a two-valved capsule, while in *Frankenia* there are three styles and a three-valved capsule. *B. portulacifolia* is one of the few plants indigenous in the Island of St. Helena. [J. T. S.]

BEAUCARNEA. A name lately given to a genus of Agave-like liliaceous plants, till recently known in gardens under that of *Pincenectitia*, which, it is said, originated in a mis-spelling on a garden label of *Freycinetia*, the name of a genus of screw-pines, with which these have no affinity whatever. The few known species are natives of Mexico. They have arborescent stems, remarkable for the large bulbiform swelling which, from the earliest stages, forms at the base; these support a spreading terminal crown of long narrow leaves. The inflorescence in *B. recurvata* is a large terminal panicle, a yard or more in height, bearing a multitude (4,000 to 5,000) of small white fragrant flowers. The genus is very nearly allied to *Dasyllirium*, being, like it, diœcious, but it differs in having the segments of the perianth more decidedly biseriæte and unequal, in its more truly panicled inflorescence, and in the remarkable bulbiform base of its Dracena-like stems. The species are: *B. recurvifolia* (*Pincenectitia tuberculata*), which has the leaves channelled and recurved; *B. stricta* (*P. glauca*), which has plain glaucous leaves, straighter and more erect; and *B. gracilis* (*P. gracilis*), which has very straight sharp erect leaves, slightly chan- nelled in front. [T. M.]

BEAUFORTIA. A genus of *Myrtaceæ*, consisting of shrubs with opposite sessile leaves. The showy flowers have a calyx

with a top-shaped tube, and a limb divided into five acute segments; a corolla of five petals; stamens united into four or five parcels placed opposite the petals, the anthers attached by their base; style thread-shaped. The fruit is a capsule. These handsome flowering shrubs are natives of New Holland, and some of them are in cultivation in our greenhouses. [M.T.M.]

BEAUMONTIA. Under this name are included some very handsome flowering shrubs of climbing habit belonging to the order *Apocynaceæ*. The leaves are opposite. The flowers are white, large, borne in terminal or axillary corymbs, and have a calyx of five broad spreading coloured sepals, and a distended bell-shaped corolla, with a short limb divided into five erect nearly equal lateral divisions. The stamens are placed on the top of the tube of the corolla, and alternate with the five lobes of the hypogynous disc; anthers arrow-shaped, adhering to the thick oblong two-cleft stigma. Ovary two-celled. Fruit a follicle, with many hairy seeds. These plants, especially *B. grandiflora*, are remarkable for their handsome flowers; they are natives of the East Indies, and are cultivated as stove plants in this country. [M.T.M.]

BEAVER TREE. *Magnolia glauca*.

BECK-BEAN. *Menyanthes trifoliate*.

BECKEA. A small group of South African dwarf shrubs, of the order *Bruceaceæ*, closely related to *Brunia*, differing in having a smooth instead of hairy calyx, included instead of exerted stamens, and in the fruit being crowded by the persistent calyx, the petals and stamens falling away. The species have by some been referred to *Phyllia*. [T.M.]

BECKERA. A genus of Grasses belonging to the tribe *Panicææ*. The few species which belong to it are natives of Abyssinia, save one, *B. nubica*, an annual, which grows wild in Nubia. [D.M.]

BECKMANNIA. A genus of Grasses belonging to the tribe *Phalarideæ*. The inflorescence is in close compressed spikelets; spiculae two-flowered; glumes unequal, navicular, slightly stalked at the base, obtuse, or rather obovate; pales two, nearly equal. One species only is described, *Beckmannia erucaeformis*, a native of Japan, and a very elegant grass, which proves hardy in Britain. [D.M.]

BECLARDIA. A synonym of *Cryptopus*.

BEDAGOSA. A Brazilian name for the seeds of *Cassia occidentalis*, which are used as a substitute for coffee.

BE'DE'GUAR. (Fr.) Sweet-briar Spondee, a sponge-like gull found on the Eglantine and other roses.

BEDFORDIA. A genus of the Composite family, which scarcely differs from *Senecio*. Two species are known, both Tasmanian shrubs or small trees, with alternate lan-

ceolate or linear leaves, which are glossy above and covered underneath with a white tomentum, as are the branches and flower-heads. The latter are axillary and solitary, or few together, and have no strap-shaped forets. *B. salicina*, the Dogwood of Tasmania, has beautifully marked wood, suitable for cabinet-work, and is sometimes to be met with in English gardens. The genus is named in honour of the late Duke of Bedford, a great patron of horticulture and botany. [A. A. B.]

BEDSTRAW. *Galium*; also applied to *Desmodium Apai* &c.

BEEBEERU. The Guianian name of *Nectandra Rodiei*.

BEE-DE-CIGOGNE. (Fr.) *Erodium cicutarium*. — **DE GRUE.** *Erodium gruinum*. — **DE HERON.** *Erodium arbutinum*. — **DE PIGEON.** *Geranium columbinum*.

BEECH. The English name of *Fagus sylvatica*. —, of Australia. *Tectona australis*. —, of New South Wales. *Monotoca elliptica*. —, **BLUB or WATER.** *Carpinus americana*. —, **SEA-SIDE.** A name used in Jamaica for *Erotema caribæum*.

BEECH-DROPS. An American name for *Eppageus*. —, **FALSE.** An American name for *Hypopitys lanuginosa*.

BEECH-MAST. The fruits of the Beech tree, *Fagus sylvatica*.

BEEPINGS. Apples prepared by being oven-dried and pressed flat.

BEE-FLOWER, or BEE ORCHIS. *Ophrys apifera*.

BEEFSUET TREE. *Shepherdia argentea*.

BEEFWOOD. The common name for *Casuarina*. Also applied, in N. S. Wales, to *Stenocarpus salignus*, and in Queensland to *Banksia compar*.

BEE. The common name of the esculent *Beta vulgaris*. —, **CHARD or SILICIAN.** *Beta Cicta*.

BEFARIA. A genus of *Ericaceæ*, containing about twenty species of small and often glutinous shrubs, natives of the Alpine districts of Peru and Mexico. They have alternate often crowded entire coriaceous leaves, and bear flowers, generally of a purple colour, in terminal racemes or corymbs. The calyx is 6-7 cleft; the corolla consists of as many petals; the double series of stamens have filiform filaments, and smooth two-celled anthers dehiscing by oblique pores at the apex. The ovary has six or seven cells, each containing many ovules; the style filiform, often long and exerted; and the stigma capitate. The capsular fruit dehiscence septicidally. The plants of this genus are extremely beautiful; they grow at a great height on the mountains of South America, often at the very extreme of vegetation. The genus is nearly related to *Rhododendron* from which it differs in its petals being all

distinct, overlapping each other, and not being united into a tube. [W. C.]

BEGGAR-TICKS. An American name for *Bidens frondosa* and *B. connata*.

BEGONIACEÆ. (Begoniads.) A natural order of dicotyledonous plants, belonging to the monochlamydeous sub-class of De Candolle. Lindley places the order in his Cucurbitifal (Cucumber) Alliance. The order contains herbaceous plants or succulent under-shrubs. The leaves have an oblique form, and are placed alternately on the stem, having stipules at their base. The flowers have no petals, but consist of a single perianth, usually pink-coloured, which is placed above the ovary or seed-vessel. Some flowers have stamens only, others pistils only: in the former, the perianth has from two to four divisions; in the latter from two to eight. The stamens are numerous and are collected in a head. The stigmas are three, and the fruit is winged with three divisions. Some of the plants produce buds which are easily detached so as to constitute living plants. The plants are common in the East and West Indies, and South America; a few occur in Madagascar and South Africa. They are said to possess bitter and astringent qualities, and some have been used in the cure of fluxes of various kinds. In the order there are according to Klotzsch, forty-two genera; and nearly four hundred species are known. Illustrative genera:—*Barya*, *Begonia*, *Diplocarpium*, *Ewaldia*, *Meserea*, and *Gireoudia*. De Candolle admits only *Caspariya* and *Meserea* of Klotzsch's genera, above referred to, retaining about three hundred and fifty species in *Begonia* proper, distinguishing them by certain peculiarities of the placentas and the capsule. [J. H. B.]

BEGONIA. The genus whence the natural order *Begoniaceæ* derives its name. It consists of herbaceous plants found in the East and West Indies, Brazil and other parts of South America, and in Mexico. The staminate flowers have four and the pistillate five sepals. Anthers oblong, with an obtuse connective elongated at the apex; filaments short and not united. Style persistent, its branches surrounded by a continuous papillose band, which makes two spiral turns. The placentas are entire or bipartite, placed in the interior angle of the cells of the capsule. The genus is named after Michel Begon, a Frenchman, who promoted the study of botany. The plants receive the name of Elephant's-ear from the form of their leaves. The stalks of some of the species are used in the same way as rhubarb. [J. H. B.]

BEHEN. *Silene Behen*, *Cucubalis Behen*, now *Silene inflata*, and *Serratula Behen*.

BEHEN BLANC. (Fr.) *Silene inflata*. — **ROUGE.** *Centranthus ruber*.

BEJARIA. A synonyme of *Befaria*, a genus of ericaceous plants related to *Ehododendron*.

BELANGERA. A genus of Brazilian trees belonging to *Cunonaceæ*, with opposite stalked leaves having from three to five serrated leaflets; stipules caducous; racemes simple, axillary; calyx six-parted; petals none; stamens numerous, on a perigynous disk; ovary free. [J. T. B.]

BELIS. A synonyme of the coniferous genus *Cunninghamia*.

BELLADONNA. A name sometimes given to a group consisting of certain species of *Amaryllis*, of which *A. Belladonna* is the type. The genus is not generally adopted, and indeed, according to Herbert, its type is also the type of the Linnæan *Amaryllis*. [T. M.]

BELLADONNA. *Atropa Belladonna*, the Deadly Nightshade.

BELLADONE. (Fr.) *Atropa Belladonna*. — **D'AUTOMNE.** *Amaryllis Belladonna*. — **DE ROUEN, or D'ETE.** *Hippeastrum vittatum*.

BELLE DAME. (Fr.) *Atriplex hortensis*.

BELLE-DE-JOUR. (Fr.) *Convolvulus tricolor*. — **DE-NUIT.** *Mitribalis Jalapa*. — **D'ONZE HEURES.** *Ornithogalum umbellatum*.

BELLENDENA. A genus of proteaceous plants. The only species, *B. montana*, is a native of Tasmania, where it has been found on Mount Wellington. It bears a short spike of apetalous flowers of four sepals, with four free stamens rather shorter than the sepals, and a filiform style; its fruit is a nut. The plant is of humble growth, eight to ten inches in height, having crowded short-stalked wedge-shaped leaves, obsoletely three nerved with a three-toothed apex. [R. H.]

BELLERIC. The astringent fruit of *Terminalia Bellerica*.

BELLEVALIA. A genus of *Liliaceæ*, containing a few bulbous plants found in the Mediterranean region and in temperate Asia. They have the habit of some of the larger species of grape hyacinth (*Muscari*), but are distinct by having their perianth divided half way down into six folded lobes, expanding to form a prismatic bell. From the true hyacinths they differ by the perianth having an angular and not a circular section. The few leaves are radical, broadly linear; the flowers small, whitish or violet tinged with green. [J. T. B.]

BELL-FLOWER. The common name for *Campanula*; also applied to *Canarina Campanula*.

BELLIDIATRUM. A genus of the Composite family, containing but one species, *B. Micheli*, which is found in the Alps of Central and Southern Europe. The plant without close examination might be readily taken for a common daisy (*Bellis*), but can be easily distinguished from that genus by the presence of a copious pappus of rough hairs, the daisy having no pappus at all. [A. A. B.]

BELLIS. The Daisy: the favourite flower of the poets of nature, from Chaucer to Burns; the first which children learn to call by name, and thenceforth love for evermore. The 'bonnie gem' of the latter poet was regarded by 'the firste fynder of our fayre langage' with such deep feeling, that the reader cannot but be pleased to have the opportunity of culling its characters from the following extracts:—

'And lening on my elbowe and my side
The long daisie I shope me for to abide,
For nothing ellis, and I shall nat lie,
But for to lookin upon the Daisie,
That wel by reason men it calld male
The Daisie, or els the eye of the dale,
The emprise, and the floure of flours alle.

'When that the sunne out of the south
gan west,
And that this floure gan close and gon to
rest
For darknes of the night, the which she
drede,
Home to my house full swiftly I me
spede
To gone to rest, and cry for to rise
To seeke this floure to spede as I devise.

He falls asleep, and, in his dream, the Queen of Love appears, 'clad in roiall habite grene,' with a fret of gold on her head—

'And upon that a white coroune she bere
For all the worldis sight as a Daisie
Icrounid is, with white levis lite,
So were the flourens of her crounid white.
For of a perle fine orientall
Her white coroune was imakid all,
For which the white coroune above the
grene
Ymade her like a Daisie for to sene
Considrid eke her fret of gold above.'

'The flour
Icrounid al with white, as men male se,
And Mars egave her a coroun red parde,
Instede of rubies set among the white.'

And as the Queen of Love was crowned with the flowers which the poet did 'love and drede,' so the fairest land he had ever seen was

'a lannde of white and grene;
The grounde was groun, ypendrid with
Daisye.'

The daisy again fills a prominent place in the 'Floure and the Leafe,' where the band of knights and ladies

'found a tuff that was
All oversprad with flours in compas,
Whereto they enclind everichone
With grete reverence, and that full
humily:

And at the last mere this began anon
A lady for to sing right womanly
A bargaret in praising the Daisie,
For (as methought) among her notis
swete

She said, "Si douce est la Margarete!"

Marguerite, the reader need scarcely be informed, is the French for 'a pearl,' and 'a daisy.'

[C. A. J.]

BELLUM. The species of this genus are five in number—one of them, *B. cordifolium*, found in Spain, and the others in Southern Italy, and the neighbouring islands. They are nearly related to the common daisy (*Bellis perennis*), and all of them are plants of a very similar appearance, but they differ in having a pappus of six to eight broad scales, torn at the apex, alternating with an equal number of long scabrous bristles.

[A. A. B.]

BELLWORTS. An English name for the group *Campanulaceae*. The term Bellwort is also used in America for *Uvularia*.

BELLYING. When a round body is more prominent on one side, or at one point, than at another.

BELMONTIA. A genus of *Gentianaceae*, which may be recognised by the calyx, which is more or less deeply divided, five-parted, with prominent angles or wings; a regular five-cleft corolla, with an almost cylindrical tube; five stamens included within the corolla; a stigma, with two roundish club-shaped lobes; and a two-celled capsule, whose placenta ultimately divides into four pieces. The plants are natives of Southern Africa.

[M. T. M.]

BELOANTHERA. A genus of *Mecombryaceae*, founded on a herb from Java, which has a procumbent rooting stem, nearly sessile alternate leaves, a glandular hairy calyx, five very small white petals, five stamens, and two deflexed styles, with violet stigmas.

[J. T. S.]

BELOPERONE. A considerable genus of *Acanthaceae*, from tropical America, containing many species of beautiful shrubs, with large purple or blue flowers, borne on short second axillary or terminal spikes, and having the bracts frequently brightly-coloured. The calyx is deeply five-cleft, the corolla gaping, the upper lip concave, the lower trifid. The two stamens are inserted in the corolla tube; the anthers are spurred at the base. The two-celled ovary has two ovules in each cell; the stigma is subulate. The lower half of the capsule is unguiculate, without seeds, the upper portion containing four coloured discoid seeds.

[W. C.]

BELOTES. The Spanish and Italian name for the edible nuts or acorns of *Quercus Gramuntia*.

BELOTIA. A genus of the Lime-tree family (*Tiliaceae*), and nearly allied to *Grewia*, but differing from that genus in having a two-celled capsule, with many seeds in each cell; while the fruit of *Grewia* is from four to eight-celled, each cell containing but one seed. Only one species, *B. grewiaefolia*, is known. This is found in Mexico and Cuba. It is a small tree, having the younger branches thickly clothed with dense starry hairs. Its leaves

are alternate, stalked, elliptical in form, and acute, the upper surface nearly smooth, and the lower covered with white starry pubescence. The flowers are white, almost the size of those of the lime tree, and arranged in racemes in the upper axils of the leaves. The genus bears the name of Dr. Charles Belot, a distinguished surgeon of Havannah. [A. A. B.]

BELVEDE'RE. (Fr.) *Kochia scoparia*.

BELVISIACEÆ. A group of three or four tropical species, whose affinities had been long misunderstood, owing to the imperfect specimens which had been obtained. They are now, however, better known, and have been shown to constitute a small family closely allied to *Myrtaceæ*, or even a tribe only of that family, of which they have the inferior several-celled ovary, the numerous stamens turned inwards in the bud, the fruit and the seeds. They differ in their plaited petals, united into a rotate lobed corolla, and in their stamens, united in concentric rings, of which the outer ones are converted into barren staminoidea. They are all shrubby or arborescent, with alternate leaves and axillary almost sessile flowers. They form two genera: *Napoleonia* (unwarrantably altered by Deavaux, for political reasons, to *Belvisia*), from tropical Africa; and *Asteranthos*, from North Brazil.

BELVISIA. A group of ferns, separated by Mirbel from *Acrostichum*, as formerly understood. The species referred to it have little or no affinity, according to modern views of classification, but are included severally in *Actinopteris*, *Asplenium*, *Ceratopteris*, *Hymenophyllum*, and *Schizaea*. The characters relied on were: the fructification occupying the whole space between the edge of the frond and the costa, so as to form a line on each side; and covered by a recurved membrane, attached to the edge of the frond; but the proposed species have only an external resemblance, even in these particulars. The name *Belvisia* is also a synonyme of *Napoleonia*. [T. M.]

BENÇAO DE DEOS. The Brazilian name for the esculent flowers of *Abutilon esculentum*.

BENCOMIA. The species of this genus, which belongs to that section of the Rose family called *Sanguisorbeæ*, are both found in Teneriffe. They are low perennial shrubs, with unequally pinnated leaves, and pectinately toothed stipules. Their flowers are male and female, on different plants, and arranged in long catkin-like bracted spikes. The tube of the calyx, when mature, has the appearance of a berry, and encloses two to four achenes. The genus is nearly allied to that of the garden burnet (*Poterium*), but differs from it in having dioecious flowers, as well as in the long spikes. *B. caudata* was introduced to English gardens in 1779, but is seldom to be met with. The flowers are greenish, tinged with purple, and very

small. The genus bears the name of Bencomi, the last king of Teneriffe. [A. A. B.]

BENGAL ROOT. The root of the Yellow Zedoary, *Zingiber Casumunar*.

BENINCASA. This name is applied to a genus of Cucurbitaceous plants, in honor of Count Benincasa, an Italian nobleman. The plants are herbs, with hairy musk-scented leaves, climbing stems, and simple tendrils. The flowers are solitary, yellow, polygamous, and monoecious. They have a calyx with short wide lobes, wavy and dentate at the margin; a corolla, with five roundish spreading lobes, wavy at the margin; stamens in three bundles, diverging, rudimentary in the females, the filaments short and wide, and the anthers very irregular in shape; stigma thick and irregular; fruit ovate, cylindrical, downy, the seeds thickened at the margin. The unripe fruits of *B. cerifera*, the White Gourd of India, are universally employed by the natives in their curries. [M. T. M.]

BENJAMIN BUSH. *Dioscorea odorifera* n.

BENJAMIN TREE. *Stryax Benzoïn*. The name is also sometimes applied to *Ficus Benjamin*, and to *Benzoïn odoriferum*, the *Laurus Benzoïn* of Linneus.

BENNET, HERB. *Geum urbanum*.

BENNETTIA. See *Galearia*.

BENOÎTE COMMUNE. (Fr.) *Geum urbanum*.

BENTHAMIA. A genus of epigynous Exogenous plants, belonging to the natural order *Cornaceæ*, distinguished by having the calyx segments small, four-toothed; petals four, fleshy and cup-shaped; stamens four; style one; fruits small drupes growing together and forming a large berry resembling the fruit of *Arbutus*, and red when ripe. The leaves are opposite, and bear no inconsiderable resemblance to those of the Cornelian cherry. *B. fragifera* was introduced to English gardens about the year 1833, and is now to be found in some good collections; but being a native of northern India, it is rather tender, and frequently hurt during severe winters, unless protected, especially in the midland and southern counties. [D. M.]

BENTE. A common country name for the dried stalks or culms of various grasses occurring in pastures, especially those of *Agrostis* and *Cynosurus*.

BENZOIN. A genus of *Lauraceæ*, inhabiting the damp shady woods of North America, and found also in Nepal. It has dioecious involucreted flowers; the males with a calyx of six equal permanent segments, and nine stamens in three rows, and females smaller than the males, with fifteen to eighteen sterile stamens, amongst which smaller spatulate bodies are dispersed. The ovary is one-celled with a single ovule, and the style short with a two-lobed stigma. There are in the male flowers two or three rows of glands, six to

nine in number, with a uniform compressed head, alternating with the rows of stamens. The fruit is succulent, seated on the permanent six-lobed calyx. *B. odoriferum*, which furnishes an aromatic stimulant tonic bark, is a bush of eight to ten feet high, with oblong or elliptic wedge-shaped leaves, and small yellow flowers on naked umbels appearing before the leaves. The berries are said to have been used in the United States during the American war, as a substitute for allspice; and they yield an aromatic stimulant oil. [T. M.]

BENZON. The gum-resinous or balsamic exudation of the Benjamin tree, *Styrax Benzoin*. A milky juice resembling benzoin is also obtained from *Terminalia Benzoin*. —, **FALSE.** A name given in Bourbon to *Terminalia mauritiana*, which furnishes a resinous gum resembling benzoin.

BEQUETTE. (Fr.) *Delphinium Ajacis*.

BERAR '*Caladium*' *costatum*, which is said to supply an edible root in Sumatra.

BERBERIDACEÆ. (*Berberids*.) A natural order of Exogenous plants, belonging to the Thalamifloral sub-class of DeCandolle. Lindley includes the order in his Berberal Alliance along with vine-woods and fumewoods. The plants of this family are shrubs or herbaceous perennials, with alternate compound leaves, which are often spiny. Sepals three, four, or six in a double row; petals equal to sepals in number, or twice as many; stamens equal in number to petals and opposite to them; anthers having two lobes, each opening by a valve, which rolls up from the bottom to the top. Ovary solitary and one-celled; stigma orbicular. Fruit, either a berry or a capsule, with one, two, or three seeds. These plants are found in the mountainous parts of the Northern Hemisphere, and of South America as far as the Straits of Magalhaens. They are common in the northern provinces of India. None occur in Africa, Australasia, or the South Sea Islands. They possess acid, bitter, and astringent qualities. The fruit of some is used as a preserve, and sometimes eaten in a fresh or dried state. Oxalic acid occurs in some of the species. The stem and bark of several berberies are used in dyeing yellow. The astringent substance called Lycium of Dioscorides is supposed to be furnished by the root of various species of berberry; and a preparation of a similar kind is much used as a febrifuge in India. The pinnate-leaved berberies in cultivation form the sub-genus *Mahonia*. In the order there are twelve genera and 110 species. See *Berberis*, *Spinedium*, *Leontice*, *Nandina*, *Diphylleja*, and *Jeffersonia*. [J. H. B.]

BERBERIS. The typical genus of the family *Berberidaceæ*. It consists of shrubs found chiefly in the temperate parts of Europe, Asia, and America, having the leaves simple or pinnate, the primary ones sometimes abortive or changed into simple or variously divided spines, with a tuft of

smaller secondary leaves in their axil. The flowers consist of a six to nine-leave deciduous calyx of coloured sepals, disposed in two to three series: six hypogynous clawed petals opposite the interior row of sepals, and having two glands inside at the base; six stamens opposite the petals, and opening by valves; and a one-celled ovary containing two to eight erect ovules, and surmounted by a peltate stigma on a very short style. This grows into a one-celled ovary containing from one to eight seeds. The pinnate-leaved species are sometimes separated, especially in gardens, under the name of *Mahonia*, these have the glands at the base of the petals frequently obsolete, and are great ornaments of our shrubberies. [T. M.]

The common Berberry, or *Barberry*, *B. vulgaris*, forms a deciduous shrub, attaining the height of eight or ten feet. It is found wild in Britain as well as most other parts of Europe, and is also commonly met with in a wild state in North America, and particularly in New England; but it is very doubtful whether the plant is really indigenous to that continent or was carried there by the early settlers, and disseminated through the agency of birds. The distinguished botanists Torrey and Gray affirm that it was introduced; and this opinion is strengthened by the fact of the species not being found in Iceland and Labrador, nor in the eastern parts of Siberia. The Berberry forms a compact bush, composed of numerous very spiny shoots springing from the base, which are covered with a whitish bark, the wood itself being of a fine yellow. The leaves are small, obovate, toothed, and ciliated on the margin, and of a pleasant green; the flowers are yellow, appearing in May. The berries are in pendulous racemes; their colour is generally bright red, but in some varieties they are purple or yellowish-white. Occasionally plants are met with, the berries of which have no seeds; but such do not constitute a permanent variety, for stoneless berberries are only found on old plants; and it has been proved that young suckers taken from them and planted in fresh soil, fruit with perfect seeds. The fruit is too acid for use in its natural state; but it makes excellent refreshing preserves, for which Rouen is particularly celebrated. It is likewise candied; and when green is sometimes pickled in vinegar. The inner bark affords a bright yellow dye. The roots, which are of deep yellow colour throughout, boiled in an alkaline ley, yield a yellow dye, used in Poland for colouring leather. [R. T.]

The bark of the Berberry, of which a decoction was made, was formerly much celebrated as a remedy in jaundice, but it has long since been discarded from modern practice, as its claims as a medicinal plant only rested upon the doctrine of similitudes, which assumed that nature when she made a plant, impressed upon it some sign to point out its curative properties to those who properly sought such knowledge. In this way it was supposed that as the patient's skin in jaundice is yellow, so the

yellow bark of the Berberry indicated it as a remedy for this diseased condition.

Another popular notion with respect to this shrub is, that it is the cause of blight or rust in corn. This has arisen from the circumstance that the Berberry is itself frequently attacked by a species of epiphyte—the *Acidium Berberidis*, in which the leaves appear to be covered with spots of a brightish red colour, whilst wheat is subject to another epiphyte, the *Puccinia graminis*. [J. B.]

[Recent investigations tend to confirm this notion, it having been shown that *Puccinia graminis* will not reproduce itself, but that if its spores are sown upon the leaves of the Berberry, they give rise to *Acidium Berberidis*. The spores of the *Acidium*, on the other hand, do not reproduce itself, but the *Puccinia*: thus furnishing a very striking illustration of the doctrine of alternation of generations. J. Br.]

BERBERRY. *Berberis vulgaris*, sometimes called Barberry. — **OPHTHALMIC.** *Berberis Lycium*.

BERCE. (Fr.) *Horaeolum Aphondylium*.

BERCHEMIA. Twining, or erect, deciduous shrubs, belonging to the order *Rhamnaceae*. *B. volubilis* is a native of Carolina and Virginia, in deep swamps near the coast. According to Pursh it ascends the highest trees of *Taxodium distichum*, in the Dismal Swamp, near Suffolk, in Virginia; and it is known there by the name of Supple Jack. The stems twine round one another, or any object which they may be near. The flowers are small and of a greenish-yellow colour; and in America they are succeeded by oblong violet-coloured berries. It will grow in any common soil; and is well adapted for hedges or trellis-work. It rarely, however, exceeds the height of eight or ten feet in this country, owing probably to the neglect of planting it in wet peaty soil. It was introduced in 1714. The other species are not much cultivated. [C. A. J.]

BERGAMOT. *Mentha citrata* or *odorata*. — **WILD.** An American name for *Monarda fistulosa*.

BERGAMOTTE. (Fr.) The Lime, *Citrus Limetta*.

BERGERA, one of the genera of *Aurantaceae*, is so named in honour of a Danish botanist. The genus consists of a few species of small trees with pinnate leaves, small white flowers in terminal panicles, with a five-cleft calyx, five spreading petals, ten stamens with ovate anthers, and filaments flattened at the base. The fruit is one-celled and one-seeded. *B. Kuntzi* is known in India as the Curry-leaf tree, as the natives flavour their curries with its aromatic fragrant leaves. The leaves, root, and bark are likewise used medicinally. The wood is hard and durable, and from the seeds a clear transparent oil, called Simbolee oil, is extracted. [M. T. M.]

BERGIA. An unimportant genus of

herbaceous plants belonging to the order *Elatinaceae*. All the species are natives of the East Indies, Java, or the Cape of Good Hope, where they grow in moist places, such as rice fields, which are irrigated the greater part of the year. Dr. Wight says, that in India the little *B. ammannioides* bears a Tamil name equivalent to Water-fire, which, as Lindley observes, seems a curious coincidence with the word Water-pepper, given in English to *Elatine*, and seems to indicate a popular belief in these plants possessing some acridity. [C. A. J.]

BERGSMIA. A genus of the *Flacourtiaceae* family, containing but one species, *B. javanica*, which is a native of Java, and is described as being a large tree with alternate or opposite stalked leaves, which are entire, from three to five inches long, and lanceolate in form, their upper surface smooth, and of a whitish colour beneath. The flowers are arranged in axillary racemes and have a three-parted calyx, five petals, and four or five stamens, the stalks of which are united. The fruit is not known. The genus bears the name of C. A. Bergsma, a professor of botany in Holland. [A. A. B.]

BERLANDIERA. A genus of the Compositae family, nearly related to *Silphium*, but differing in the wingless achenes of the ray florets, which are arranged in a single series, and are adherent to the large interior involucre scales. The five known species, distributed over the S. W. States, Texas, and Mexico, are pretty perennial herbs one to two feet high, the stems slightly branching above and terminating in solitary stalked yellow-rayed flower-heads an inch or more across, while the alternate heart-shaped ovate-oblong, or in one case pinnatifid, leaves have notched margins, and are clothed underneath with a white velvety down. The involucre scales are foliaceous (like those of the *Dahlia*) and in three series; the strap-shaped ray-florets have a pistil only; the tubular disc ones are sterile and enveloped by the dilated chaffy scales of the receptacle; and the flattened obovate achenes have a pappus of two short awns. The genus bears the name of M. Berlandier, an American botanist, who collected largely in Texas. [A. A. B.]

BERLE. (Fr.) *Stium*.

BERMUDIENNE A' PETITES FLEURS. (Fr.) *Sieyrrinchium Bermudianum*.

BERNHARDIA. A synonym of *Peltodon* and *Tinosypteris*.

BERRIED. The same as Baccate.

BERRY. See Bacca.

BERRYA. A genus of the Lime-tree family (*Tiliaceae*). But one species, *B. Ammonilla*, is known; it is a tree with alternate stalked heart-shaped leaves, which are smooth and have from five to seven nerves radiating from the base. The flowers are white and very numerous,

arranged in terminal or axillary panicles; their calyx one-leaved, splitting irregularly into three or five divisions, and about half as long as the petals, which are five in number and narrow oblong in shape. The fruit is a three-celled capsule ornamented with six membranaceous wings covered with silky hairs. The seeds, one to four in each cell, are covered with short rigid hairs which readily enter the skin and produce as much painful itching as those of the Cowitch plant (*Mucuna*). It is a native of Ceylon, the Philippines, and Tropical Australia. In the former place it becomes one of the largest

in the island for making oil casks. Being light and strong, it is employed in the construction of the Massoola boats of Madras. It is exported in large quantities under the name of Trincomalee wood. The native name is said to be *Ammonilla*. The genus is named in honour of the late Dr. Andrew Berry, a Madras botanist. [A. A. B.]

BERTEROA. A genus of European and temperate Asiatic Cruciferous plants, allied to *Parsetia*, of which it ought to be considered as a section, as it merely differs from it by having the sepals bulging at the base, the petals bifid, and the valves of the pouch convex, without a nerve; in habit the two genera agree. From *Alysaum*, with which it is frequently associated, it differs by the bifid petals and swollen pouch, which is usually more elongated. *B. incana*, a common European plant, has small white flowers, and its stems and leaves are covered with close white stellate hairs. [J. T. S.]

BERTHELLOTIA. A genus of the Composite family, named in honour of Sabine Berthelot, joint editor with Mr. P. B. Webb in their great work on the flora and fauna of the Canaries. But one species is known, which is a small shrub with alternate lanceolate rigid entire leaves, terminated by a little point. The flower-heads are arranged in dense corymbs at the apices of the branches, and the florets are purple in colour, those of the ray female and those of the disc having both stamens and pistil. The pappus is white, pilose, and the hairs arranged in one series. All the parts of the plant are covered with short pubescence, which gives it a whitened appearance. The plant is common in the Banda district of India, the Punjab and Scinde, as well as in Senegambia. [A. A. B.]

BERTHOLLETIA. A genus of *Legythidaceae*, of which only one species, *B. excelsa*, which yields the Brazil-nuts of our fruit shops, is known. This tree is a native of Guiana, Venezuela, and Brazil; it forms large forests on the banks of the Amazon and Rio Negro, and likewise about Esmeraldas on the Orinoco, where the natives call it 'juvia.' The tree is one of the most majestic in the South American forests, attaining a height of 100 or 150 feet, with a smooth cylindrical

trunk about three or four feet in diameter, and seldom having any branches till near the top. It has bright green leaves about two feet long and six inches wide, entire or undivided, and placed alternately upon the branches. The flowers have a two-parted deciduous calyx, six unequal cream-coloured petals, and numerous stamens united into a broad hood-shaped mass, those at the base being fertile and the upper ones sterile. The fruit is nearly round, and about six inches in diameter, having an extremely hard shell about half an inch thick, and containing from eighteen to twenty-four triangular wrinkled seeds, which are so beautifully packed within the shell that when once disturbed it is impossible to replace them. When these fruits are ripe they fall from the tree and are collected into heaps by troops of Indians called *castanhieros*, who visit the forests at the proper season expressly for this purpose; they are then split open with an axe, and the seeds (which are what we call Brazil-nuts) taken out and packed in baskets for transportation to Para in the native canoes. Brazil-nuts form a considerable article of export from the port of Para (whence they are sometimes called



Bertholletia excelsa.

Para nuts), about 50,000 bushels being annually sent to this country alone. Besides their use as an article of dessert, a bland oil, used by watchmakers and artists, is obtained from them by pressure. And at Para the fibrous bark of the tree is used for caulking ships, as a substitute for oakum. [A. S.]

BERTOLONIA. A genus of *Melastomaceae*, containing dwarf or procumbent herbs, natives of the dense forests of Brazil. Leaves opposite, stalked, heart-shaped, ciliated, with five or more ribs; flowers nearly sessile in cymes; petals five, white rose-coloured or purplish; stamens ten; ovary free, three-celled; capsule three-winged. *B. maculata* is a pretty

little creeping hot-house plant with spotted leaves, purple beneath. [J. T. S.]

BERTYA. A genus of the Spurgewort family (*Euphorbiaceæ*) composed of a number of small resinous shrubs much like the rosemary in appearance and habit. Their leaves are alternate, crowded on the branches, and linear in form, their margins entire and curved backwards. Their flowers are solitary in the axils of the leaves, those on the lower part of the stem male, the upper ones female; they are small, have no corollas, and without being looked for would be easily passed by. The leaves of most of them are covered with minute starry hairs of a white colour. Five species are known, all natives of Eastern Australia and Tasmania. The genus is named in honour of Count L. de Lambertye, a patron of horticulture in France, and the name is shortened to *B. rya* because of an already existing genus called *Lambertia*. [A. A. B.]

BERULA. Under this name is included a small section of the Linnean genus *Sium*. *B. angustifolia*, particularly known as the Narrow-leaved Water-paranip, is a native of the whole of Europe and a great part of Asia, growing in ditches and rivulets. The roots are fibrous, and send out stolons from the crown; the leaves are smooth, pinnate, and unequally lobed and serrated; the flowers, which are small and white, are either terminal or grow in umbels opposite the leaves, and are all stalked. [C. A. J.]

BESCHORNERIA. A genus of agave-like *Amaryllidaceæ* plants, related to *Litsea* and *Fouquieria*, from which it differs in having tubulose flowers, the former also differing in its exerted stamens, and the latter in its habit. The flowers consist of a deeply six-parted perianth, the segments of which are linear-spathulate, tubulose, connivent, sometimes slightly spreading at the point. There are six stamens which are about as long as the perianth; and an inferior and somewhat club-shaped ovary, terminated by a long slender style and small stigma. *B. tubiflora* is a stemless plant with a tuft of linear sword-shaped acuminate leaves, and an erect scape supporting a many-flowered raceme of purplish-green flowers. *B. guccoides*, another species of considerable beauty, has also a radial tuft of thickish lanceolate pointed leaves, a foot and a half long, and a tall slender coral-red scape three to four feet high, the upper half of which forms a drooping panicle of slender branches of the same rich coral-red, springing from deep rose-coloured bracts, and supporting a short pendent raceme of bright green flowers. It is indeed a most striking plant, the coral-red scape and panicle, the graceful slender drooping branches, and the racemes of large pendent green flowers, which in shape are not much unlike those of some long-flowered *Fuchsia*, but of a dark yellow green tinged with red, rendering it very ornamental, the more so as it

continues a long time in blossom. The species are natives of Mexico. [T. M.]

BESSENA. The Abyssinian name of *Albizia anthelmintica*, and at one time adopted as the scientific name of the plant, which was then imperfectly known.

BESHAN. The Balm of Mecca, *Balsamodendron Opobalsamum*.

BESLERIA. A genus of erect branching undershrubs, abundant in the forests of tropical America, and belonging to the section of *Gesneraceæ* which have albuminous seeds. They have opposite petiolate and fleshy leaves, with prominent nerves and veins, and axillary peduncles, with one or many flowers. The calyx is free, five-cleft, and reddish coloured; the corolla is campanulate, and sub-equally five-cleft. The four didynamous stamens, along with the rudiment of the fifth, are inserted in the tube of the corolla; the anthers are two-celled. The one-celled ovary is free, surrounded at its base by a fleshy ring without glands, and has two two-lobed parietal placentæ, to which are attached numerous anatropal ovules; the style is simple and bifid; the fruit is a berry filled with the fleshy placentæ, and numerous small obovate seeds, with very short cotyledons. [W. C.]

BESSERA. A genus of *Liliaceæ* bulbs, found in Mexico, the species of which have narrow linear leaves, and umbel-bearing flower scapes. The perianth is bell-shaped, six-parted, furnished with six stamens, which are connate below into a cylindrical coronet, and having a sessile ovary, containing numerous ovules, lying in two rows in the cells, the style being terminated by a capitate-depressed obscurely three-lobed fringed stigma. *B. elegans*, one of the best known of the few species, produces a pair of radical leaves, which are erect for two-thirds of their length, and then become pendulous; they are one to two feet long, semicylindrical, smooth and hollow. The scape, also smooth and fistular, is solitary, erect, taller than the leaves, and bears a terminal umbel of from three to sixteen drooping flowers of an orange-red colour, and having a turbinate bell-shaped tube, a moderately spreading limb of six nearly equal oblong-obtuse segments, and a cluster of six green stamens on long red filaments projected considerably beyond the limb, and united at the base for half their length into a six-ribbed tube. [T. M.]

BETA. A genus belonging to the natural order *Chenopodiaceæ*, a group comprising various genera of coarse weedy-looking plants, among which *Beta* is one of the most remarkable, on account of its roots and leaves being valuable both for culinary and agricultural purposes. It is a genus with hermaphrodite flowers, in which the five-parted urceolate perigone becomes hardened at the base, the segments merely shrivelling up. There are five stamens inserted in a fleshy ring oppo-

site the limb segments, and the depressed one-celled ovary becomes a one-seeded utricle.

The Common Beet, *Beta vulgaris*, is a native of the South of Europe, and although cultivated by the ancient Romans, and much esteemed by epicures, it was not introduced into this country until 1636. It is a hardy biennial, with large erect succulent leaves, generally of a deep reddish purple colour; but that for which it is most valued is its fleshy root, which varies in form from that of a carrot to a flat round turnip. The long-rooted sorts are preferred; they are usually about a foot or more in length, and from two to four inches in diameter at the top, from which they taper to a long point, and are prized in proportion to their being wholly of a deep blood-red colour when cut. In France and Germany, beet root is far more extensively used than in England; and, when properly dressed, it is generally considered to be a wholesome and nutritious vegetable. Boiled and sliced, it is eaten cold, either by itself or mixed in salads. It is also excellent with vinegar as a pickle, and is capable of being made into a conserve. There are many varieties in cultivation, which do not differ materially from one another, except in the colour of their roots and leaves.

A variety of Beet is grown on the continent, under the name *Betterave à Sucre*, from which sugar nearly equal to that from the cane is extracted, as well as a powerful spirit.

The White, or Sicilian Beet, *Beta Cicla*, as its name imports, is a native of Sicily, near the sea coast, as well as the shores of Spain and Portugal, from whence it was introduced in 1570. It is a biennial, and is grown solely for its leaves, which are either put into soups, or dressed like spinach. In France they are often mixed with sorrel, to lessen its acidity. The ancient Greeks used to eat the leaves of beet in preference to lettuce, and blanched them by laying a tile over the plant, as some gardeners do at the present day to blanch endive.

The large White, or Swiss Chard Beet, *Beta Cicla* var., is a very distinct variety, remarkable for the thick midribs and stalks of its large upright leaves. It is the

which the roots and foliage are highly coloured with a purple colour, whilst others incline to a yellowish-green hue. These two varieties are the initiatives of the red, and the white beet, and also of the red, orange, and white mangold wurzel. With respect to those forms which are cultivated for their roots, the size to which they have been brought is remarkable; but it should be observed, with regard to the white beet, which is cultivated for the midrib of the leaves, that the roots are usually much forked, and, indeed, are not greatly better in form than those of the woody wild examples, which, however, by being cultivated with a view to the root alone, attain a compact shape and large size. [J. B.]

BETEL. The fruit of *Areca Catechu*.

BETOINE. (Fr.) *Stachys Betonica*.

— AQUATIQUE. *Scrophularia aquatica*.

BETONICA. An old Linnæan name for various plants, now referred to *Stachys*. *B. officinalis*, or *Stachys Betonica*, is the Wood Betony of the herbals. [T. M.]

BETONY. The English name for the species sometimes separated from *Stachys* under the name *Betonica*; also *Tenacrium betonicum*. — WATER. *Scrophularia aquatica*. — WOOD. *Stachys Betonica*.

BETTE. (Fr.) *Beta maritima*.

BETTERAVE. (Fr.) *Beta vulgaris*.

BETULACEÆ. (*Birchacorts*.) A natural order of Exogenous plants, belonging to the Monochlamydeous sub-class of De Candolle, and to the Amental or catkin-bearing alliance of Lindley. They are trees or shrubs, having alternate, simple, stipuled leaves, often with the primary veins running straight from the midrib to the margin. The flowers are in catkins, some having stamens only, others pistil only; and they have scales in place of a perianth or floral envelope. In the alder, however, there is a four-leaved perianth. The stamens are opposite the scales. The ovary is two-celled, with a single pendulous ovule in each cell; stigmas two. The fruit is dry, does not open, is one-celled and one-seeded. The plants are found in the woods of Europe, Northern Asia, the Himalayas, and North America; they also inhabit the mountains of Peru and Columbia, and the Antarctic regions. They are usually timber trees, with deciduous leaves. Their bark is used as an astringent for gargles, and for dyeing and tanning; it also possesses tonic qualities, and is occasionally employed as a substitute for paper, and for making boats. *Betula alba* is the common birch. Its sap contains sugar, and, by fermentation, yields a kind of wine. The empyreumatic oil of the birch has been recommended in various affections; it is used in the preparation of Russian leather, and gives to it a peculiar odour. The alder, *Alnus glutinosa*, grows in moist places; the wood resists well the action of water, and has been used for the piles of

asparagus; but unless it is properly dressed, it has a peculiar earthy taste, and on this account it is not generally relished in this country.

The Sea Beet, *Beta maritima*, a perennial, which grows wild on the sea coast in various parts of Britain, is occasionally used as spinach or greens in situations where it is plentiful. [W. B. B.]

The Sea Beet is chiefly remarkable for the changes which it undergoes in cultivation, as from it have been produced the different varieties of Garden Beet, and Mangold Wurzel. If we examine the

bridges. The Rialto of Venice is built on alder piles, and so are many houses in Amsterdam. Sabots are made of the wood. There are two genera, *Betula* and *Alnus*, and upwards of sixty species. [J. H. B.]

BETULA. The Birch. Trees or shrubs inhabiting high latitudes in the northern hemisphere, or, when found in temperate regions, growing principally in rocky mountainous situations. They are characterised by slender, often drooping branches, which are covered by a smooth durable bark: by small leaves possessing little succulency, and in their nature astringent and aromatic; and by having their fructification at the same time, with the leaves in catkins of two kinds, barren and fertile, both on the same tree.

The Common Birch, *B. alba*, pronounced by the poet Coleridge—

'most beautiful

Of forest trees, the Lady of the Woods'—

is remarkable for its lightness, grace, and elegance, nor less so for its hardness; standing in no need of protection from other trees in any stage of its growth, and living on the bleak mountain side and other exposed situations from which the sturdy oak shrinks with dismay. It is a native of the colder regions of Europe and Asia. Throughout the whole of the Russian empire it is more common than any other tree, being found in every wood and grove from the Baltic sea to the Eastern ocean, and frequently occupying the forest to the exclusion of all other arboreal plants. It grows from Mount Etna to Iceland: in the warmer countries being found at a high elevation among the mountains, and varying in character according to the temperature. In Italy it forms little woods at an elevation of 6,000 feet. On some of the highlands of Scotland it is found at the height of 3,500 feet. In Greenland it is the only tree, but diminishes in size according to the decreased temperature to which it is exposed. It is a tree of rapid growth, especially when young; and as it is little affected by exposure, it forms an excellent nurse for other trees. The soil which it prefers is turf over sand, and in such situations it attains maturity in about fifty years; but it seldom exceeds fifty feet in height, with a trunk from twelve to eighteen inches in diameter. The bark possesses the singular property of being more durable than the wood which it encloses. Of this the peasants of Sweden and Lapland take advantage, and, shaping it like tiles, cover their houses with it. The wood is white shaded with red, and, if grown in a very cold climate, it lasts a long while. The highlanders of Scotland employ it for all purposes for which wood is available: the branches are used as fuel in the distillation of whisky; the spray for thatching, and for smoking hams and herrings; the bark for tanning leather; and the leaves for bedding. In Russia, an oil is extracted from the bark, which is used in the prepa-

ration of Russian leather, to which it not only imparts a fragrant odour, but renders it durable, preventing it from becoming mouldy, and repelling insects. The variety known as *B. pendula* differs from the common species only in having the branches pendulous, smoother, and more slender.

B. nana is found in Scotland, and in all the northern countries of continental Europe and America. It is a low wiry shrub, rarely exceeding three feet in height, with numerous round notched leaves, which are beautifully veined.

The Paper Birch, *B. papyracea*, so called from the brilliant white colour of the bark of young trees, is an American species no less valuable than the common birch, and attains a far larger size. By the Indians and French Canadians the durability of the bark is turned to good account. The Canadians select a tree with a large and smooth trunk; in the spring two circular incisions are made quite through the bark several feet from each other. Two vertical incisions are then made on opposite sides of the tree; after which a wooden wedge is introduced, by which the bark is easily detached. These plates are usually ten or twelve feet long, and two feet nine inches broad. To form a canoe, they are stitched together with the fibrous roots of the Canadian spruce. The seams are coated with resin. Great use is made of these in long journeys into the interior of the country; they are very light, and are easily carried on the shoulders from one lake or river to another. A canoe calculated for four persons weighs from forty to fifty pounds. Some are made to carry fifteen passengers. Numerous other species of birch are known to botanists, all of which approach more or less in character those described above.—French *Bouleau*, German *Birke*.

Plate 14, which is a view in Kamtschatka, represents a birch forest as seen in the distance. [C. A. J.]

BEURRE'. A general name applied to a class of dessert Pears, which have their flesh of what is called a buttery texture, as indeed the name itself indicates.

BEURRE DE SPERGULE. (Fr.) *Spergula arvensis*.

BEURREE. (Fr.) *Heperia matronalis*

BEYCHE SEED or NUT. A Siamese name for *Strophos nux-vomica*.

BEYRICHIA. A genus of *Scrophulariaceae*, containing a few species of herbaceous plants from Brazil and Guiana. They have opposite ovate leaves, and axillary flowers, on very short pedicels, either lax or in dense leafy spikes. The calyx is five-parted, the upper segment being ovate, and the four lower ones narrow. The upper lip of the corolla is emarginate, the lower is slightly trilobed, the palate is prominent. There are four stamens, two of which are frequently sterile. The capsule dehisces septicidally or loculicidally, and contains numerous small seeds. The genus is di-

vided into two sections: *Achetaria*, having two sterile stamens and septical dehiscence of the capsule; and *Dizygostemon*, with the four stamens fertile, and dehiscing loculicidally. In habit the species of this genus have very much the appearance of *Acanthaceae*. [W. C.]

BHABBUR or **BHABHUR**. An Indian name for the silky leaves of *Eriophorum cannabinum*, used for making cordage.

BHADLEE. *Panicum pilosum*, a broad-corn cultivated in India.

BHANG. An intoxicating drug obtained in the East from the Hemp, *Cannabis sativa*.

BHEL. The Indian name of the fruit of *Egle Marmelos*.

BI. In compound words=twice.

BIACUMINATE. Having two diverging points.

BIARTICULATE. Two-jointed.

BIARUM. One of the numerous new genera of *Araceae* proposed by Schott on comparatively slight grounds. This genus differs from *Arum* in its spathe being tubular at the base, with the limb spreading. The female flowers, moreover, have a distinct style, and the fruit contains only one ovule. The plants, which are much like the species of *Arum*, are natives of the south of Europe. [M. T. M.]

BIARITE. Having two little ears. See also *Auriculata*.

BIBACIER. (Fr.) *Eriobotrya japonica*.

BIBIRI. The Greenheart Tree, or Beebeere of Guiana, *Nectandra Rodieri*.

BICALLOSE. Having two callosities, as the lip of many orchids.

BICARINATE. Having two elevated ribs or keels on the under side, as in the pales of many grasses.

BICEPS. A term sometimes applied to the keel of a papilionaceous corolla when the angles of the two petals of which it is composed are distinct.

BICONJUGATE. When each of two secondary petioles bears a pair of leaflets.

BICONJUGATO-PINNATE. When each of two secondary petioles is pinnated.

BICORNELLA. A genus of little known Madagascar Orchids nearly related to *Habermaria*. They have long almost leafless stems, terminated by a few orchis-like flowers.

BICORNES. A name originally given by Linnaeus to a group of genera, corresponding nearly to the heath family (*Ericaceae*) taken in its most extended sense. It has been lately revived by Klotzsch and others for the designation of a class to consist of *Vacciniaceae*, *Ericaceae*, *Epacridaceae*, and the smaller families or tribes included in or closely allied to them.

BICORNIS, BICORNUTE. Having two horn-like processes.

BICORONA. A genus of *Apocynaceae* remarkable, as the name implies, for having in the throat of the salver-shaped corolla, a double row of scales, each row consisting of ten, and the upper series being placed in pairs, before each lobe of the limb of the corolla, the lower row alternate with them. The five filaments are very short; the stigma is two-parted; and the fruit is like a berry. The only species is a shrub with erect branches, thick leaves, and flowers in axillary and terminal cymes, and is a native of New Caledonia. [M. T. M.]

BICRURAL. Having two legs or narrow elongations, as the lip of the man-orchis.

BICUIBA. *Myristica Bicuibia*.

BIDENS. A somewhat extensive genus of herbaceous Compound flowers, growing both in the old and new world, well marked by the pericarp having, instead of a pappus, from two to five rigid awns which are rough with minute deflexed points. The British species of Bur-marigold, *B. cernua* and *B. tripartita*, are not unfrequent the borders of ponds and streams. They grow from one to two feet high, and may be distinguished while in flower by their button-like dingy-yellow flowers, which are surrounded at the base by an involucre of long bracts. The former has its flowers drooping; the latter has tripartite leaves. Neither of them is remarkable except for the tenacity with which the fruits cohere by their serrated awns to any penetrable substance to which they may happen to attach themselves. The foreign species possess little interest. French *Bident*: German *Zweyzahn*. [C. A. J.]

BIDENTATE. Having two teeth.

BIDIGITATO-PINNATE. Same as *Biconjugato-pinnate*.

BIDUOUS. Lasting two days only.

BIDWILLIA. A genus of Australian and Peruvian Liliaceous bulbs, with paniculate or racemose white flowers, only differing from the *asphodels* (*Aephodelus*) by having the filaments of the stamens thickened upwards. The leaves are linear, more or less glaucous; the roots fasciculate with knobbed ends. *B. glaucescens* is a native of the table-land called New England, in Australia. [J. T. S.]

BIEBERSTEINIA. This name commemorates the botanical services of Marschall von Bieberstein, a Russian naturalist. It is applied to a genus of *Rutaceae*, or, according to some authors, of *Zygophyllaceae*. The species are herbaceous plants, with pinnately divided leaves; flowers in terminal racemes, with five sepals and five petals; the stamens with filaments dilated at the base, between which and opposite to the petals are placed five round glands; ovaries five, distinct at the base and at the summit, but cohering in the middle, the five thread-shaped styles proceeding from

the inner side of the ovaries near their base, and uniting at the top into a single cup-shaped five-lobed stigma; fruits membranous, one-seeded. The species are natives of Persia, and the Altai and Himalayan mountains. [M. T. M.]

BIENERIA. A genus of terrestrial Orchids, proposed by the younger Reichenbach, but hardly distinct from *Chloraea*.

BIENNIAL. Requiring two years to form its flowers and fruit, and then dying; growing one year, and flowering, fruiting and dying the next.

BIFARIOUS, BIFARIAM. Arranged in two rows. This term is frequently applied to flowers and to ovules.

BIFARIOUSLY IMBRICATED. Overlapping in two rows.

BIFEROUS. Double bearing; producing flowers or fruit twice in the same season.

BIFID. Split half way down into two parts

BIFLOROUS. Bearing two flowers on the same footstalk. Also flowering twice in the same year.

BIFOLIOLATE. Having two leaflets only to a leaf.

BIFOLLICULUS. A double follicle.

BIFORATE. Having two pores or apertures.

BIFORINES. Oblong cells, with an aperture at each end, through which raphides are expelled.

BIFRENARIA. A name given to those *Maxillaria*-like plants which have two frons or caudicles to their pollen masses instead of four. The species are all from the tropics of America.

BIFRONS. Growing on both surfaces of a leaf. Also appearing equally like two different things. A term seldom used.

BIFURCATE. Twice-forked; having two pairs of diverging horn-like arms.

BIG. The common Bere or four-rowed Barley, *Hordeum vulgare*.

BIGAMEA. A Ceylon plant generally considered as belonging to *Combretaceae*, but referred by Planchon to a separate order, *Ancistrocladus*: from *Ancistrocladus*, which is equivalent to *Bigamea*. It is a shrubby-stemmed climber, whose main stem is short and terminated by a tuft of wedge-shaped leaves: from this fascicle springs a branch, which towards its apex bears short alternate patent branches with terminal tufts of lanceolate leaves. The flowers have five petals, five stamens, an inferior ovary, a pyramidal style with three stigmas; fruit a pear-shaped drupe covered by the five-parted calyx limb. [J. T. S.]

BIGANDEILLE. (Fr.) *Cerasus vulgaris*.

BIGARADE. The bitter or Seville Orange, *Citrus vulgaris*.

BIGARADIER. (Fr.) *Citrus vulgaris*.

BIGARREAUTIER. (Fr.) *Cerasus avium*.

BIGEMINATE. Same as Biconjugate.

BIGEMINOUS. * In two pairs; as the placentae of many plants.

BIGENERS. Mule plants obtained by crossing species of different genera. This kind of hybridism has been said to be impossible: Kôlreuter in particular adduced examples of failure in the attempt; but modern experiments seem to show the possibility of such a union.

BIGLUMIS. Consisting of two of the scales called, among grasses, glumes.

BIGNONIACEÆ. (*Bignoniads*; the *Trumpet-flower* family.) A natural order of Dicotyledonous or Exogenous plants belonging to the sub-class Corolliforme of De Candolle, and to the Bignonial Alliance of Lindley, which includes also figworts, acanthads, and gesneriworts. The order contains trees or twining or climbing shrubby plants, with usually opposite compound leaves, and showy often trumpet-shaped flowers. Calyx divided or entire, sometimes in the form of a spathe; corolla usually irregular, four to five-lobed, and with a swollen portion below its mouth; stamens five, unequal, one generally, two occasionally, abortive. Ovary having two cavities, surrounded by an expansion at its base; ovules attached to the central part of the ovary. Fruit a two-valved often pod-like capsule, divided by a spurious expansion of the placenta; seeds generally numerous and winged; embryo without albumen, and having broad leafy cotyledons. The plants are found in the tropical regions of both hemispheres, but predominate in the eastern. They extend in America from Pennsylvania in the north, to Chili in the south. They do not occur wild in Europe. The plants produce abundance of showy finely-coloured flowers. Some yield dyes; others supply timber. Among them are medicinal agents used in chest affections, and for worms. There are 46 genera and 452 species described. Illustrative genera: *Bignonia*, *Calosanthus*, *Catalpa*, *Eccremocarpus*, *Jacaranda*, *Spaihoea*, *Tecoma*. [J. H. B.]

BIGNONIA. The order *Bignoniaceae* takes its name from this genus, which was itself so called in honour of the Abbé Bignon, librarian to Louis XIV. The species of *Bignonia* are remarkable for the beauty of their flowers, and hence many are cultivated in this country. *B. caprea-lata*, one of the handsomest species, is a native of North America, but capable of being grown in warm places in this country as an ornamental climbing plant. The other species are for the most part natives of the warmer regions of the western hemisphere. The botanical characteristics of the genus are a bell-shaped calyx, slightly wavy at the margin; an irregular bell-shaped corolla; five stamens, two long and two short of which are fertile, and one sterile; stigma divided into two lamellae;

capsule like a long pod, with the partition between its two compartments parallel with the valves or walls of the pod: the seeds arranged in two rows and provided with a membranous wing. The wood of some of the climbing species is arranged in four divisions, so as to present a cross-like appearance when cut. The leaves are pinnate or sometimes consist of only two opposite leaflets. The flowers are borne in panicles, and are of various colours, but always handsome-looking. The fruit of most species is either unknown, or but superficially described. [M. T. M.]

The *Bignonias* are scandent tendrilled plants, frequently climbing to the tops of the highest trees, their flexible stems, twisted like ropes, sometimes passing from tree to tree, descending to the ground at intervals, taking fresh root, and again ascending other trees; in some of the Brazilian forests they are so numerous as to render them almost impassable.

B. allacea, the Garlic shrub, or *hane à l'ail* of the French, is a native of Guiana and the West Indies, and is so called in consequence of the powerful odour of garlic emitted by its bruised leaves and branches. It is a square-stemmed climber, with leaves composed of elliptical leathery leaflets, joined together in pairs; its flowers are large and white.

B. Koeberis a climbing shrub with smooth angular stems. Its leaflets are in pairs of threes upon a single stalk, of an elliptical form, and rather hairy upon the under surface; the flowers are about two inches long, downy, and of a yellow colour. The natives of French Guiana, where this plant is indigenous, use the tough flexible stems as a substitute for ropes, and from strips of them they weave various kinds of baskets, and broad brimmed hats which protect them from both sun and rain.

B. (?) Chica is the most useful species of the genus. It is a native of Venezuela, New Grenada, and Guiana, and has long climbing stems, which reach to the tops of the trees, where they divide into numerous small branches which support themselves by means of their tendrils. Its leaves consist of eight leaflets arranged in pairs (conjunct), each pair having a tendril betwixt them, and possessing a separate stalk branching from the central leaf-stalk; the leaflets are oval. The funnel-shaped flowers are arranged in loose drooping panicles, and are of a violet colour; they produce a long flattened pod-like fruit, containing numerous winged seeds. A red pigment called Chica on the Orinoco, and Carajuro on the Rio Negro, is obtained by macerating the leaves of this plant in water, and is greatly used by the natives for painting their bodies, so much so that M. Humboldt, in speaking of the natives of the Orinoco, says:—"To form a just idea of the extravagance of the decoration of these naked Indians, I must observe, that a man of large stature gains with difficulty enough by the labour of a fortnight, to procure in exchange the chica necessary to paint himself red. Thus we say, in tempe-

rate climates, of a poor man, "he has not enough to clothe himself;" you hear the Indians of the Orinoco say, "that a man is so poor, that he has not enough to paint half his body." See ARRABIDÆA. [A. S.]

BIHAI. *Heliconia Bihai*.

BIJUGOUS. A pinnate leaf with two pairs of leaflets.

BIKH or BIKHMA. The poisonous root of *Aconitum ferox*.

BILABIATE. A corolla divided into two separate parts or lips, placed one over the other, as in Sage, Bugle, and similar plants.

BILAMELLATE. Consisting of two plates, as many placenta, stigmas, &c., or bearing two vertical plates, as the lip of some orchids.

BILBERRY. The fruit of *Vaccinium Myrtillus*, sometimes called Whortleberry, Whorts, or Hurts in country places.

BILIMBI TREE. *Averrhoa Bilimbi*.

BILLARDIERA. A genus of shrubs belonging to the *Pittosporaceæ*, natives of Australia and Tasmania, with twining stems and alternate leaves; peduncles solitary from the apex of the branches, one-flowered, pendulous; calyx of five subulate sepals; petals five, combined into a tube below, generally yellow, occasionally blue or purple; stamens five; style thread-like, stigmas lobed; berry elliptical or cylindrical-ovoid, two-celled, many-seeded; pulp generally resinous. *B. matubilis*, however, is said by Backhouse to have pleasant sub-acid fruit which at first is green, and at last amber-coloured. *B. longiflora* has pretty blue berries. [J. T. S.]

BILLBERGIA. A genus of *Bromelaceæ*, so called in honour of a Swedish botanist. It is characterised by a superior three-parted calyx; corolla of three convolute petals, scaly at the base; stamens inserted into the base of the perianth; style thread-shaped; stigmas linear convolute; fruit berry-like. The flowers are generally very elegant, bluish-red or yellow, borne on light panicles, the leaves are harsh and rigid. These plants are found growing on trees in tropical America, and being capable of living without contact with the earth, they are hung on balconies, &c., in South American gardens, where they are much prized for the beauty and fragrance of their flowers. Many species are cultivated for ornament in our stoves. A yellow dye is extracted from the root of *B. tinctoria* in Brazil. [M. T. M.]

BILOBED. Divided into two lobes.

BILSTED. An American name for *Liquidambar styraciflua*.

BIMESTRAL. Existing for two months only.

BINUS. Lasting two years.

BINATE, BINUS. In pairs. Also the same as Bifoliolate.

BINATO-PINNATE. The same as Bipinnate.

BINDWEED. The common name for *Convolvulus*, especially *C. arvensis*; also applied to *Smilax aspera*. —, **BLACK.** *Polygonum Convolvulus*.

BINDWITH. A name applied to *Clematis*.

BINI. Two together; twin.

BINFLOUS. Bearing flowers in pairs; a term seldom used.

BINODAL. Consisting of two nodes or articulations, and no more.

BIOTA. A generic name proposed for the *Thuja orientalis* and *T. pendula*, which differ from the *T. occidentalis* and other American species in not having wings to the seeds. The genus is not, however, generally adopted.

BIOTIA. Formerly considered as a distinct genus from that of the *Michaelmas Daisy* (*Aster*), but now united with it. The species are perennial herbs, one to three feet high, their root-leaves large, on long stalks, and heart-shaped in form, those of the stem, ovate or oblong and narrowed towards the base into a winged footstalk; their flower-heads arranged in terminal corymbs, and very like those of the *Asters*. The species are found in Canada, and the United States, and one occurs in Manchuria. [A. A. B.]

BIPALEOLATE. Consisting of two small scales or palae, as in grasses.

BIPARTITE. Divided nearly to the base into two parts.

BIPENTAPHYLLOUS. Having from two to five leaflets.

BIPES. Same as *Bicuris*.

BIPINNATE, BIPINNATISECTED. When the primary and secondary divisions of a leaf are pinnated.

BIPINNATIFID, BIPINNATIPARTED. When both the primary and secondary segments of a leaf are pinnatifid.

BIPINNATIPARTITO-LACINIATE. Being bipinnatifid with the divisions lacinated.

BIPINNULA. A small genus of terrestrial Orchids related to *Arethusa*, with fleshy fasciated roots, consisting of little except starch and gum. The flowers are large, racemose, greenish yellow, and most remarkable for having the lateral sepals broken up into tufts of exquisitely beautiful fringes. Two species occur in Chili, and one in the Argentine States, near Buenos Ayres.

BIPPLICATE. Having two folds or pluts.

BIPOROSE. Opening by two round holes.

BIRADIATE. Consisting of two or more rays, as in certain umbels.

BIRCH. The common name for *Betula* —, **WEST INDIAN.** *Bursera gummiifera*.

BIRCH CAMPHOR. A resinous substance obtained from the bark of the black Birch, *Betula nigra*.

BIRCHWORTS. A name given by Lindley to the Betulaceous order.

BIRDLIME. A preparation of the bark of the Holly, *Ilex Aquifolium*; also obtained from the viscid berries of the Mistletoe, *Viscum album*.

BIRD-PLANT, MEXICAN. *Heterotoma lobeliales*.

BIRDS BILL. *Trigonella ornithorhynchus*.

BIRD'S-EYE. *Veronica Chamadrya*. —, **AMERICAN.** *Prunus a pusilla*

BIRD'S FOOT. The common name for *Ornithopus*, sometimes called Bird's-foot Vetch, also applied to *Lotus corniculatus*, and to *Euphorbia Ornithopus*.

BIRD'S HEAD. The common name for *Ornithoccephalus*.

BIRD'S-NEST. *Neottia Nidus-avis*; also applied to *Thamnopterus* or *Asplenium Nidus*. —, **YELLOW.** *Monotropa Hypopitys*.

BIRD'S-NEST PEZIZA. The common name for the species of *Cynthus* and *Nidularia*.

BIRD'S TONGUE. The common name for *Ornithoglossum*; also applied to *Senecio puidosus*.

BIRMOSE. Opening by two slits, as in most anthers.

BIRTHROOT. An American name for *Trillium erectum*.

BIRTHWORT. The common name for *Aristolochia*.

BISAILLE. (Fr.) *Pisum arvense*.

BISCUIT ROOTS. A name given in Oregon to the tuberous roots of some umbelliferous plants allied to *Ferula*.

BISCUTELLA. A genus of herbs belonging to the *Cruciferae*, natives of central Europe, the Mediterranean region, and central Asia. Often hispid, with erect rigid stems, frequently corymbosely branched at the summit; leaves oblong, entire, or pinnatifid, very variable in this respect even within the limits of a single species; racemes short, elongated in fruit; flowers rather small, yellow; pouch flattened, with the partition narrow and the valves orbicular, flattened, and winged, breaking away from the axis when the seeds are ripe; seeds, one in each valve, and contained in it when it falls off. *B. longuta* is a common subalpine plant of central Europe, &c., very variable in appearance, and remarkable for its curiously-shaped seed-vessels, which are notched both at the base and apex. Some of the species have them notched only at the base.

[J. T. S.]

BISEPTATE. Having two partitions.

BISERIAL. Arranged in two rows not on opposite sides of an axis; as on a flat surface.

DISERRATE. When serratures are themselves serrate.

BISH or BISHMA. The poisonous root of *Aconitum ferox*.

BISHOP'S CAP. An American name for *Mitella*.

BISHOPWEED. *Egopodium Podagraria*; also applied to the *Sison Ammi* of Linnaeus; and as a common name to the genus *Ammi*. — **MOCK.** An American name for *Discochloa*.

BISTORT. *Polygon m Bistorta*.

BITCHWOOD. The timber of *Piscidia carthagenensis*; much esteemed in Jamaica for making the naves of wheels.

BITERNATE. When the principal divisions of a leaf are three, each of which bears three leaflets.

BITTEN. Terminated irregularly and abruptly; applied to leaves and roots.

BITTER-BLAIN. A name given by the Dutch Creoles in Guiana to *Fandolisia diffusa*.

BITTER KING. *Soulamea amara*.

BITTER-SWEET. *Solanum Dulcamara*; also an American name for *Celastrus scandens*.

BITTER WOOD. *Xylopia glabra*; also used in gardens for the genus *Xylopia*.

BITTERWORT. An old name for *Gentiana lutea*.

BIVITTATE. Having two vittæ.

BIXACEÆ, BIXINÆ. A name sometimes given to the order of bixads, more generally called **FLACOURTIACEÆ** (which see).

BIXA. A name applied by the Indians of Darien to the plant producing the Arnotta of commerce, and adopted by botanists for the genus of *Flacourtiaceæ*, to which it belongs. There are four species known, all of them natives of tropical America, and forming small trees, with entire leaves marked with numerous pellucid dots. Their flowers are produced in large bunches at the ends of the young branches; and have a calyx consisting of five sepals, which alternate with five wart-like swellings on the stalk, and likewise with the five petals; numerous long free stamens, and a long style terminating in a two-lobed stigma. Their fruit has a dry prickly husk, which splits into two pieces, each bearing numerous seeds attached in a perpendicular row on their inside.

B. Orellana is a small tree growing about twenty or thirty feet high, having broad heart-shaped pointed leaves, and bunches of rose-coloured flowers. Its fruit is heart-shaped, rather more than an inch long, of a reddish-brown colour, and

covered with stiff prickles. The seeds have a thin coating of red waxy pulp, which forms the substance called Arnotta; it is separated by throwing the freshly-gathered seeds into a tub of water, and stirring them until the red matter is detached, when it is strained off and evaporated to the consistency of putty.



Bixa Orellana.

in this state it is made up into rolls and wrapped in leaves, and is then known as sag or roll arnotta; but when more thoroughly dried, it is made into cakes and called cake arnotta. In South America arnotta is greatly used by the Caribs and other tribes of Indians for painting their bodies: paint being almost their only article of clothing. In this country it is used for colouring cheese, inferior chocolates, &c.; and by the Dutch for colouring butter. It is also used by silk-dyers; and by varnish-makers for imparting a rich orange tint to some kinds of varnish. [A. S.]

BLACKBERRY. The Bramble, *Rubus fruticosus*, and its numerous varieties.

BLACKBURNIA. A genus of *Xanthoxylaceæ*, consisting of trees with alternate pinnate leaves, and flowers in panicles. The parts of the flower arranged in fours; ovary solitary, on a short stalk, one-celled, one-seeded, with a short style and simple stigma; capsule tough, partly two-valved. These trees, inhabiting Norfolk Island and the East Indies, resemble the species of *Ptelea*, but are known by their simple stigma and wingless fruit. *B. pinnata* is occasionally cultivated. [M. T. M.]

BLACK DRINK. A decoction of *Ilex vomitoria* used by the Creek Indians.

BLACK JACK. An American name for *Quercus nigra*.

BLACK NONESUCH. *Medicago lupulina*.

BLACKTHORN. *Prunus spinosa*.

BLACKWELLIA. A genus of *Homalidae*, named in honour of Elizabeth Blackwell, the author of a forgotten herbal; technically it is characterised by having an adherent top-shaped calyx, whose limb is divided into from five to fifteen divisions, glandular at the base or in the centre; stamens opposite the petals; ovary conical above, with three to five styles; fruit a one-celled many-seeded capsule. The species are small trees, natives of India, Mauritius, and China. *B. padiflor.*

greenhouse shrub, much resembles the common *Prunus Padus* in appearance; and there are also other species of the genus in cultivation. [M. T. M.]

BLACK WOOD. An Indian furniture wood obtained from *Dalbergia latifolia*; also a name for that of *Melania Melanoxylon*. — of New South Wales. *Acacia Melanoxylon*.

BLADDER-GREEN. A colour obtained from the berries of *Rhamnus catharticus*.

BLADDER KETMIA. *Hibiscus Trionum*.

BLADDER-POD. The common name for *Physolobium*.

BLADDER-SEED. The common name for *Physospermum*.

BLADDERWORT. The common name for *Utricularia*.

BLADDERY. Inflated like an animal bladder; as the fruit of the Bladder Senna, *Colutea arborescens*.

BLADE. The lamina or expanded part of a leaf.

BLERIA. A genus of *Ericaceae*, containing many heath-like shrubs, from the Cape of Good Hope, with opposite and ternate leaves, and terminal clusters of flowers. The calyx is four-parted; the persistent corolla is campanulate, sometimes a little expanded below. The four stamens are inserted below the hypogynous disc. The ovary is four-celled, with many ovules in each cell. The capsule is globular with four rounded angles. The habit and structure of the members of this genus are the same as in *Erica*, from which they differ only in having four instead of eight stamens. [W. C.]

BLAKEA. A genus of trees or shrubs belonging to *Melastomaceae*, natives of tropical America, with opposite petiolate three or five-nerved leathery leaves, glabrous and shining above, often covered with short rust-coloured wool beneath as well as the peduncles, which are axillary and

BLANC D'EAU. (Fr.) *Nymphaea alba*. — DE HOLLANDE. *Populus alba*.

BLANCHETTE. (Fr.) *Valeriana Locusta*.

BLANCHING. A whitening of the usually green parts of plants, to which the term Albefactio is applied.

BLANCOA. A genus of *Hæmodoraceae* plants, consisting of dwarf stemless herbs, with the aspect of a *Barbacenia*, having equitant hoary falcate acuminate leaves as long as the furfuraceous scape, which latter supports two or three large nodding flowers, both flowers and peduncles being clothed on the outside with plumose hairs. The perianth is elongately bell-shaped or sub-clavate, with an erect six-toothed equal limb, and is furnished with six sub-sessile anthers. The species *B. canescens* is found in the Swan River Colony. [T. M.]

BLANDFORDIA. A genus of *Liliaceae*, consisting of very handsome perennial herbs, having linear elongate striate radical leaves, dilated and somewhat sheathing at the base; others shorter and more distant, appearing on the flower-stem, which is simple with a many-flowered raceme at the top. The flowers are solitary on recurved pedicels, and have a tube funnel-shaped six-cleft regular perianth, with ovate acutish segments, six equal stamens, scarcely exerted, and a free long-stalked narrow three-celled ovary, terminated by a filiform style and obtuse stigma. Several species, natives of New Holland and Tasmania, are known. *B. marginata* has rigid sub-erect leaves, scabrous along the margin, and lengthened racemes of pendulous, conically funnel-shaped flowers, which are of a deep rich coppery red outside, yellow within and at the edges of the round petaloid divisions, which at the back terminate in a sharp orange-coloured point. In *B. nobilis* the leaves are very narrow and entire, and the flowers are ventricosely funnel-shaped, subumbellate, red with the upper half yellow. *B. grandiflora* has rigid erect leaves serrated at the point and short racemes of pendulous ventricosely funnel-shaped flowers, which are red with the upper half yellow, and have retuse petals. In *B. Cunninghamii* the leaves are weakish, spreading, quite entire and smooth; the flowers pendulous, conical, inflated at the apex, subumbellate, reddish throughout, the segments all acute, and the stamens somewhat exerted. They are all handsome plants, and some one or other of them may not unfrequently be met with in our greenhouses. [T. M.]

BLASTEMA. The axis of an embryo, the radicle and plumule, including portion; also the

thallus of a lichen.

BLASTHEMANTHUS. A tree found near the Amazon river, has been considered by Planchon to belong to a new genus of *Ochnaceae*, to which he gives the above name. Its botanical characters are interesting; the chief are: a double calyx, each of five over-

[J. T. S.]

lapping pieces: five petals; twenty glands in one row, exterior to the ten stamens; anthers prolonged into a leaf-like process, opening by two pores, the stamens after flowering turned to one side of the flower; ovary placed on a very short stalk, three to five-celled, and many-seeded. The alternate oblong leaves have cartilaginous stipules inserted on to the branch above the insertion of the leaf. [M. T. M.]

BLASTIDIA. Secondary cells generated in the interior of another cell.

BLASTUS. The plumule.

BLAZE', or BLANZE. (Fr.) A species of *Triticum*.

BLAZING STAR. A North American name for *Liatris squarrosa*, and *Chamaelirium luteum*.

BLE'. (Fr.) *Triticum vulgare*. — **BARBU.** *Triticum turgidum*. — **D' ABONDANCE.** *Triticum compositum*. — **DE BARBAIRE.** *Polygonum Fagopyrum*. — **DE MIRACLE.** *Triticum compositum*. — **DE TURQUIE.** *Zea Mays*. — **DE VACHE.** *Melampyrum arvense*. — **NOIR.** *Polygonum Fagopyrum*. — **TURC.** *Triticum compositum*.

BLEABERRY. The Bilberry, *Vaccinium Myrtillus*; sometimes also applied to the Bog Whortleberry, *Vaccinium uliginosum*.

BLECHNIDIUM. A genus of polypodiaceous Ferns, closely related to *Blechnum*, from which it differs only in the veins being reticulated instead of free. The only species, *B. melanopus*, is a native of India, and is a moderate-sized pinnatifid fern, with falcate segments, having a general resemblance to the common garden *Blechnum occidentale*. As its trivial name indicates, the stipes or stalk of the frond is black. [T. M.]

BLECHNOPSIS. A name proposed by Presl for certain species separated from *Blechnum*, namely, *B. orientale*, *cartilagineum*, *brasiliense*, &c. It is not adopted by other pteridologists. [T. M.]

BLECHNUM. A considerable genus of polypodiaceous Ferns belonging to the group *Lomariaceae*. They are plants with simple pinnatifid or pinnate fronds, of which the fertile ones are sometimes more or less contracted. They are distinguished by having the sori linear, lying parallel with and more or less approximate to the midrib, and therefore theoretically distant from the margin, but sometimes becoming at the same time sub-marginal by the contraction of the fronds. These sori are covered by linear indusia, which are attached along that side of the receptacle which is nearest the margin of the frond, and open along the inward side, or that which is nearest to the midrib. The veins, as seen in the sterile fronds, where they are uninterrupted by the development of the fructification, are free, that is, they branch out from the costa, and become forked as they extend towards the margin,

without coming in contact with each other; but in the fertile fronds they are combined within the margin, and generally near the base by the receptacle which runs transversely to them. Leaving out of view *Blechnum*, which is distinguished from *Blechnum* only by the reticulation of its veins, its nearest ally is *Lomaria*, which indeed presents sometimes so little difference that the same plants are in some cases indifferently referred to either genus by different authors, or even by the same author in different publications. The proper distinction between the two consists in the fructification of *Lomaria* being marginal, and that of *Blechnum* within the margin, and this irrespective of the contraction of the fronds, which latter feature has sometimes been taken as the mark of *Lomaria*.

The species of *Blechnum* range under two divisions, in one of which, represented by the Indian *B. orientale*, the sori are placed very near the costa, and in the other, represented by our native *B. Spicant*, it becomes sub-marginal from the contraction of the fronds. The former group is the more typical. *B. orientale* is a tall-growing and very handsome fern found throughout India and the East. It has a short caudex, which is clothed with long narrow glossy scales. The fronds, which are often three feet long or more, are pinnate, the pinnae sometimes a foot long, elongately linear, tapering to a narrow point. *B. Spicant* is a humbler plant, producing horizontal pinnately pinnatifid sterile fronds, and erect fertile ones, with narrower or contracted segments. The genus contains a considerable number of species, which are abundant in tropical countries, a large proportion of them being found in the northern parts of South America, in the West Indian Islands, in India, and in the various islands of the Eastern sea. A few species occur in Australia, at the Cape of Good Hope, and in Chili; and our native, *B. Spicant*, is found throughout Europe, in Madeira and the adjacent islands, in the Caucasian regions, and in Kamtschatka. [T. M.]

BLECHUM. A genus of herbaceous plants of the order *Acanthaceae*, abundant in tropical America, and occurring also in India and Madagascar. The flowers are in large axillary or terminal spikes; they spring from the axils of broad herbaceous imbricated bracts. The calyx is deeply five-cleft; the corolla is funnel-shaped, with a long tube and a small regular five-lobed limb; the four included didynamous stamens are inserted in the middle of the tube; the anthers consist of two oval parallel cells; the ovary is two-celled, with four or more ovules in each cell; the style is simple, and the stigma bifid. The ovate capsule is two-celled, with eight or more roundish seeds. [W. G.]

BLEEKERIA. This name has been applied to a tree, native of New Holland, and the island of Ceram, in honour of Dr. Bleeker, a distinguished student of the

natural history of India, especially of the fishes of that country. The genus is one of the apocynaceous family, characterised by a calyx without glands, a salver-shaped corolla with a slightly distended tube, and no scales at its throat. Filaments adherent to the tube of the corolla for some distance, hairy; anthers linear, slender, with the connective prolonged for a short distance beyond the lobes. Ovaries two, small, roundish, each containing two ovules, placed one over the other; style short; stigma almost globular below, tapering above and hairy, slightly two-lobed at the point. Fruit of two fleshy purple drupes, or one by abortion, with a hard woody inner shell. [M. T. M.]

BLENNOSPORA. *B. Drummondii* is the name given to a little West Australian plant which belongs to the cudweed section of the composite family. It is seldom taller than three inches, and is altogether covered with loose woolly hairs. Its leaves are alternate, and linear in form. The flower heads, of a brown colour, are arranged in dense terminal clusters, each of the heads containing but two florets. The generic name refers to the cellular coating of the achene becoming gelatinous when moistened. [A. A. B.]

BLEPHARÆ. The teeth or fringes belonging to the peristome of an urn-moss.

BLEPHARIS. A genus of *Acanthaceæ*, natives of Asia and Africa. They are creeping herbaceous plants, with verticillate unequal leaves, and axillary spikes in which the lower bracts are sterile and closely imbricated, while the two terminal bracteoles contain a single flower. The calyx is four-parted, of which the upper and lower divisions are broadest, and the lower bidentate. The corolla is one-lipped, its anterior portion being trifid, and the posterior tridentate. The four stamens are sub-didynamous, the anthers on the longer pair of filaments one-celled, while the shorter filaments bear two-celled anthers. The two-celled ovary has two ovules in each cell; but the carpellary fruit contains sometimes only two seeds, from the abortion of two of the ovules. [W. C.]

BLEPHAROCHLAMYS. A name synonymous with *MYSTROPETALON* (which see). [M. T. M.]

BLEPHILIA. A genus of the mint family, *Labiata*, peculiar to the United States, and nearly related to horse-mints (*Monarda*), but the calyx tube has thirteen instead of fifteen nerves, and is naked in the throat, while the throat of the corollas, which are much smaller than in *Monarda*, are more markedly dilated. There are two species, *B. hirsuta* and *B. ciliata*, the former with long stalks to the leaves, the latter with nearly sessile leaves; and both with the habit, appearance, and odour of our own mints (*Mentha*). The purplish flowers are disposed in axillary or terminal globular whorls, surrounded with coloured

bracteas, which, like the calyx-teeth, are fringed with hairs. To this fringe the generic name, derived from the Greek, signifying eyelash, refers. [A. A. B.]

BLETIA. A large genus of terrestrial orchids chiefly from tropical America, where they inhabit swampy places. They have narrow grass-like leaves, and purple or whitish flowers in long terminal racemes, in almost all cases handsome enough to claim the notice of gardeners. Very few species occur in the Old World, among which is *B. hyacinthina*, cultivated in China for the sake of its fragrance. In their manner of growth they are much like *Cymbidiums*.

BLETTING. That kind of change in tissue which results in the formation of a brown colour, without putrefaction, as in the fruit of the medlar. The term *Hypsothia* is applied to this change.

BLEWITS. The popular name in some parts of England for *Agaricus personatus*, a species which is frequent in rich meadows in autumn, and is known by its pale bluish-coloured or purplish convex fleshy pileus, pallid gills, and thick stem, tinged more or less with violet. It is sometimes exposed for sale, but is a fungus of inferior quality for the table. It is in general believed to be wholesome; but in a case of poisoning from the use of fungi at Cambridge, some years since, the principal part of the stew consisted of this species. Dr. Badham, however, speaks highly of it, when not sodden with water, and suggests that the name is a corruption of Blue Hats. [M. J. B.]

BLIGHIA. A genus of *Sapindaceæ*, named in honour of Captain William Bligh, of H.M.S. *Bounty*, who, in the year 1787, was appointed to convey the bread-fruit and other trees from Tahiti to the West Indies. It consists of only one species, *B. sapida*, which produces the Akee fruit. This plant is a native of Guinea; but it has been introduced into and is now common in the West Indies and South America. It forms a small tree about thirty feet in height, having compound leaves consisting of three or four pairs of broadly lance-shaped downy leaflets. Its flowers are produced in racemes from the axils of the leaves. They have a calyx consisting of five pieces; five white petals bearing a large two-lobed scale near the base on their inside; eight stamens; and a short style bearing three stigmas. The fruit is fleshy, and of a red colour tinged with yellow, about three inches long by two in width, and of a three-sided form; when ripe it splits open down the middle of each side, disclosing three shining jet-black seeds, seated upon and partly immersed in a white spongy substance called the aril. This aril is the eatable part of the fruit, and in tropical countries, where it comes to perfection, it is said to possess an agreeable sub-acid taste, very grateful to the palate; but fruits ripened in the hothouses of this country have not been found to possess such good qualities, their

pound compressed spikes; spikelets with two to eight flowers, which are all hermaphrodite; stamens three; styles cleft. Four species are described, two of which are natives of Britain, namely, *B. rufus* and *B. compressus*. The former occurs frequently in salt-marshes, near the sea-coasts of England and Ireland; but the latter is rather rare, particularly in Ireland. *B. brevifolius* is a native of India. [D. M.]

BLYTTIA. A genus of Grasses belonging to the tribe *Agrostider*. Only one species is described, *B. suarvicensis*, which is the *Cinna pruriens* of Steudel's *Synopsis*, and a native of Norway. [D. M.]

BLYXA. A small genus of stemless aquatic plants found in India and Madagascar, belonging to *Hydrocharitaceae* and allied to *Vallisneria*. They have linear leaves, which as well as the flowers are submerged. The flowers are dioecious, produced from a tubular spathe split at the end, which has several stalked flowers in the male plant, but only a single sessile one in the female; the perianth has three calyx-like outer segments, and three linear oblong petaloid inner ones, but in the female flower these are at the top of a long tube, adhering to the inferior ovary at the base, stamens three to eight; berry one-celled, as in *Vallisneria*. [J. T. S.]

BOATLIP. The common name for *Scaphyllaria*.

BOAT-SHAPED. Having the figure of a boat in miniature, with its keel.

BOBUA. A genus which was for a long time known only from a short and imperfect description, and was generally placed in the *Combretum* family, but is now generally allowed to be a species of *Symplocos* (*S. spicata*). It is a small tree, all its parts of a yellowish-green colour, and retaining that colour in a dried state. The leaves are alternate, stalked and oblong; the flowers small, white or yellowish-coloured, and borne on short axillary spikes. The fruits are hard, small, and in form like a miniature pitcher, and are sometimes seen strung like beads, and used as necklaces by native children. The plant is common in India and Ceylon. [A. A. B.]

BOGAEA. One of the genera of *Anacardaceae*, characterised by the calyx, which is either divided, of three segments, or entire and cup-shaped; the petals are six in number, distinct; the stamens definite in number, opposite to the petals. Ovaries three, one-celled, and containing five to eight ovules; styles free or none. Fruit berry-like, of from one to three carpels, which are on short stalks and contain only three seeds, the remainder being arrested in their growth; the seeds are horizontal and provided with an arillus. The species are trees inhabiting Brazil. [M. T. M.]

BOCCONIA. An interesting genus of *Poppyaceae*, so named in honour of a Sicilian botanist. The calyx consists of two cream-coloured or pinkish sepals;

corolla none; stamens eight to twenty-four; style bifid; capsule not jointed, but two-valved, and containing from one to four seeds. The species have their flowers in graceful clusters, and the foliage is also elegant. *B. frutescens* and *B. integrifolia*, natives of the West Indies and Mexico, are in cultivation. *B. cordata*, a hardy species, is a native of China. [M. T. M.]

BECKHIA. A genus containing a few sedge-like plants from the Cape of Good Hope, belonging to the natural order *Rustaceae*. The rhizome is creeping, throwing up slender simple rigid stems with small membranous sheaths. The flowers are unisexual with six small glumes, and are arranged in pairs or in terminal spikes. The male flowers have three stamens; the female a two-celled ovary with one ovule in each cell, and two plumose stigmas; fruit a hard nut containing one seed. [J. T. S.]

BEENNINGHATSENIA. A genus of *Rubaceae*, nearly allied to *Ruta* itself, but distinguished by its flat entire oblong petals; the ovaries also are placed on a thread-like column or stalk, which projects from a short cup-shaped disc. The species are natives of the East Indies. [M. T. M.]

BOERHAAVIA. This genus of *Nyctaginaceae* commemorates a famous Dutch physician and naturalist, a cotemporary and patron of Linnæus. The plants are herbs, widely distributed over the tropical and warmer regions of the globe. The flowers have no involucre; their perianth is in two divisions, the lower portion cylindrical, black, persistent, the upper funnel or bell-shaped, coloured, deciduous, five-lobed at the top; stamens one to three, more rarely four, arising from a ring placed beneath the ovary. Ovary very small at the base of the perianth. Fruit within the enlarged hardened base of the perianth, frequently five-ribbed. The root of *B. procumbens*, a troublesome weed in India, is given as a laxative and vermifuge. Others are used as emetics, and for other medicinal purposes. Several species are in cultivation, but have no particular beauty to recommend them. [M. T. M.]

BÖHMERIA. This genus of the order of Nettleworks (*Urticaceae*) contains numerous species distributed throughout the tropics and subtropics of both hemispheres. They are herbaceous plants or shrubs, closely allied to true nettles (*Urtica*), but differing from them in not having stinging hairs. The male and female flowers are produced in separate spikes on the same plant: the males having a four-parted calyx and four stamens, the females a tubular calyx divided into four teeth at the top, and a slender style with hairs along one side. Several of the species yield valuable fibres. The most interesting of them is *B. nivea*, the Tehou-ma of the Chinese, the Rheen of Assam, and the Chinese Grass-cloth plant of English writers. It is a small shrubby plant about three or four feet

high, throwing up numerous straight shoots, which are about as thick as the little finger and covered with short soft hairs. Its leaves grow upon long hairy footstalks, and are broadly heart-shaped, about six inches long by four broad, terminating in a long slender point, and



Böhmeria nivea.

having their edges cut like a saw. They are of a deep green colour on the upper side, but covered on the under side with a dense coating of white down, which gives them an appearance, like that of frosted silver. The beautiful fabric known in England as Grass-cloth, and rivaling the best French cambric in softness and fineness of texture, is manufactured from the fibre obtained from the inner bark of this shrub, which is a native of China and Sumatra, and has long been cultivated in those countries and also in India, where it has recently been recognised as identical with the *Rheea* of Assam. The Chinese bestow much care and labour upon its cultivation and the preparation of its fibre, called Rammie fibre, they obtain three crops of the stems annually, the second being considered the best. To obtain the fibre the bark is stripped off in two long pieces and carefully scraped with a knife, so as to get rid of all useless matter, after which it is softened and separated into fine filaments, either by steeping it in hot water or holding it over steam. The fibre is of different degrees of fineness according to the age of the plant, and the part of the bark from which it is taken: the inner bark of young quickly grown stems yielding the beautifully fine delicate fibre from which the best fabrics are manufactured, while the outer portion affords a coarse fibre only fit for making ropes, canvass, &c. Experiments made with the view of testing the strength of this fibre have proved it to possess nearly double the tenacity of Russian hemp.

B. Puya, which is a native of Nepal, very

closely resembles the preceding both in its botanical characters and general appearance. It is, however, rather taller, growing as high as six or eight feet, and its leaves are of a different form, being broadly lance-shaped, and terminating in a sharp point; but they have serrated edges, and are silvery on the under side as in the last. This plant is called Poonh or Puya in Sikkim and Nepal, and its fibre has long been in use among the natives; but they have hitherto employed clay or mud in its preparation, which greatly deteriorates its value. When properly prepared it is very strong, and makes good cordage and sail-cloth. Of the other species of this genus we may mention that the inner bark of *B. albida* is used in the Sandwich Islands for making cloth; and *B. caudata* is employed medicinally in Brazil. [A. 8.]

BOIS A' BALAIS. (Fr.) *Betula alba*. — A. LARDOIRE. *Eucornutus europæus*. — BOUTON. *Cephalanthus occidentalis*. — CUIL. *Duca palustris*. — D'ARC. *Maclura aurantiaca*. — DE CHINE. *Murraya exotica*. — DE CHYPRE. *Cordia Gerascanthus*. — DE COCHON. *Hedysium balsamifera*. — DE COLOPHANE. *Bursera paniculata*. — D'HUILE. *Erythroxylon hypericifolium*. — DE LETTRES. *Brodiaea subulifolia*. — DE LOUSTAU. *Antirrhinum verticillata*. — DE MAM. *Craegus Oxyacantha*. — DE PALIXANDRE. The Rosewood of cabinet-makers obtained from different species of *Dalbergia*, as *D. latifolia*, and *D. nigra*. — DE PERDRIX. *Hesperis coccinea*. — DE SAINTE LUCIE. *Prunus Mahaleb*. — DE ROSE. *Lucaria guianensis*. — GENTIL or JOLI. *Daphne Mezereum*. — ROUGE. *Gumma grandifolia*. — TAN. *Byrsosima spicata*.

BOISDEVALLA. A small genus of North American Onagraceae, separated by Spach from *Oenothera*, from which it differs chiefly in the four stamens, which are opposite the petals, being shorter than the alternate ones, and in the rosy or pinkish colour of the corolla; the flowers of the true *Oenothera* being either white or yellow. Only two species are known. *B. densiflora* and *B. concinna*, both of annual duration. The former is an erect woolly slightly-branched plant, with linear lanceolate pointed toothed leaves, and is remarkable for having the axillary buds of the main stem, which usually produce but a single flower, developed into a short branch bearing a small corymb of flowers; it has little beauty to recommend it. *B. concinna* is of trailing habit, with small ovate-lanceolate leaves and pretty pink flowers in terminal leafy spikes. [W. T.]

BOISSIELLE. (Fr.) *Bossiaea Scopelendra*.

BOJERIA. A genus of one species (*B. speciosa*) belonging to the composite family, and found in Madagascar. It is a shrub about ten feet high, the stems towards the apex covered with dense rusty hairs. The leaves are alternate, entire, ovate or lanceolate in form, and

clasping the stem by their base, nearly smooth above, and densely tomentose beneath. The flower-heads are single from the apex of the branches, and about one inch in diameter, having numerous purple tubular florets, all of them containing both stamens and pistil. The genus bears the name of M. Bojer, Professor of Botany in the Mauritius. [A. A. B.]

BOLBITIS. A name proposed for certain acrostichaceous Ferns, now referred to *Pecopteris*. [T. M.]

BOLBOPHYLLUM. A very extensive genus of Orchids of small stature growing on trees or overrunning the ground among mosses. Their leaves are usually solitary on fleshy pseudobulbs; and their flowers are small and inconspicuous, in racemes or small capitules. Some, however, have fleshy deeply-coloured flowers in dense spikes. In structure they differ little from Dendrobies except that the column is terminated by two conspicuous lateral bristles or teeth. Nearly one hundred species are known from the tropics of the Old and New Worlds. The focus of the genus is Africa and Asia.

BOLDOA. The name given to a small Chilean tree belonging to the *Momima* family. It has opposite short-stalked ovate leaves, which are entire and rough on the surface. The flowers in little axillary racemes, the males and females on different plants. The centre of the male flower is occupied by a great many stamens, and that of the female by from two to nine ovaries, which when ripe are succulent drupes, about the size of haws, and very aromatic, as are all the parts of the plant. The bark is serviceable to tanners, and the wood is preferred before any other in the country for making charcoal; while the fruits are eaten. The tree is known in Chili as Boldu. [A. A. B.]

BOLDU. A genus of *Lauraceae*, consisting of Chilean shrubs, with hermaphrodite flowers in axillary panicles. The calyx is six-cleft, rotate, with persistent thick segments; the three inner stamens have on either side at their base a sessile gland; the anthers are two-celled. Boldu is besides the Chilean name for *Boldoa fragrans*. [M. T. M.]

BOLET DU MÊLEZE (Fr.) *Polyporus monaiis*.

BOLETS. (Fr.) *Boletus*.

BOLETUS. A genus of hymenomycetous Fungi, distinguished by the hymenium consisting of tubes separable from each other, as well as from the pileus or cap. In a few instances the tubes are separable from the pileus in the more fleshy *Polyporus*, but never so completely from each other as in this genus. All the species have a strong stem, and in a few this is furnished with a ring. They are numerous and often difficult of determination. Some of them are highly poisonous, while *B. edulis* is considered by

most people an excellent article of food. It is not much used in this country, but in Hungary it is preferred to the mushroom, which is regarded generally with suspicion. The most poisonous species are easily recognised by the red orifice of the tubes; but with the exception just mentioned there are not more than one or two acceptable species. One of the most curious points about these fungi is, that in several species the flesh from white or yellow turns instantaneously to blue when divided. It is believed that this arises from the action of ozone on the juice. Sir W. C. Trevelyan assures us that he eats even *B. luridus* with impunity. The late Mr Sauter, when employed on the Geological Survey, lived for some days almost exclusively on Boleti, which he gathered indiscriminately. *B. edulis* has sometimes been cultivated artificially in its native woods. [M. J. B.]

BOLIVARIA. A genus of the Jasmine family confined to South Brazil and Chili. They are small woody plants from one to two feet high, with opposite entire or three-lobed leaves, and axillary or terminal yellow flowers, not unlike those of the jasmine, but smaller. The fruit is a two-lobed cartilaginous capsule, the upper part of which falls off in the form of a cap when the seeds are ripe. The genus bears the name of Bolivar, the celebrated liberator of South America; it is now united with *MENODORA*: which see. [A. A. B.]

BOLTONIA. A genus of three species, belonging to the Composite family, and peculiar to North America, where they extend from Canada southwards to the Southern states. They are smooth much-branched perennial herbs, with lanceolate pale green sessile leaves, and an abundance of flower-heads with white or purplish rays, very much like *Michaelmas daisies* (*Aster*), to which genus they might at a first glance be referred; but they differ in the pappus of the ray and disc florets being dissimilar, and consisting of numerous minute bristles, often with two to four longer awns also. The genus is dedicated to J. Bolton, an English botanist. [A. A. B.]

BOMAREA. A genus of amaryllidaceous plants closely related to *Aistrœmeria*, from which it is principally distinguished by its twining habit, and some differences in the capsule or fruit, which in *Aistrœmeria* is valvate, splitting from the base into three parts, and in *Bomarea* is coriaceous, and almost valveless, dehiscing from the upper end or apex. The species are rather numerous, and are all South American, found principally on the Peruvian Andes, a few being also met with in Mexico, Quito, and Chili, the greater part of them inhabiting elevated situations. *B. Sakila* (the *oculata* of *Botanical Magazine*, t. 3344) is a very pretty twining plant, with smooth leaves, and umbels of purple flowers half an inch long, having a dark eye-like spot at the base of the two upper segments of the nearly equal perianth, and a pale one on the lowest. This spotting appears to have given rise to the name *oculata*.

B. edulis (the *Salicella* of *Bot. Mag.*, t. 1613), a West Indian species, produces tubers which are eaten in St. Domingo like those of the Jerusalem artichoke are in this country. [T. M.]

BOMBACEÆ. The Silk-cotton family, a group of Thalamifloral Dicotyledons or Exogens belonging to Lindley's Malval alliance, and usually considered as a sub-order of *STEROLIACEÆ*. [J. H. B.]

BOMBAX. Derived from the Greek word *bombyx*, signifying raw silk, and applied to a genus of large soft-wooded trees belonging to the order of Sterculiads (*Sterculiaceæ*), the fruits of which contain a beautiful silky substance attached to their seeds, and to which the name of Silk-cotton has been appropriately given. There are about a dozen species, almost entirely confined to the tropical regions of America, one species only being a native of Western Africa. Several Indian species, however, were formerly included in the genus, but they are now separated under the name of *Radmia*; and the West Indian tree, commonly called *B. Ceiba* or God-tree, is the same as *Eriodendron anfractuosum*. Their flowers are produced either singly or in clusters upon the trunk or old branches, and are generally large and of a white or greenish colour: they have a short calyx shaped like the cup of an acorn, and a corolla of five pieces joined together at the bottom; their stamens are arranged in five or more bundles, which are connected together at the base into a short cylindrical tube, the filaments being divided into two branches near the top, each bearing an anther; and they have a shield-like stigma with five angles and furrowed sides. Their fruit is a large woody capsule, containing numerous seeds arranged in five cells, each seed being surrounded by a quantity of beautiful silky hairs, and when ripe it bursts into five pieces, allowing the escape of the seeds, which are then wafted about by the wind.

B. Munguba is a smooth-stemmed tree about eighty or one hundred feet high, commonly found on the banks of the Amazon river and the Rio Negro, where the natives call it Munguba. It has large smooth leaves deeply cut into eight divisions radiating from a centre, and large white or greenish flowers arranged in twos or threes on the branches. Its fruit is about eight inches long by four wide, and of a clear brick-red colour. The silk-cotton surrounding its seeds is of a light brown colour, and, although exceedingly beautiful, it has not hitherto been employed for any purpose more important than stuffing cushions; but it is to be hoped that a better use will some day be found for it.

B. pubescens is called Embirassu in the province of Minas Geraes, in Brazil. This species does not attain the great height of the preceding, being generally only about twenty-five or thirty feet high. It has a

smooth trunk covered with a very tough fibrous bark, which the Brazilians use for making ropes. The leaves are variable in shape; those on the lower part of the branches being hand-shaped, that is, cut into five radiating divisions, whilst those higher up on the branches have only three divisions: they are of a leathery texture and covered on the under side with star-like hairs. The large flowers are clothed with white silky down. [A. S.]

BOMBYCINE. Silky, feeling like silk: this term is not applied to hairiness of any sort.

BONA-NOX. *Ipomœa Bona-nox*; *Argyrea* or *Rivea Bona-nox*; *Smilax Bona-nox*.

BONAPARTEA. A genus of *Bromeliaceæ*, named in honour of Napoleon I., and consisting of plants with tufted narrow rigid leaves, which are convolute at the base; hermaphrodite flowers protected by bracts, and arranged on a simple or cone-like or branched scape; sepals spirally twisted, either all equal in size, or the two hinder ones larger, all more or less adherent at the base; petals convolute at the base, forming a tube, linear-lance-shaped and spreading at the top; stamens hypogynous, distinct, the filaments thread-shaped, the anthers sagittate, protruded beyond the corolla. The ovary is superior with a thread-like style and three linear fringed stigmas coiled up spirally. The fruit is an ovate capsule, dehiscing by three valves, which expose a central column bearing the numerous seeds, each provided with a hair-like appendage. Two species are in cultivation, one especially, *B. Juncea*, a graceful plant, from its elegant drooping grass-like leaves. The same name has also been applied to a genus of *Amargillidaceæ*, now included under *Littœa*. [M. T. M.]

BONATEA. Under this name are collected many species of terrestrial Orchids, with the oblong fleshy roots of our wild Orchids. The genus is perhaps not distinct from *Habenaria*, from which it is only separated by an excessive enlargement of the upper lip of the stigma. The true lip is always divided to the very base into thread-like lobes. The flowers appear to be in all cases greenish, verging on yellow or white.

BONAVERIA. A genus of the Pea-flower family (*Leguminosæ*), consisting of a single species, *B. acutipera*, formerly placed in the genus *Coronilla*, with which it accords entirely in habit, but differs in the form of the pod, which is about four inches long by a quarter of an inch wide, flattened, thickened at both margins, and not jointed distinctly between the seeds. In *Coronilla*, on the contrary, the pod is nearly cylindrical, and distinctly jointed. The plant grows in South Europe, and is a smooth pea-green herb a foot or more high, with unequally pinnate leaves five or six inches long, made up of many pairs of wedge-shaped leaflets; the yellow flowers

are borne in an umbellate manner at the end of a long naked stalk, the umbels being about half an inch across. It is often seen in collections of herbaceous plants and is frequently called *Scurrigera Corollula*. [A. A. B.]

BONE-SEED. The common name for *Osteospermum*.

BONESET. *Eupatorium perfoliatum*:

BONGARDIA. A genus of the herb-herby family, but not at all like a herb-herby in appearance. One species only (*B. Rauwolfii*) is known, and it is a small stemless plant, with a tuberous underground root-stock, somewhat like a small potato, from the upper part of which spring four or five long-stalked pinnatisect leaves. The flower-stalk is slightly branched and panicle, and the flowers small, golden yellow, with three to six calyx leaves, and six petals, each of which has a little pit at its base, like that of the buttercup. The genus comes near to that of the lion-leaf (*Leonotis*), but differs in the pit at the base of the petals, and in having a dilated stigma. The plant is a native of Greece, Syria, and Persia, extending to Afghanistan and Hind. It was noticed as early as 1573 by Rauwolf, who spoke of it as the true *Chrysogonum* of Dioscorides. The Persians roast or boil the tubers, and use them as an article of food, while the leaves are eaten like sorrel. [A. A. B.]

BONHOMME (Fr.) *Narcissus pseudo-Narcissus*; also *Verbascum thapsiforme*.

BONNAYA. A small genus of *Scrophulariaceae*, found in tropical and sub-tropical Asia. They are annuals, usually glabrous, with opposite leaves, and flowers in the axils or terminal racemes. The calyx has five distinct narrow sepals; the upper lip of the corolla is erect and two-lobed, the lower is larger, spreading and three-lobed. The two upper stamens alone are fertile, the lower pair, inserted at the base of the lower lip of the corolla, are represented by the linear obtuse filaments. The style is filiform with a dilated generally two-lobed stigma. The linear capsule is longer than the calyx. [W. C.]

BONNE DAME. (Fr.) *Atriplex hortensis*.

BONNET DÉLECTEUR or **DE PRÊTRE.** *Cucurbita Meloepo*; also *Eucynimus europæus*.

BONNETIA. A genus of the Tea family (*Ternstroemiaceae*), composed of a few Brazilian and Peruvian shrubs or small trees, with sessile spatulate entire leaves, having prominent parallel veins; they are generally crowded at the ends of the branches, which are marked with prominent scars where they have fallen. The flowers are numerous and panicle, or single, and as large as those of *Camellia*; generally white in colour, and composed of a five-lobed calyx, five petals, a large number of stamens, a three-parted style, and a one-celled ovary, which becomes when ripe a three-celled capsule containing

many seeds. The leaves of *B. paniculata*, a Peruvian species which attains the height of twenty or thirty feet, have an aromatic smell when bruised. [A. A. B.]

BONPLANDIA. A genus of *Rutaceae*, now generally merged in *GALIPEA*; which see. [M. T. M.]

BONTIA. A genus of *Myoporaceae*, containing a single species from the West Indies. It is a small evergreen tree, in habit so like the olive as to have been named *Olea sylvestris*. The leaves are alternate lanceolate and sub-entire, and the flowers are solitary or in pairs on axillary pedicels. The calyx is divided into five ciliated imbricated lobes, two being exterior. The corolla is tubular and bilabiate. The four didynamous stamens are shorter than the corolla. The ovoid ovary is two-celled, each cell being almost divided by an incomplete secondary septum; there are two ovules in each cell. The lacinate drupe has eight hard seeds. [W. C.]

BONUS HENRICUS. Good King Henry, *Chenopodium Bonus Henricus*.

BOOPTA. A genus of the *Calycera* family comprising a few annual or perennial herbs, some of them stemless and with entire leaves, others branching with pinnatisect leaves, and a habit not unlike that of the chamomile. Their flower heads are stalked and terminal, containing many white or yellow florets enclosed by a membranous toothed involucre. The genus is readily distinguished from its allies by the absence of spiny points to the calyx leaves, and the nature of the involucre. The species, eight in number, are found in the Cordillera of Chili, the neighbourhood of Buenos Ayres, and also in the extreme south of the continent. The generic name is derived from the Greek *bous*, an ox, and *ops*, an appearance; the flowers having somewhat the appearance of an ox-eye. [A. A. B.]

BOOREE. An Indian name for the inflammable pollen of a species of *Typha*.

BOOR-TREE or **BOUNTRY.** A Scotch name for the Elder, *Sambucus nigra*.

BOOTIA. A genus of the natural order *Hydrocharidaceae*, found in the margin of the river Irrawadi in Ava. The leaves are all radical, some of them submersed, elongate linear-lanceolate, others cordate, floating, with long petioles and a scape rising out of the water; flowers dioecious from a tubular inflated spathe, which is toothed at the apex, and includes many stalked male flowers or a single sessile female one. Perianth with three outer oblong calyx-like divisions, and three inner obovate petaloid ones. As usual in the order, these segments are in the female flower at the top of a tube adhering to the ovary at the base. Stamens twelve; ovary with nine parietal placentas. [J. T. S.]

BOQUILA. *B. trifoliata*, the only known species, is a small dioecious trailing shrub,

found in Chili in the neighbourhood of Valdivia, and there called *Boquil-blanca*, whence the generic name. Its leaves are alternate, with three entire or slightly-toothed leaflets which are glossy above and pea-green underneath. The flowers are white and solitary, or sometimes two or four, in the axils of the leaves; the calyx and corolla each of three membranous leaves; the male flowers containing six stamens and the females three or six ovaries, which when ripe are berries about the size of a pea, and with few seeds. The few seeds and membranous floral leaves distinguish the genus from *Lardisabal*, to which it is allied. [A. A. B.]

BORA. A common Indian pulse, *Dolichos Cajan*, or *Cajanus bicolor*.

BORAGE. *Borago officinalis*.

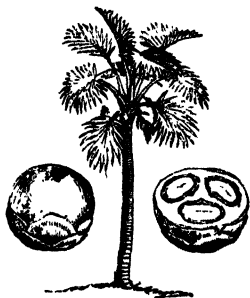
BORAGEWORTS. A name applied by Lindley to the boraginaceous family.

BORAGINACEÆ. (*Boragworts*; *Asperifolia*.) A natural order of Corollifloral Dicotyledons or Exogens belonging to Lindley's Echioal alliance. Herbs or shrubs with round stems, alternate rough leaves, and spirally-coiled inflorescence; calyx four to five divided, persistent; corolla generally regular and five-cleft; stamens five, inserted in the corolla, and alternate with its divisions: ovary four-lobed with a style arising from the base of the lobes. The fruit consists of distinct achenes without albumen. The order was called formerly *Asperifolia* from the rough leaves of the plants. Natives of the northern temperate regions principally. They abound in the southern part of Europe, the Levant, and middle of Asia. They are less frequent in high northern latitudes, and they nearly disappear within the tropics. Demulcent mucilaginous qualities pervade the order. Some yield dyes, as alkanet (*Achusa tinctoria*); others are used for potherbs, as comfrey (*Symphytum officinale*), which is employed as a substitute for spinach. The common borage (*Borago officinalis*), when steeped in water, imparts coolness to it, and is used in the beverage called cold-tankard. The leaves of *Mertensia maritima* have the taste of oysters, so that it is called the oyster-plant. The species of *Myosotis* receive the name of Forget-me-not. There are fifty-eight known genera, and 688 species. Illustrative genera:—*Cerinth*, *Echium*, *Borago*, *Lithospermum*, *Cynoglossum*, *Myosotis*, *Symphytum*, *Anchusa*, *Omphalodes*. [J. H. B.]

BORASSUS. There are only two species of this magnificent genus of Palms, both having separate male and female flower-spikes on distinct trees: the males in cylindrical branching catkins, composed of a number of scales closely packed and overlapping each other, from amongst which the flowers only partially emerge; the female spikes seldom branched, and their scales not so closely packed as those of the male.

B. flabelliformis is the Palmyra Palm. The

parts of this tree are applied to such a multitude of purposes that a poem in the Tamil language, although enumerating 801 uses, does not exhaust the catalogue. It is widely distributed throughout the tropical parts of Asia, generally growing in low sandy tracts of land near the sea-coast, and forming lofty trees with straight and almost cylindrical trunks from sixty to eighty or even one hundred feet high, and about two feet in diameter. Like all endogenous trees, it has the hardest part of its wood towards the outside of the trunk, and the older the tree the harder this wood becomes; so that, while the wood of young trees is almost worthless, that of centenarians is very valuable on account of its hardness, weight, and durability. The leaves of the Palmyra are from eight to ten feet long, including the stalk, and of a nearly circular form, consisting of seventy or eighty ribs, radiating from a centre and plaited like a half-open paper fan: in old trees they form a large round head at the summit of the trunk. These leaves are employed by the natives for a variety of useful purposes; houses are thatched with them; matting for floors and ceilings is platted from strips of them, also bags and baskets of all kinds, hats and caps, umbrellas and fans, and a host of minor articles; they likewise, in common



Borassus flabelliformis.

with those of the Talipot palm, supply the Hindoo with paper, which he writes upon with a stylus. A most important product, called toddy or palm-wine, is obtained from the flower-spikes in the following manner: as soon as a spike makes its appearance among the leaves, a toddyman ascends the tree, and securely binds it with thongs so that it cannot expand; he then for three successive mornings beats the lower part of the spike with a short baton, and on the four following mornings, in addition to the beating, he cuts a thin slice off the end; on the eighth day the sap or toddy begins to flow and is collected in a

earthenware jar tied on the end of the spike. A tree continues to yield toddy for four or five months, the toddyman ascending the tree every morning to empty the jar, and at the same time to cut a fresh slice off the end of the spike. Palm toddy is intoxicating, and when distilled yields strong arrack. Very good vinegar is also obtained from it; but its most important product is jaggery, or palm-sugar, large quantities of which come to this country. The fruits of this palm are about the size of a child's head, and are produced in bunches of fifteen or twenty together. They have a thick coating of fibrous pulp, which the natives roast and eat, or make into a jelly. But the most singular use of this palm is the consumption of the young seedlings as an article of food; these are cultivated for the market, and either eaten in a fresh state or after being dried in the sun, or else they are made into a very nutritious kind of meal.

B. ethiopicum is a native of the central part of tropical Africa, occurring from the Niger on the west to Nubia on the east. It forms a large tree resembling the Palmyra in general appearance, but having a curious bulging out or swelling in its stem at about the middle of its height. Its leaves and fruits are used by the Africans for the same purposes as those of the Palmyra by the Asiatics, and its young seedlings are likewise used for food; but the custom of extracting toddy does not appear to be known in Africa. [A. S.]

BORBONIA. A genus of the Pea-flowered section of the Leguminous family, numbering thirteen species, all of them natives of South Africa. They are small shrubs with simple alternate many-nerved leaves. The flowers, arranged in axillary or terminal few-flowered racemes, are yellow, as in those of the common broom, and much like them but smaller. The pods are linear compressed and often covered with long soft hairs, and contain few seeds. The segments of the calyx are equal, and the upper petal or vexillum is hairy; these two characters distinguishing the genus from its allies. *B. crenata* has roundish leaves which embrace the stem by their base, and terminal racemes of pretty yellow blossoms. *B. parviflora* has many-nerved sharp-pointed leaves like those of the butcher's-broom (*Ruscus*). The genus was named in honour of Gaston de Bourbon, Duke of Orleans, son of Henry IV. of France, a patron of botany. [A. A. B.]

BORECOLE. A loose or open-headed variety of the Cabbage, *Brassica oleracea*, cultivated in gardens under the name of Kale.

BORKHAUSIA. A family of compound flowers allied to the Hawkweeds and Dandelion. Several species are described as inhabiting Southern Europe, all of which are annuals. Two are natives of Great Britain, but are of rare occurrence. The group to which they belong is one very

difficult of discrimination, and will scarcely admit of a satisfactory popular description. They have yellow flowers, and leaves somewhat like those of the Dandelion. *B. fatida* has an unpleasant odour, in which a flavour of bitter almonds can be distinguished. *B. rubra*, an Italian species, is cultivated as a border plant; it has compound leaves and large flowers of a delicate rose colour or sometimes white. (French: *Barkhausia*.) [O. A. J.]

BORONIA. This name was applied in honour of Francis Borone, an Italian attendant of Dr. Sibthorp, of *Flora Græca* celebrity, to a genus of *Rutaceæ*. The genus is known by a four-cleft persistent calyx; four ovate persistent petals; eight stamens, of which the four opposite the sepals are fertile, the remaining four abortive, with filaments studded with hairs and bent inwards; four styles, erect, approximate or fused together; carpels four to two-valved, combined within into a four-celled capsule; seeds few in each cell, flattened. The species are shrubs, natives of New Holland, with opposite pinnate leaves and pretty pinkish or whitish flowers. Many of them are in cultivation as elegant greenhouse shrubs. [M. T. M.]

BORYA. The same as *Forestiera*.

BOSCHIA. Louis Bosc was a French professor of agriculture, and in his honour this genus of *Capparidaceæ* was named. The plants have four sepals disunited or joined together at the base only; petals none; stamens twelve to twenty; berry globose, stalked, one-seeded; leaves simple. The species are natives of Africa. *B. senegalensis* is in cultivation as an ornamental stove-plant. [M. T. M.]

BOSEA. A genus consisting of a shrub from the Canary Islands, of which the natural order is doubtful, but most generally supposed to be *Chenopodiaceæ*. The leaves are alternate, exstipulate, shortly-stalked, elliptical-acuminate, and shining; racem. 3 axillary and terminal, the flowers small polygamous-dioecious; perianth five-cleft, membranous, with two bracts; stamens five; ovary one-celled; drupe subglobose, fleshy; embryo with foliaceous cotyledons. [J. T. S.]

BOSSÉD. Circular and flat, with a prominent centre, like the Highland target; as in the fruit of *Paliurus australis*.

BOSSIÆA. A genus of Australian shrubs or small herbs belonging to the Pea-flowered section of the Leguminous family. Their stems are round or compressed, often when compressed without leaves; the leaves are simple, of various forms, and the flowers are axillary and solitary, always yellow, the base of the vexillum or the keel generally blotched or veined with purple. The genus differs from its allies in its alternate leaves and compressed pods, the margins of which are thickened but not winged. It is named in honour of M. Bossieu Larmartinière, a French botanist, who accompanied La Peyrouse in his

voyage round the world. Many of the species are highly ornamental, and no greenhouse collection of any pretensions is to be found without some of them. Among the leafless species in cultivation are *B. scolopendria* and the sword-branched *B. ensata*; both these, however, when in a seedling condition, have true leaves. Amongst the leafy species the choicest are the slender-stemmed *B. tenuicaulis*, with ovate acute leaves and very numerous yellow flowers streaked with purple; *B. lanceolata*; and *B. disticha*, a Swan River species, with ovate acute leaves arranged in a two-ranked manner. [A. A. B.]

BOSTRYCHIA. A genus of rose-spored *Algae* belonging to the natural order *Rhodomelaceae*, and remarkable at the same time for the curled tips of the fronds, and their amphibious habit like that of *Lichina*. *B. amphibia* occurs on our coasts as high as the Wash, extending from thence to Spain; it grows attached to the base of marine phænogamous plants, which are covered only at high water. Several species grow in the United States in similar situations or on the margins of tidal rivers, and others are found nearer the equator and in the Southern hemisphere. They do not agree in the structure of the frond, but their habit and general character are so alike that it is better not to separate them. [M. J. B.]

BOSWELLIA. A genus of the family *Amyridaceae*, consisting of trees with compound leaves; and white flowers in clusters, each with a small five-toothed persistent calyx, and five petals spreading widely, inserted, as are also the ten stamens, beneath a cup-shaped fleshy disc, which is larger than the calyx; the filaments of the stamens are persistent, but the anthers fall off. Ovary sessile, with a long style, terminated by a three-lobed stigma. The fruit is triangular, three-celled, and bursts by the separation of the three component leaves one from the other; the seeds are winged. These trees are remarkable as furnishing a gum resin. That of *B. glabra* is used in India in place of pitch, and as a medicine, both externally and internally. The Hindoos employ it as incense in their religious ceremonies.

B. thurifera, a tree common in Coromandel, also known as *B. serrata*, furnishes the resin known as Indian Olibanum, which is supposed to have been the Frankincense of the ancients. It is rarely used in medicine, but is an astringent and stimulant, and is employed for its grateful perfume as incense in Roman Catholic churches. African Olibanum, a drug rarely met with in this country, has been shown by Dr Birdwood (*Trans. Lin. Soc.*, xxvii. 11) to be the product of *B. Carteri*, *B. Bham-Dajiana*, and *B. Proreana*, the two former yielding the 'Laban-Theheri,' the latter the 'Louban Maitee' of the Somalis. See Dr Birdwood's paper above referred to. The two first-mentioned species are in cultivation in our stores. [M. T. M.]

BOTRENCHYMA. The pitted, or dotted, or so-called porous tissue of plants.

BOTROPHIS. A genus of *Ranunculaceae*, synonymous with *Macrotis*, containing a North American herb allied to *Cimicifuga*, from which it differs by having only one carpel (very rarely two), which becomes a solitary follicle in fruit. This distinguishes it from the berry-bearing *Actaea*. The leaves are twice or three times ternate, with large oval leaflets irregularly cut; the stem is about from three to eight feet high, with long racemes of white flowers, of which the central one is by far the longest: sepals petaloid, white, soon dropping off; petals, or rather abortive stamens, very small with long claws; stamens numerous, white, and very conspicuous; seeds seven or eight in the follicle. The flowers are very fetid, and the large knotted root-stocks, which have a nauseous astringent and bitter taste, are considered in the United States to be a remedy for the bite of the rattlesnake. The only species rejoices in several names both generic and specific. [J. T. B.]

BOTRYCHIUM. A genus of *Ophloglossaceae* Ferns, distinguished by having the fructifications in a compound or rachiform panicle, forming a separate branch of the frond. The spore-cases in this group have no jointed band or ring surrounding them, as in the generality of ferns, but are fleshy, coriaceous, and burst vertically in two equal hemispherical valves. The fronds spring from a short erect fleshy rhizome, and are variously pinnatifid, pinnate, or ternately decompound, the sterile and fertile branches being always separate, and the spore-cases ranged in two rows on the ultimate divisions of the latter. The genus, which consists of about a dozen species, is found in all parts of the world excepting Africa, and extends from the tropical to the arctic regions, and over both the eastern and western hemispheres. The common British species, *B. Lunaria*, called Moonwort, is a dwarf fleshy-looking plant, having the sterile branch pinnate with lunate leaflets, and the fertile branch panicled with sessile distinct globular spore-cases. *B. simplex* is a smaller and less divided plant found in North America and the north of Europe. Another species, *B. virginicum*, of which somewhat varied forms are found in North and South America and in India, is much larger in size and more compound in structure than either of the foregoing; the sterile branch being ternate, then bipinnatifid, with the segments again inciso-pinnatifid, and the fertile branch larger and bipinnate or tripinnate. [T. M.]

BOTRYDIUM. A genus of green-spored *Algae* belonging to the division *Siphonot*, in which it is remarkable for the predominance of the large capsule over the vegetative part, which consists only of a few threads, that like roots penetrate the soil, the capsules being the only part externally visible. *B. granulatum* occurs in

little vesicular strata on the sides of ponds, but not very commonly. [M. J. B.]

BOTRYODENDRON. *Neryta*.

BOTRYOGAMMA. *Liava*.

BOTRYOPSIS. A genus of *Menispermaceae*, described by Mr. Miers. The male flowers have six petals; the female flowers six ovaries, with an embryo without albumen, and curved so as to resemble a horse-shoe; cotyledons large, thick, curved; radicle superior. The plants are natives of the Organ mountains of Brazil. [M. T. M.]

BOTRYOPTERIS. A synonym of *Helmintothostachys*.

BOTRYOSICYOS. A name apparently implying a resemblance in the plant to which it is applied, to a grape vine and a gourd. The genus is said to belong to the order *Dioscoreaceae*. The flowers are dioecious. The male flowers are very small, in clusters concealed by an involucre; the perianth is bell-shaped, six-cleft, in two rows, the three outer hairy, shorter than the inner, which are petal-like. Within this are three scales adherent at the base to the inner divisions, and similar to them, but shorter and divided into two teeth or lobes at the apex. Stamens three, inserted near the throat of the perianth; filaments short, bearing the anthers, which are two-celled, introrse; ovary abortive; stigma three-toothed. The female flowers and fruit are not known. The plant is a climber, and a native of Abyssinia. [M. T. M.]

BOTRYOTHALLUS. A name applied to one or two Acrostichaceous Ferns included in *Polypodium* and *Soromanes*.

BOTRYPUS. A synonym of *Botrychium*.

BOTRYS. The term applied in Greek compounds to the raceme. A bunch.

BOTRYS. (Fr.) *Chenopodium Botrys*.

BOTRYTIS. A genus of filamentous moulds first proposed by Micheli, but now so divided that the original genus is almost swamped. Amongst those best known is the parasite which plays so important a part in the virulent potato murrain under the name of *B. infestans*; as, however, there are strong reasons for separating this and a host of allied plants, we must refer for their consideration to the article *PERONOSPORA*. The disease in silkworms called muscardine is produced by a mould called *B. Bassiana*, but this also in all probability will ere long find its place in some other genus, perhaps in *Botryosporium*. A few of the spores rubbed upon the skin of the caterpillar, or inserted carefully with a lancet, are sufficient to inoculate the animal. The spores soon germinate, and their threads prey upon the fatty tissue, till the caterpillar becomes mummified and resembles certain pastilles, from whence the name of the disease has been borrowed. In the silkworm houses

the malady most commonly commences in the large intestine, as if from the germination of swallowed spores. The prevention of the disease consists in the most perfect cleanliness, and every precaution which may destroy the spores or prevent their access. [M. J. B.]

BOTULIFORM. Sausage-shaped.

BOUCAGE. (Fr.) *Pimpinella*; also *Enanthe pimpinelloides*.

BOUCHEA. A genus of *Verbenaceae*, containing fourteen species of herbs or undershrubs, natives of America, Africa, and Asia. They have sub-sealike flowers in a spicate raceme, which is either terminal or in the forking of two branches. The calyx is elongate tubular, with five ribs produced into small teeth, and five alternate furrows, and truncate between the teeth. The corolla is funnel-shaped. The four included didynamous stamens are inserted in the throat of the corolla. The ovary is two-celled, with a single anatropal ovule in each cell; the style is as long as the stamens. The capsule is surrounded by the persistent calyx; it is dicocious and has numerous seeds. [W. G.]

BOUGAINVILLEA. A genus of the natural order *Nyctaginaceae*, characterised by the flowers being almost concealed by large membranous or leafy bracts, which grow in triplets, and form magnificent masses of pinnate inflorescence. The perianth is tubular with a short limb; the stamens are seven or eight in number; the style lateral; the stigma thickened. *B. spectabilis* is a climbing shrub or small tree, with alternate leaves and small spines; the bracts are large and of a rich rose colour; hence the pendent inflorescence is singularly handsome. The colour of the bracts varies. The plant is a native of tropical South America. [M. T. M.]

At least two other species of this gorgeous genus are grown in our gardens, *B. speciosa*, which has hairy leaves and stems, the latter furnished with strong short recurved thorns, and dense panicles of large soft rosy-tinted bracts; and *B. glabra*, which is of more slender habit, with smaller leaves, both these and the stems being nearly smooth, and bearing its showy bracts, which are of a lighter rose and rather smaller than in *B. speciosa*, in more open panicles. [T. M.]

BOUGUERIA. A genus of *Plantaginaceae*, containing a single species, a native of Peru. It is a small perennial fleshy-rooted herb, growing in tufts, and having white linear leaves, and axillary peduncles, bearing compact heads, which blacken in drying. The flowers are polygamous, both sexes occurring on the same head. This genus occupies a position between *Plantago* and *Littorella*. [W. G.]

BOUILLARD. (Fr.) *Betula alba*.

BOUILLON-BLANC. (Fr.) *Verbascum thapsiforme*.

BOULE DE NEIGE. (Fr.) *Viburnum Opulus*, with double flowers; the term is also applied to *Agaricus arvensis*.

BOULEAU COMMUN. (Fr.) *Betula alba*. — **ODORANT.** *Betula lenta*.

BOULETTE AZURÉE. (Fr.) *Echinops Ritro*.

BOUNCING BET. An American name for *Saponaria officinalis*.

BOUQUET PARFAIT. (Fr.) *Dianthus barbatus*, the common Sweet William.

BOURBONNAISE. (Fr.) *Lychnis Viscaria*.

BOURDENE, or BOURGE'NE. (Fr.) *Rhamnus Frangula*.

BOURGOGNE. (Fr.) *Hedysarum Onobrychis*.

BOURRACHE. (Fr.) *Borago officinalis*. — **PETITE.** *Cynoglossum Onchalodes*, or *Onchalodes verna*.

BOURREAU DES ARBRES. (Fr.) *Celastrus scandens*. — **DU LIN.** *Cuscuta epithimum*.

BOURSETTE. (Fr.) *Valerianella oltoria*.

BOUSSINGAULTIA. A name given in honour of a French philosopher, and applied to a genus of *Basellaceæ*. The plants have a perianth of six to eight pieces, and two small bracts on the outside; six stamens opposite the sepals; ovary elliptical; style thread-shaped, thickened at the base; stamens three, club-shaped. Fruit roundish, compressed, membranous, one-seeded, indehiscent, crowned with the persistent style; seed kidney-shaped, smooth, sessile. *B. baselloides*, a native of the Andes, is an elegant climbing shrub, with alternate entire fleshy leaves, long clusters of fragrant whitish flowers, and thick fleshy roots. It is well adapted to trail over trelliswork. [M. T. M.]

BOUTEILLEAU. (Fr.) A kind of olive.

BOUTINIANE. (Fr.) A kind of olive.

BOUTON D'ARGENT. (Fr.) *Ranunculus platanifolius*, with double flowers; also *Achillea Parmica*. — **DOR.** *Ranunculus acris*, with double flowers. — **ROUGE.** *Cercis canadensis*.

BOUVARDIA. One of the genera of *Cinchonaceæ*, named in honour of Dr. Bouvard, a former superintendent of the Jardin du Roi, at Paris. It is distinguished by a calyx with a sub-globose tube, a limb of four linear awl-shaped lobes, occasionally with little teeth intermediate between the lobes; a funnel-shaped corolla, naked at the throat, and with a four-parted spreading limb; filaments adherent for some distance to the tube of the corolla; anthers linear, included; stigma divided into two lamellæ projecting beyond the tube of the corolla; capsule membranous, globose, compressed, with two compart-

ments opening through the backs of the carpels by two valves; seeds numerous, winged. The plants are Mexican shrubs, with handsome flowers in terminal corymbes. Most of the species have red flowers, but in *B. longiflora* they are large white and fragrant; and in *B. flava* they are yellow. *B. triphylla* has three leaves with stipules between their petioles, thus presenting an approximation to the structure of the *Guttaceæ* or *Stellata*. [M. T. M.]

BOVA. A kind of Vanilla.

BOVISTA. The small smooth nearly globose Puffballs which are so common in our fields and in large exposed pastures, distinguished by their having an outer coat which easily separates from the thin inner covering, belong to this genus, which contains also a few tropical and subtropical species. The smaller of these, *B. plumbea*, is one of our lesser puffballs, and is easily known by its leaden hue when dry; the larger, *B. nigrescens*, by the far firmer and darker inner coat. Both are eatable when young, but our own experience is not in favour of their use, as they are apt to have an unpleasant taste, if they have reached their full growth. Some of the foreign species have violet or russet spores, instead of the more sober hue of our own natives, one of which is commonly sold in the bazaars of the Bazaar and Birmanah. In all the species it would seem that the spores are seated on a short stalk, but this is not without example in *Lycoperdon*. [M. J. B.]

BOWDICHIA. A genus which belongs to the Pea-flowered tribe of the Leguminous family. The species are found in South America, and chiefly confined to Brazil. They are trees with alternate unequally-plumate leaves, with from five to fourteen pairs of leaflets, which vary from half an inch to two inches long, and are often pubescent underneath. The flowers are very numerous, disposed in terminal panicles, and violet in colour. The pods are stalked, thin and papery in texture, containing six to eight seeds.

B. nitida, a Brazilian species, is a tree about fifty feet in height, with a diameter of one foot, the wood of which is exceedingly hard. Another Brazilian species, *B. virgiloides*, is one of the commonest trees of the Campos, and a great ornament to them, the upper part being clad with flowers of the finest amethystine blue, while the leaves are confined to the lower branches, the upper having fallen off. The bark is of a reddish-brown colour, and is known as *Aleorocco* bark. It is astringent, slightly bitter, and gives to the saliva a yellow colour. It was once recommended in pulmonary consumption, but its use is now obsolete. All the parts of *B. major* are said to have tonic qualities. The genus bears the name of J. E. Bowdich, who travelled in West Africa. [A. A. B.]

BOWMAN'S ROOT. *Imardia alternifolia*; also *Gillenia trifoliata*.

BOWRINGIA. A genus of leguminous plants, allied to *Baphia*, and consisting of a single species, which forms a smooth scandent shrub, with unifoliate leaves, the leaflet of which is ovate or oval-oblong and acuminate; it bears short axillary or subterminal racemes of from two to five small white pea-shaped flowers. The plant is abundant in the island of Hong Kong. The name has also been given to a genus of Ferns, now referred to *BRALNEA*: which see.

[T. M.]

BOW-WOOD. An American name for *Maclura aurantiaca*.

BOX *Buxus* —, **BASTARD.** *Polygala Chamæbuxus* —, GREY, of Victoria. *Eucalyptus dealbata* —, QUEENSLAND. *Lophostemon macrophyllus*. —, RELD, of N. S. Wales. *Lophostemon australis* —, NEW-RIOUS, of Victoria. *Eucalyptus leucogylon* —, TASMANIAN. *Bursaria spinosa* —, WHITE, of Australia. *Eucalyptus nitens*. —, YELLOW, of Australia. *Eucalyptus melliodora*.

BOX ELDER. *Negundo fraxinifolium*.

BOX-THORN. *Lycium*.

BOXWOOD, AMERICAN. *Cornus florida*. —, JAMAICA. *Tecoma pentaphylla*.

BOYKINIA. A genus of perennial North American herbs, belonging to the natural order *Saxifragaceæ*, with alternate stalked palmately five or seven-lobed or cut leaves; flowers white, in cymes. It differs from *Saxifraga* by having the calyx (which adheres to the ovary) contracted at the top, and by having only five stamens. It also differs from *Silene* by the calyx adhering completely to the ovary, and from *Heuchera* and *Tiarella* by the ovary being two-celled.

[J. T. S.]

BRADJUM. A genus of *Proteaceæ*, with apetalous flowers of four sepals, and four anthers on short filaments, attached to the base of the sepals. The flowers are borne on axillary spikes of about four inches in length. The seed-vessel is an elliptical nut, containing a single seed. The leaves are verticillate, about four inches in length, and one inch broad, remotely serrated. *B. stellatifolium*, which attains the height of from six to eight feet, is a native of South Africa; its seeds are called Wild Chestnuts, and Wild Almonds, and are both roasted and eaten, and used as a substitute for coffee. The tree is also called Caffre Chestnut by the colonists.

[R. H.]

BRACHIALIS. An ell long; twenty-four inches long.

BRACHIATE. When branches spread, at nearly right angles, alternately in opposite directions.

BRACHIUM. An ell, or two feet.

BRACHITIA. A genus of South American Orchids, related to *Brassia*, of which it has the organs of vegetation. The flowers

are, however, very different. They are small, secund, half hidden by bracts, and densely arranged. In front of the ovary, and forming part of it, is a hollow tumour like a goitre, from the superior edge of which rises a simple bilamellate lip. There is no tendency to the tail-like extension of the sepals and petals, so characteristic of *Brassia*. Three species are known. The genus has also been called *Oncodia*.

BRACHYCARPÆA. A genus of *Crucifere*, allied to *Senebiera*. It consists of undershrubs from the Cape of Good Hope, with oblong or linear entire mucronate leaves, and elongated racemes of large yellow or purple flowers; pouch two-celled, constricted in the line of junction of the two portions, sub-compressed, tuberculate, indehiscent, each end with one seed.

[J. T. S.]

BRACHYCHITON. A genus of tropical, or sub-tropical Australian trees, belonging to the Sterculiaceæ family, with alternate entire or variously lobed leaves, which are either smooth or covered with starry pubescence. The flowers are sometimes produced from the old wood two or three together, but more generally in terminal panicles, and have a tubular coloured calyx, without corolla. They are male and female on the same plant, the males having a great number of stamens, the stalks of which are more or less united, and the anthers packed in a round mass. The fruit is composed of five woody follicles, clothed inside with starry hairs, as also are the seeds, which are numerous. *B. acerifolium* is called the Flame Tree about Illawarra, on account of its bright red flowers, which make the tree a conspicuous object at a distance. It attains a height of from 60 to 120 feet, and a diameter of two to three feet. The bark is used by the aborigines for making fishing-nets, and the wood is soft and spongy. *B. populneum* is found in Eastern tropical Australia, and grows to a height of thirty or fifty feet, with a diameter of from eighteen to thirty-six inches. Its leaves are smooth, on long stalks, generally ovate and long pointed, but sometimes trilobed. The wood is soft, and contains gum mucilage. The tap roots of the young trees, as well as the younger roots of the large trees, are used by the natives as an article of food. The seeds are eaten, and the bark is put to the same uses as that of the maple-leaved species. *B. Bidwillii*, a native of the Wide Bay district, was sent to England in 1851 by Mr. Bidwill. Its leaves are stalked, heart-shaped, entire or three-lobed, and covered with a soft pubescence. The flowers are of a bright red colour, and are arranged in axillary bunches. The stems of this species show a tendency to become gouty, like those of the nearly-related 'Gouty-stommed tree' of Australia (*Dalechsea*). Five species of the genus are known.

[A. A. B.]

BRACHYCOME. An Australian genus of Compositæ, belonging to the *Helio*

section of the order, and comprising several neat annuals, of dwarf habit. Of these the most interesting is the *B.iberidifolia*, or Swan River Daisy, an elegant little plant, of branched diffuse habit, with deeply-cut foliage, having the segments linear, and loose terminal corymbs of cineraria-like blossoms, each nearly an inch across. The colour of the ray florets varies from violet blue to white, the disk or centre being in all cases of a purplish brown. *B. glabra*, of more recent introduction, has solitary flower-heads or long foot-stalks, about as large as those of *iberidifolia*, with a white ray of numerous linear florets, tinged with violet beneath, and a yellow disk: its foliage is pinnatifid, with linear segments variously cut, the uppermost ones being nearly entire, and all rather fleshy, and ciliated. The only other species in cultivation is *B. diversifolia*, with yellow flower-heads, rather smaller than in either of the preceding species, and foliage variously cut and lobed, as the specific name implies. The genus is characterised by a slightly conical, pitted, and naked receptacle; a cup-shaped involucre, the scales of which are membranous at the margins; and laterally compressed fruit, crowned with a pappus of very short bristle-like hairs. [W. T.]

BRACHYLOTTIS. The plants which composed this genus have been shown to differ in no way from the Groundsels (*Senecio*), and are now generally referred to that genus; yet, although the characters of the flower indicate this structural affinity, they have little resemblance to any of the species of *Senecio* found in Europe, for they are trees or small shrubs, with woody stems, which are covered, as well as the under surface of the thin leathery leaves, with long or short dense woolly hairs. *B. Forsteri* has large broad deeply-toothed leaves, and terminal panicles of numerous small yellow flower-heads. It is a native of New Zealand, as are all the species, and is there known as Puka-Puka by the natives, who use the leaves as paper, whence the same native name came to be applied by them to English paper. [A. A. B.]

BRACHYLENA. A genus of South African evergreen shrubs, numbering six species, and belonging to the Compositae family. Their leaves are stalked, alternate, entire or toothed, generally smooth above, and covered with short white pubescence underneath. The flower-heads are arranged in terminal panicles or racemes—those on one plant containing female florets only, the males being on another. The florets are yellow in colour. The genus is nearly allied to the American genus *Baccharis*, but is readily distinguished from that by having tails to the anthers. [A. A. B.]

BRACHYLEPIS. A genus of *Asclepiadaceae*, containing a single species, a native of India. It is a climbing hairy shrub, with opposite acuminate leaves, and many small purple flowers in tomentose cymes, with numerous imbricated scales, on inter-

petiolar peduncles. The calyx and corolla are five-parted. The exerted stamens, with short broad filaments, are inserted along with the five scales of the staminal corona in the throat of the corolla. The anthers adhere to the lower margin of the stigma; their oval pollen masses united throughout the whole length of their inner surface by a flat membrane. The stigma is five-sided. The hairy foliicles are widely separated, oblong and obtuse. [W. C.]

BRACHYPODIUM. A genus of Grasses, belonging to the tribe *Hordeaceae*, or barley grasses. The genus is chiefly distinguished from *Triticum* by the glumes being unequal, a circumstance which some authors do not consider of sufficient importance as a generic distinction; hence the species are referred either to *Triticum* or *Festuca*. Two are natives of Britain—the False Brome Grass, *B. sylvaticum*, and the Heath False Brome Grass, *B. pinnatum*. The former is a very common kind, which generally grows in shady woods, or on dry hedge banks; but the latter is rare, and only found wild in England. They are not grasses of agricultural importance, though useful in their natural localities. [D. M.]

BRACHYPODOUS. Having a short foot or stalk.

BRACHYPTERYX. A name indicative of the short wing borne by the fruits of this genus of *Malpighiads*. The species are natives of Brazil and Guinea, of climbing habit, with yellow flowers disposed in umbels. The calyx is five-parted, glandular; the petals unequal, longer than the calyx; the stamens ten, with a more or less enlarged glandular connective; the styles three, dilated at the apex into a rather large foliaceous recurved or hood-like and compressed mass. Fruit of three distended carpels (fewer by abortion), having at the apex a short compressed wing. [M. T. M.]

BRACHYS, in words of Greek origin, signifies short.

BRACHYSEMA. A genus belonging to the Pea-flowered section of the Leguminosae.

portic erect. The upper petal or standard being short compared with the others, gives rise to the generic name. The pods are stalked, ventricose, and many-seeded. *B. apathum* is, as its name implies, without leaves, the branches being singularly compressed and winged, so as to perform the functions of leaves. Here and there on the branches small brown stipules are found, and from the axils of these the flowers grow; they are single, large, of a bright blood-red colour, and curiously reversed, the keel, or boat-shaped petal, usually lowest, being uppermost. Another leafless species, *B. pungens*, seldom grows more than a foot high, has innumerable spiny branches, and a dense mass of scarlet flowers, produced just above the ground, at the base of the stems. *B. lanceolatum* is a very handsome species, and a great ornament to greenhouses, flowering as it does in the winter or spring months. Its leaves are generally opposite, ovate or lanceolate

in form, with a glossy upper surface, and covered with silvery adpressed pubescence underneath. The flowers are in axillary clusters, large, and rich scarlet. [A. A. B.]

BRACHYSORUS. A name proposed for a Fern which proves to be *Asplenium sylvestricum*. [T. M.]

BRACHYSTELMA. A genus of South African *Aeclepiadaceae*, containing several species of undershrubs, which have erect annual stems and large perennial tuberous roots. The calyx consists of five sepals; the corolla is campanulate and five parted. The staminal corona consists of five trilobed leaves attached to the middle of the gynostegium, which is included; while the anthers are simple and without a membrane, and the pollen masses roundish, and capped by a pellucid margin, at the base of which the two masses are attached to a slender corpuicle by two short processes. The two follicles are long and slender with numerous comose seeds. The roots are edible, those of some species being much esteemed as a preserve by the Dutch inhabitants of S. Africa. [W. C.]

BRACKEN or BRAKE. A common English name of *Pteris aquilina*.

BRACTEÆ or BRACTS. The leaves placed immediately below a calyx, if they are at all altered from their usual form.

BRACTEATE. Having bracts.

BRACTEOLÆ, BRACTEOLÆ or BRACTEOLITES. Bracts of a second order, usually smaller and more changed than the true bracts; also any small bracts.

BRADBURYA. The name given to a Texan herb which belongs to the Composite family. It is an annual plant with slender straight stems about three feet high, and altogether sparingly covered with hairs, which gives rise to the specific name *hirtella*. The leaves are numerous, linear, very narrow, and about an inch long; the flower-heads solitary at the ends of the branches, and the florets yellow. The genus bears the name of Mr. J. Bradbury, who travelled in America in 1809, and published some interesting notes on the botany of the Missouri country. [A. A. B.]

BRAGANTIA. A genus of *Aristolochiaceae*, consisting of undershrubs with decumbent wavy branches, thick leaves with prominent nerves, a regular flower with a thread-shaped calyx-tube adherent to the ovary, and a bell-shaped three-cleft limb; stamens six or nine, inserted on a shallow disc, surrounding the upper part of the ovary, and adherent to the base of the four connate styles; capsule pod-like, quadrangular, four-celled, four-valved, many-seeded. These plants are also remarkable for the structure of their wood, which differs considerably from the ordinary wood of *Eucalyptus*. They are natives of the tropical parts of Asia, and possess in some degree the properties of the *Aristolochias*. *B. tomentosa* is very bitter, and,

according to Dr. Horsfield, is used medicinally in Java. Major Drury in his work on the useful plants of India, says that the natives of the western coasts of India use the leaves and roots of *B. Wallichii*, rubbed up with lime juice, as a cure for snake bites; the whole plant mixed with oil in the form of an ointment is used in the treatment of inveterate ulcers. It used to be considered as an antidote to poison. A Malabar proverb says, as soon as the Alphon root, that is the root of this species, enters the body, poison leaves it. [M. T. M.]

BRAHEA. Certain fan-leaved Palms, inhabiting Peru, the Andes, &c., have been collected by Martius into a genus with the above name. They are trees of moderate height, with fan-like leaves and spiny leafstalks; flowers hermaphrodite, greenish, with a calyx of three sepals overlapping at the margins; six stamens, connate in a sort of cup around the base of the ovary. [M. T. M.]

BRAHMIN'S BEADS. An Indian name for the corrugated seeds of *Elaeagnus*, which are used by the Brahmins, and also made into necklaces, &c.

BRAINEA. A genus of polypodiaceous Ferns, now included in the group *Hemionitideæ*, in which it is distinguished by its primary veins anastomosing in an arcuate manner, so as to form a series of areoles next the costa, while the venule, which are parallel and oblique, are quite distinct to their apices. It has naked or non-induplicate sori continuous along the course of the transverse curved veins which unite to form the costal areoles, and often extended more or less along the parallel oblique free venules, becoming at length irregularly confluent.

B. insignis is the only species known. This is a native of Hong Kong, and forms a very handsome dwarf tree fern with a stem of three to four feet in height. The fronds are three feet long or more, pinnate, the pinna sometimes becoming pinnatifid; they are rigid and subcoriaceous in texture, and serrated along the margin. It is a very elegant and interesting plant. The genus has some points of resemblance to *Sadleria*, a genus of *Lomariaceæ*, but differs in having naked instead of induplicate sori, and in some other particulars. We had formerly regarded it as presenting a connecting link between the *Mentiscieæ* and the *Lomariaceæ*, through the *Woodwardiaceæ*, and had placed it in the former group in consequence of its short transverse naked sori: but now that more perfect specimens in the fresh state have been examined, we are quite ready to adopt the suggestion of Sir W. J. Hooker, that it may be referred to the *Hemionitideæ*, the sori not proving to be short and lunate, but continuous along the arcuate veins. It is, however, even here, somewhat anomalous, the fructifications being merely branched and not truly reticulated. 'We have here,' Sir W. J. Hooker observes, 'a very remarkable, and, if I may so say, a new form

among the Filices. In its arborescent caudex it reminds one of some of the cyathaceous group of tree ferns, though not of one of the loftiest character; in its foliage it resembles several species of *Lomaria*; in its venation a *Woodwardia*, and in the more fully developed fructification an *Acrostichum*. [T. M.]

BRAKES. A common English name of *Pteris aquilina* and the related species or varieties. —, **ROCK.** *Allosorus crispus*.

BRAMBLE. The common name for *Rubus fruticosus* and the allied plants. —, **DOG.** *Ribes cynosbati*. —, **MOUNTAIN.** *Rubus Chamaemorus*, the Cloudberry.

BRAMIA. The title of a section of the genus *Herpestes* (*Scrophulariaceae*) characterised by having the upper lip of the corolla deeply bilobed. [W. C.]

BRANCURSINE. (Fr.) *Acanthus mollis*; also *Heracleum sphondylium*.

BRANDESIA. A section of the Amaranthaceae genus *Telanthium*, which consists of tropical plants (chiefly American) allied to the globe amaranth of the gardens. *Brandesia* is distinguished from the other sections by not having the calyx distinctly jointed to the extremely short pedicel, and its segments being nearly equal. The flowers are each accompanied by three bracts, and are in long-stalked globular or ovoid heads; the stamens are united into a tube by the adherence of the filaments. *B. porrigens* has the heads of flowers deep purple, resembling those of *Sanguisorba officinalis*, but dry like those of the 'everlasting' flowers. [J. T. S.]

BRANDY BOTTLES. A local English name for the flowers of *Nuphar lutea*.

BRANK. *Fagopyrum esculentum*.

BRASSAVOLA. In the tropics of America, and in no other part of the world, occur many species of Orchids with slender fleshy stems, solitary succulent usually pugioniform leaves, and large greenish flowers, with narrow acuminate or long-tailed petals, and a similar entire sometimes very broad lip. They have also a column with a pair of great falcate ears on each side of the front, and eight pollen masses. To these the name of *Brassavola* has been given. A few species have been added, in which the appendages or ears of the column are small and toothed. The most remarkable are *B. glauca*, with glaucous flat fleshy leaves, and very large flowers, from Mexico; and *B. Digbyana*, which differs in little, except having the margin of the lip broken up into long hair-like fringes.

BRASSIA. An extensive genus of tropical American Orchids, very nearly related to *Oncidium*, from which they are easily known in most cases by the lateral sepals being very much longer than the other parts of the flower. Since, however, this is also the case in *Oncidium phymatoclithum* and some others, the distinction fails, and botanists are obliged to combine with long

tail-like sepals, a short earless column, and a pair of vertical plines on the lip. In attempting to define what a *Brassia* is, Lindley enumerates seventeen species and many varieties, all pseudobulbous and bearing flowers more or less yellow, in simple racemes. They are chiefly handsome enough to deserve the gardener's care.

BRASSICACEÆ. The Cabbage family, a natural order of Thalamifloral Exogens, to which the name of *Caucaceæ* (which see) is usually given.

BRASSICA. A remarkable group of plants, of the order *Cruciferae*. As constituted by Bentham, and characterised by its conduplicate cotyledons, and its silique beaked pods, this genus is made to include the mustards (*Sinapis*), an allocation to which we incline, both from experiment and observation. We shall, however, confine our remarks to the genus as constituted by Linnaeus, of which the following are species:—*B. oleracea*, Wild Cabbage; *B. campestris*, Wild Nave, including *B. Rapa*, the Turnip; *B. Napus*, Rape or Coleseed. Of these, the first is in all probability the initiative. It occurs wild on rocks and cliffs by the sea shore; and we have now in cultivation some curious examples, derived from seed gathered from the rocky coast of Llandudno, North Wales, which already give indications of sports in several directions. Some have the short petioles and the close hearting condition of Cabbages of which form we have both green and red varieties, the tendency being much increased by repeated transplantation. Others, with longer petioles and lyrate leaves, seem to take on that looser method of growth which constitutes the 'Greens' and Kale of the garden; whilst some present that peculiar glaucous hue which belongs more particularly to Rape. We should not, therefore, be surprised if experiment should ultimately establish the position that the *B. oleracea* is the only true species of the three above enumerated, and that the *B. campestris* and *B. Napus* are but agrarian forms derived from the cultivated varieties of this. This opinion is countenanced by the fact that nowhere are the two latter truly wild, but both track cultivation throughout Europe, Asia, and America. The protean forms induced from the *B. oleracea* are well known, such as many varieties—which are yearly increasing—of Cabbage, Broccoli, Cauliflower, Kale, and Kohl-rabi; whilst the no less numerous varieties of the common Turnip are all referred to *B. campestris*, with which, indeed, Bentham classes *B. Napus*.

As regards the Swedish Turnip, we are in the position to state that the seeding of Rape and common Turnips in mixed rows has resulted in the production of a small percentage of malformed Swedes, which, however, improved very much by careful cultivation; and our field observations have enabled us to detect in degenerate

Swedes a disposition to a negation of bulbs, and the production of monstrous rape plants—a tendency which is at once observable when this crop assumes a necky top, or many heads, which shows an inclination to 'run,' or when it forms a branchy finger-and-toe root-growth, which indicates a breaking up of the bulb into ordinary roots. It may be remarked, as throwing some light on the nature of the changes by which the cultivated varieties of this genus have been attained, that experiments with seeds of plants showing any particular tendency, and especially if repeatedly grown in the same soil, will ever result in an increase of the peculiarity. [J. B.]

This genus comprises some of the most ancient and useful of our culinary vegetables, most of them possessing high antiscorbutic powers, which are believed to depend upon a certain acrid volatile oily principle—the chemical nature of which is imperfectly known. In common with the rest of the cruciferous order, they also possess a greater share of azote than any other tribe of plants, as is apparent in their fetid smell when fermented.

The Cabbage, *B. oleracea*, in its wild state, is a native of various parts of Europe, as well as of several places near the sea in England. It is a biennial, with fleshy lobed leaves, undulated at the margin, and covered with bloom; altogether, so different in form and appearance from the Cabbage of our gardens, that few would believe it could possibly have been the parent of so varied a progeny as are comprised in the Savoy, Brussels Sprouts, Cauliflower, Broccoli, and their varieties. A more wonderful instance of a species producing so many distinct forms of vegetation for the use of man is scarcely to be met with throughout the range of the vegetable kingdom.

The Common or cultivated Cabbage, *B. oleracea capitata*, is well known, and from a very early period has been a favourite culinary vegetable, in almost daily use throughout the civilized world. The ancients considered it light of digestion, when properly dressed, and very wholesome if moderately eaten. For the introduction of our garden variety of Cabbage, we are indebted to the Romans, who are also believed to have disseminated it in other countries. It is said to have been scarcely known in Scotland until the time of the Commonwealth, when it was carried there from England by some of Cromwell's soldiers; but it now holds a prominent place in every garden throughout the United Kingdom. In general, cabbages are preferred when of a large size, thoroughly hearted and blanched within; they are not, however, then by any means so digestible and wholesome as when cut and eaten in a young state—that is to say, before the heart has become firm and hard. It is a remarkable fact, that all the varieties are sweeter and better flavoured after being touched with frost.

In Germany, salted cabbage, or *sauer kraut*, is much esteemed, and forms a kind

of food, of which large quantities are prepared for winter use. It is made by cutting the cabbages into small shreds, and afterwards packing them in barrels, in layers three or four inches thick. Over each layer is thrown a certain quantity of salt and unground pepper, with a few cloves; and the whole is then well mixed, and pressed as hard as possible. Other layers are put in, and treated in the same way, until the barrel is full. A board is then placed on the top, on which heavy weights are put, and in this state it remains for ten or fifteen days, when it partially ferments, and a great deal of water rises to the surface. It is then placed in the cellar, and continues in excellent condition for use until late in the spring.

The Red Cabbage, *B. oleracea rubra*, is a very distinct variety, remarkable for the peculiar purple, or brownish-red colour of its leaves. It is chiefly used for preserving as a pickle, for which purpose it is greatly esteemed, and by proper management makes one of the most beautiful pickles that can be presented at table.

The Borecole, *B. oleracea acephala*, has every appearance of being one of the early removes from the original species. It is distinguished from the other sorts of cabbages by its leaves being beautifully cut and curled, of a green or purple colour, or variegated with red, green, and yellow, never closing, so as to form a head, nor producing eatable parts like the Cauliflower. Several sub-varieties of Borecole are well known under the names of German Greens, Buda Kale, Scotch Curlies, or Kale—all of which are so hardy as to be able to endure severe frost, and continue green and fresh throughout the winter. The part which is used is the crown, or centre of the plant, cut so as to include the young and most succulent leaves. When properly dressed, they are tender, sweet, and delicate, more particularly after being exposed to frost.

The Large-ribbed Cabbage, or Couve Tronchuda, *B. oleracea costata*, is a variety peculiar to Trauxada, in Portugal, from whence it was introduced in 1821. It represents a singular race of the cabbage family, and is characterised by its leaves having very large midribs, which, when divested of their green parts, and thoroughly boiled, make an excellent vegetable for serving up in the manner of sea-kale. The heart, or middle part of the plant, has likewise been found very delicate, tender, and agreeably flavoured.

The Savoy Cabbage, *B. oleracea bullata*, differs but little from the other kinds of heading or hearting cabbages, and is chiefly distinguished by its leaves being wrinkled in such a manner as to have a netted appearance. It has been cultivated in our gardens for three centuries. When fully headed, it forms an excellent hardy winter vegetable, for using in the same way as other cabbages, but it is not so delicately flavoured.

The Brussels Sprouts, or Bud-bearing Cabbage, *B. oleracea bullata minor*, origi-

nated in Belgium, and has been cultivated around Brussels from time immemorial; although it is only within the last twenty years that it has become generally known in this country. It is very hardy, and forms a head somewhat like a savoy, of which it is considered to be a sub-variety, differing in the remarkable manner in which it produces at the axils of the leaves, along the whole length of its stem, a number of small sprouts, resembling miniature cabbages, of one or two inches in diameter. These are peculiarly well-flavoured, and, as a winter vegetable, are more highly esteemed than any other kind of cabbage in cultivation.

The Cauliflower, *B. oleracea botrytis cauliflora*, is of great antiquity, but its origin is unknown, although it has been usually ascribed to Italy. It is mentioned by Gerard, and must therefore have been in this country previous to 1597. It differs in a remarkable manner from all the other varieties of the cabbage tribe, whose leaves and stalks are alone used for culinary purposes. Instead of these being taken, the flower-buds and fleshy flower-stalks form themselves in a close firm cluster or head, varying from four to eight inches or more in diameter, and become one of the greatest of vegetable delicacies. It is not valued so much for its large size, as for its fine creamy white colour, its compactness, and regular form, without being warty, which features constitute the properties of a fine Cauliflower. The uses of Cauliflower are well known. When dressed it is served up at table, either plain boiled, or with white sauce. It forms an excellent addition to vegetable soups, and is often used for pickling. It may also be preserved for a considerable time, when pickled like sauer kraut.

The Broccoli, *B. oleracea botrytis asparagoides*, is similar in form and appearance to the cauliflower, from which it is supposed to have originated. It was first brought into notice at the beginning of the last century. Two kinds, the white and purple, are mentioned by Miller (1724) as coming from Italy, and from these have arisen all the varieties that are now in cultivation. Broccoli is more robust and far more hardy than cauliflower, for which it becomes a valuable substitute during the winter and spring months, when the latter cannot be obtained. The heads vary in colour, from a brownish purple to a pure creamy white, in which state they are scarcely to be distinguished from cauliflowers. They are used for the same purposes, but are not so delicate in flavour.

The Turnip, *B. Rapa depressa*, is a hardy biennial, and, in its wild state, is found in corn fields in various parts of England. The change it has undergone by cultivation is no less remarkable than that of the Cabbage; but in this instance it is the root which has been transformed from a comparatively hard woody substance into the large fleshy bulb, which constitutes one of our most nutritious vegetables. The ancient Greeks and Romans were well

acquainted with the Turnip; and, in the fifteenth century, we find it had become known to the Flemings, and formed one of their principal crops. The first Turnips that were introduced into this country are believed to have come from Holland in 1550; and, among all the varieties now cultivated for culinary purposes, the Early Dutch continues to be generally esteemed. The Turnip forms an ingredient in broths, soups, and stews; it is likewise cut into various figures for garnishing. In spring, when the plant is pushing up for flower, the points of the shoots are dressed as greens, and are acknowledged to be valuable as an antiscorbutic.

Rape, *B. Napus*, is a hardy biennial, indigenous to Britain. It is chiefly grown for cutting when quite young, and mixing with mustard, as a small salad. It is also sometimes cultivated in cottage gardens, for spring greens—the tops being cut first, and afterwards the side shoots. The Teltow Turnip, or Navet de Berlin petit of the French (*B. Napus var.*), is very different from any of our cultivated varieties of Turnip, its root being long and spindle-shaped, somewhat resembling a carrot. Its culture in this country dates from 1790; but it was well known in 1671, and is noticed by Caspar Bauhin in his *Pinax*. It is much more delicate in flavour than our Common Turnip. In France and Germany it is extensively cultivated, and few great dinners are served up without it in one shape or other. It enriches all soups by the peculiar flavour contained in the outer rind, which is thin, and must not be cut away, but scraped. Stewed in gravy, it forms a most excellent dish, and, being white, is very ornamental when mixed and served with carrots. [W. B. B.]

BRAVAISIA. The *Onychocanthus Cunninghamii* of Nees von Esenbeck. [B. S.]

BRAVOA. A genus of Amariyllids, containing a single species, *B. gemmiflora*, native of Mexico. This is a bulbous or rather a tuberous plant, with a tuft of radical linear keeled leaves, and an erect flower-stem, a foot or more in height, supporting a raceme of nodding flowers, which grow in pairs, and are of a rich orange-red outside and yellowish within. The tuber is somewhat elongated, tunicated, sending down several thick fleshy roots. The perianth, which is rather over an inch long, consists of a funnel-shaped curved tube widening at the throat, and having a very short six-lobed somewhat spreading limb. There are six stamens, and an inferior three-celled ovary, with a long exserted filiform style terminated by a dilated stigma. It is a very graceful plant. [T. M.]

BRAYERA. A genus of *Rosaceae* named after a French physician, Dr. Brayer, who observed the valuable medicinal properties of the only species of this genus, and sent a specimen of the plant to Kunth. The plant is known by its top-shaped calyx, the limb of which is divided into ten

segments, five exterior to the remainder, which are much smaller and of a different shape; it has two small bracts at the base. Petals five, small, linear, scale like; stamens fifteen to twenty, inserted with the petals into the throat of the calyx, the filaments unequal in length. Carpels two at the bottom of the calyx, one to two-seeded; style terminal; stigma peltate.

D. anthelmintica, the only known species, is an Abyssinian tree with alternate pinnate leaves and diocious flowers; in the true female flowers the petals and stamens



Brayera anthelmintica.

are entirely wanting. The flowers of this tree have been long used by the natives as a vermifuge, and have proved very efficacious in the removal of tape-worm in this country. The cause of its peculiar effects is not well understood. [M. T. M.]

BRATETTE. (Fr.) *Primula (officinalis) varia*.

BRAZILETTO. The common name for *Cesalpinia*; also specially, the colonial name of *C. brasiliensis*, the timber of which is used for cabinet-work.

BRAZIL WOOD. A dye wood obtained from *Casalpinia echinata*, and other species.

BRAZORIA. A genus of *Labiata*, native of Texas, and containing two species of erect branching herbs, with the lower leaves petiolate and obovate-oblong, the upper serrate and lanceolate, and the flowers in single terminal spikes. The calyx is campanulate and two-lipped, with the upper lip bilobed and the lower trilobed. The corolla tube is considerably exserted, the throat inflated, and the limb bilabiate, with the upper lip erect, slightly bilobed or entire, and the lower deeply trifid, with its roundish lobes spreading or recurved. [W. G.]

BREAD-FRUIT. *Artocarpus incana*.

BREAD-FRUIT TREE of North Australia. *Gardenia edulis*.

BREAD-NUT. The seed of *Diosimum Allicastrum*.

BREAD-ROOT. *Psoralea esculenta*.

BREAD, NATIVE. of Australia. *Mythen australis* —, **TARTAR.** The fleshy root of *Cranibe tatarica*.

BREAK-AXE, of West Indies. *Sloanea jamaicensis*.

BREAK-YOUR SPECTACLES. A translation of the French name—*Casse lunettes*—for *Centaurea Cyanus*.

BREATHING-PORES. See *Stomata*.

BREDEMEYER. A genus of *Polygonacea*, comprising ten species, natives of Tropical America. They are suberect or often scandent shrubs, with alternate ovate or oblong pinnerved leaves, and numerous yellow flowers arranged in terminal panicles. Sepals five, unequal, the two inner petaloid; petals three, the central one keeled; stamens eight, united below; ovary bilocular; fruit, a drupe. The genus as now defined includes *Catocoma*, which see. [J. Br.]

BREDES. (Fr.) *Solanum nigrum*, — **D'ANGOLE.** *Bacilla rubra*. — **GLACIALE.** *Meembryanthemum crystallinum*.

BREHMIA. A genus of *Loganiaceae*, containing but one species, *B. spinosa*, which is, as its name implies, a spiny shrub. It grows about ten feet high, and is furnished with opposite stalked three or five-nerved entire leaves, elliptical in form, and small green flowers arranged in dense cymes at the apex of the branches. The hard-shelled ripe fruit resembles an orange in size and appearance, and contains many seeds immersed in a copious pulp. The genus differs chiefly from the *nux-vomica* (*Strychnos*) in having a one-celled ovary. The plant is found in Madagascar, where it is called 'Voiva Vountaca', in eastern Africa, and also on the west coast. The pulp of the fruit is commonly eaten by the natives wherever it grows; it is somewhat acid, and said to be delicious; but probably the seeds, from its near relationship to the *nux-vomica*, are poisonous. It is, however, remarkable that the pulp of many species of *Strychnos*, whose seeds are a deadly poison, is perfectly harmless. [A. A. B.]

BREJEUBA. A kind of Cocoa-nut, the wood of which is used by the Brazilian Indians in making their best bows.

BRE'SINE. (Fr.) *Zinnia multiflora*.

BREWERIA. A genus of herbs or undershrubs, natives of New Holland, tropical Asia, and Madagascar, belonging to the order *Convolvulaceae*. They have alternate entire leaves, and solitary axillary flowers. The calyx consists of five sub-equal sepals; the corolla is campanulate and plaited. There are five included stamens. The ovary is two-celled, with two ovules in each cell, and bearing a

style which is divided nearly half its length, and has a capitate stigma on each division. The capsule is two-celled and contains four seeds. [W. C.]

BREXIA. A genus of small trees formerly referred to *Breziaceae*, an order now merged in *Saxifragaceae*. They are natives of Madagascar, and have alternate petiolate leathery leaves, entire or furnished with spiny teeth. The flowers are in axillary umbels, of leathery texture and greenish hue; calyx with five short segments; petals also five; stamens five, arising from a toothed disk surrounding the base of the ovary, and adnate with it; ovary five-celled. Fruit drupaceous, five-ribbed, slightly papillose, about the size of an orange; seeds numerous. [J. T. S.]

BREXICEAE. The genera *Brexia*, *Izobera*, *Argophyllum*, and *Roussaea*, each consisting of only one or two species, have been proposed as a small family allied to *Saxifragaceae*. They are, however, not all very closely connected with each other, and neither form a natural group, nor are they united by any well-marked common character; and in the recent *Genera Plantarum* of Benth and Hooker, they are, together with several other small orders, included in the *Saxifragaceae*. The orders thus associated with *Breziaceae* under *Saxifragaceae*, are the *Aculloniaceae*, *Hydrangeaceae*, *Cunoniaceae*, *Roussaceae*, *Prunaceae*, *Grossulariaceae*, and *Phyllodaphneae*. The genera above named are, in the work above alluded to, all included in the tribe *Acullonieae*. [T. M.]

BRIDGERIA. A genus of the Soapwort family (*Sapindaceae*), indigenous to the province of Coquimbo in Chili. The cut-leaved *B. incisa* is the only known species, and is a shrub three to five feet high with alternate stalked simple lobed leaves, and with the flower-stalks axillary and single, some of the flowers, which are small, bearing stamens only, others with both stamens and pistil. The fruit is a three-celled bladder capsule, each of the cells prolonged into a wing on the back, and containing a single seed. The genus may be distinguished from any in the family by its leaves alone. It bears the name of Mr. Bridges, a most extensive collector of Chilean plants. The same name has been also given to a group of *Phytolaccaceae*, now included in *Evolvaceae*; and to a group of *Compositae*, now included in *Polypodiaceae*. [A. A. B.]

BRIER, or BRIER ROSE. The common larger-growing British species of Rose, especially the Dog Rose, *Rosa canina*; sometimes written Briar. — **SWEET.** The Eglantine, *Rosa rubiginosa*.

BRIGALOW. *Acacia excelsa*.

BRIGNOLES. The dried fruits known as Provence prunes or French plums.

BRILLANTaisia. A genus of *Aconitaceae*, containing one or two species, natives of Guinea. They are erect branching herbs with ovate-cordate leaves on long petioles, and large purple flowers in

terminal panicles, with small linear bracts. The calyx is five-parted, with unequal linear segments, the upper being the longer. The ringent corolla has the upper lip bilobate and overarching with a trifid apex, and the inferior large, spreading, and shortly trifid. There are two fertile stamens inserted at the top of the tube, and having long linear bilocular anthers; the two barren stamens are represented by short filaments. The ovary is oblong, hairy, and surrounded by a disc, and bears a style of the same length as the corolla, terminated by an unequally bifid stigma. The capsular fruit is straight, narrow, tetragonous, and two-celled, with six to eight seeds in each cell. [W. C.]

BRIMSTONE, VEGETABLE. The inflammable spores of *Lycopodium clavatum* and *Selago*, employed on the continent in the manufacture of fireworks.

BRINJAL. The fruit of the egg-plant, *Solanum Melongena*. Mr. Benth writes it Brinall.

BRINVILLIERS. (Fr.) *Spigelia Anthelmia*.

BRISTLEWORTS. A name applied by Lindley to the *Desmanaceae*.

BRISTLY. Covered with stiff sharp hairs, or bristles.

BRITTLEWORTS. A name given by Lindley to the *Diatomeae*.

BRIZA. A genus of Grasses belonging to the tribe *Pentstemonaceae*, distinguished chiefly by the inflorescence being in panicles, the spikelets of which contain from five to twelve imbricated flowers; and in the two glumes being nearly equal, and like the pales membranous, with scarious margins. The Quaking Grasses are all handsome plants, so much so, that *B. maxima* and *B. minor* are frequently cultivated in gardens as ornamental annuals. Steudel describes thirty species, which are mostly natives of South America: Brazil, Chili, and Peru, being the principal countries which produce them. Two are British plants, *B. media* and *B. minor*; the former a very common species, on light limestone soils, &c., the latter confined to a few localities in England. They are not of agricultural importance, though *B. media* is a prevailing grass on some good permanent pastures. [D. M.]

BRIZOPYRUM. A genus of Grasses belonging to the tribe *Pentstemonaceae*. Eleven species are described, which are mostly natives of the Southern Hemisphere. One is, however, from Nootka Sound, *B. boreale*, and another curious species found by Drummond in Australia, *B. setipoides*, has leafless culms rising to the height of four feet. [D. M.]

BROAD SEED. The common name for *Utricularia*.

BROCCOLI. A cultivated variety of the Cabbage, *Brassica oleracea*, in which the

young inflorescence is condensed into a depressed fleshy edible head.

BRODIEA. A small genus of *Liliaceae*, consisting of bulbous plants from Western North America, with linear leaves and naked scales terminated by an umbel of rather large blue flowers. The base of the umbel is surrounded by an involucre of small scarious bracts; perianth funnel-shaped, six-cleft; stamens three, attached to the perianth, alternating with three scales (abortive stamens). The ovary is surrounded by a fleshy three-lobed hypogynous disk. The bulbs are small, enveloped in a dark rough coat. [J. T. B.]

BROKEN, when applied to a whorl, signifies that the parts thereof are not all on the same plane. In fact, they form a part of an extremely short spiral, as may be seen in the calyx of any species of *Hypericum*.

BROME, FALSE. A common name for *Brachypodium*.

BROMELIACEÆ (*Bromelia*, *Tillandsia*, *Bromelads*, *Bromelworts*, the *Pine-Apple* family). A natural order of Epigynous Monocotyledons included in Lindley's *Narcissal* alliance. Short-stemmed plants with rigid channelled often scurfy and spiny leaves, and showy flowers. Outer perianth (calyx) three-parted, persistent; inner (corolla) of three withering petals; stamens six, inserted in the tube of the perianth; anthers opening on the side next the pistil; style single. Fruit either a dry capsule or succulent, three-celled, many-seeded; embryo very small, at the base of mealy albumen. Natives of the American continent and islands, whence they have been distributed to Africa and the East Indies. *Ananassa sativa*, the Pine apple or Ananas, is one of the most important plants of the order. Its fruit is composed of the pistils and bracts of several flowers united into a succulent mass and crowned by a series of green leaves. It is *par excellence* the fruit of the Eastern Islands. The fibres of the plant are used in manufacture. *Bromelia pinguia* is a remedy for worms in the West Indies. Some of the Bromeliads grow attached to the branches of trees, and are called Air-plants. One of these is *Tillandsia usneoides*, the Tree-beard of South America, which consists of a mass of black fibres. These are employed for stuffing cushions, under the name of Spanish Moss, Black Moss, or Long Moss. There are twenty-eight known genera and 176 species. Illustrative genera: *Ananassa*, *Bromelia*, *Bechmea*, *Bulbergia*, *Tillandsia*, *Bonapartea*. [J. H. B.]

BROMELIA. The natural order *Bromelaceae* takes its name from this genus, which consists of plants with short stems, and densely-packed rigid leaves, generally lance-shaped, with spiny margins, and channelled on the upper surface. The calyx is three-parted, much shorter than the corolla, which consists of three petals, convolute, erect or spreading at the top.

The stigmas are three—short, fleshy, and erect. The fruit is succulent. The fruit of *B. Pinguia* yields in the West Indies a cooling juice, much used in fevers, etc. Many of them supply valuable fibre for textile purposes, and which might also be employed in the manufacture of paper. Several species are cultivated in stoves for their ornamental flowers. [M. T. M.]

BROMHEADIA palustris. In the Malay Archipelago there grows in bogs the orchidaceous plant to which this name has been given. It has the habit of such New World species as *Epidendrum elongatum*, the stems being erect, and clothed with leathery distichous leaves. The flowers, which are large and white, with a purple and yellow lip, are placed close together on a stiff zigzag rachis, which is in some cases branched. The lip, which is cucullate, and firmly fixed so as to be parallel with the column, has the unusual character of bearing a long woolly ridge in the middle. Mr. Finlayson first detected it near Singapore.

BROMUS. A genus of grasses, belonging to the tribe *Festuceæ*, distinguished chiefly by the inflorescence being in lax panicles, very rarely crowded; glumes unequal, containing from three to many flowers, the spikelets lanceolate and compressed; florets two, the lower with a long awn attached nearly at the tip; styles below the top of the fruit. Steudel describes 141 species in his *Synopsis*. They have a very extensive geographical range. The greater number are, however, natives of temperate climates, and those that approach tropical limits generally grow at considerable elevations on mountains. About eight species are natives of Britain, along with some which have been introduced, and are now enumerated in British floras. They are not considered first-class agricultural grasses, though the Soft Brome Grass, *B. mollis*, constitutes a large portion frequently of good meadows, but being of annual duration only, it is not so common on good permanent pastures. [The *B. Schraderi*, known as the Australian Prairie Grass, is, however, likely to prove a valuable forage plant, being remarkable for rapidity of growth and productiveness. It is also said to be valuable for sowing in cover, as it entices hares and rabbits into the woods away from the grain crops. See *CERATOCLOA*.] [D. M.]

BROMNIAERTIA. A genus of the Pea-flowered tribe of the Leguminous family, numbering eight species, all of them natives of Mexico or Texas. They are shrubs, with unequally pinnate leaves, and many pairs of ovate or elliptical leaflets, which are generally about half-an-inch in length. The flower-stalks are twin, in the axils of the upper leaves, and the flowers flesh-coloured, or violet, the keeled petal yellow. The pods are stalked, thin, and in form like the blade of a table knife, but pointed, and contain six to eight seeds. None of the species are in cultivation. The genus is named in honour of Adolphe Brongniart, a famous French botanist. [A. A. B.]

BRONTESIS. A name given to express the injury done to plants by lightning. This is generally clear enough from the outward effects, the branches being broken, and the trunk shivered. The injury, however, may be more insidious, and, though no external damage may appear, or none which immediately excites attention, the connection of the component parts of the trunk may be dissolved more or less completely, by the sudden generation of gas, or the expansion of the sap, from the intense heat of the lightning. The whole vegetative power of a tree may also be at once arrested. But many of the cases of sudden death which are commonly attributed to lightning are the results of the spawn of some fungus attacking the roots, vegetation being kept up by a slight thread of sound tissue, as in the condition called gumming; and when this at last gives way, the plant at once perishes. [M. J. B.]

BROOK-BEAN. *Menyanthes trifoliata*.

BROOKLINE. *Veronica Beccabunga*.

BROOKWEED. *Samolus*.

BROOM. *Cytisus*, or *Sarothamnus scoparius*; also applied to *Lygeum Spartium*.

—, **AFRICAN.** A common name for *Apollathus*. —, **DYER'S.** *Gentiana tinctoria*.

—, **NEW ZEALAND.** *Carmichaelia australis*.

—, **RUSH.** A common name for *Pimmaria*; also applied to *Spartium junceum*.

—, **SPANISH.** *Spartium junceum*.

BROOM CORN. *Sorghum vulgare*, the branched panicles of which are made into carpet brooms and clothes-brushes. Also *Sorghum saccharatum*.

BROOMEIA. A most remarkable genus of Puffballs, which has at present occurred only in South Africa. The inner sac, or peridium, is precisely like that of *Gaster*, but completely exposed, the outer sac being represented by a thick corky stratum, in which a multitude of individuals are half sunk, like jewels in a matrix. Some approach to it is made by a fine compound species of starry puffball, found in Ceylon and Cuba, though in that case the inner peridium is not at all exposed. [M. J. B.]

BROOM RAPE. The common name for *Orobancha*. —, **NAKED.** An American name for *Aphyllon*.

BROSIMUM. A genus of the order of artocarpads (*Artocarpaceae*), containing six or seven species, natives of tropical South America. They are large trees, abounding in milky juice, and having entire leaves. Their male and female flowers are generally congregated into a globular head, but are sometimes borne on separate trees; they have neither calyx nor corolla, the males consisting of single stamens, separated from each other by shield-like scales, and the females of a solitary style, terminating in two stigmas. The fruit is a small one-seeded berry.

B. Allicastrum, the Bread-nut tree of Jamaica, has a tall straight trunk, and

smooth shining deep-green elliptical lance-shaped leaves. Its pale-yellow heads of flowers are succeeded by round yellow fruits, about an inch in diameter, and containing a single seed, called Bread-nut in Jamaica. These so-called nuts are eatable, and are said to form an agreeable and nourishing article of food: when boiled or roasted, they taste like hazel-nuts. The young branches and shoots, also, are an excellent fodder for horses and cattle; and the wood, which bears some resemblance to mahogany, is used by West Indian cabinet-makers.

B. Aubletii, a native of British Guiana and Trinidad, also forms a large tree, often sixty or seventy feet high, and two or three feet thick. The leaves are of an oblong form, with their top end broader than the bottom; and they are covered with a whitish down on the under surface. The heart wood of this tree is exceedingly beautiful, being of a rich brown colour, and mottled with irregularly-shaped dark spots, on which account it is called Letter-wood, Snake-wood, or Leopard-wood. Unfortunately, however, it is only procurable in narrow pieces, and is therefore chiefly used for veneering small articles of furniture, and for making walking-sticks, which, however, are very liable to split.

B. Galatodendron, which is the Cow-tree of South America, yields a milk of as good quality as that from the cow. It forms large forests on the mountains near the town of Cariaco, and elsewhere along the sea-coast of Venezuela—growing to upwards of 100 feet high, with a smooth trunk six or eight feet in diameter, and without branches for the first sixty or seventy feet of its height. The leaves are of a leathery texture, strongly veined, and of a deep shining green colour. They are about a foot long, and three or four inches broad, of a somewhat elliptical form, terminating in a sharp point. In South America the Cow-tree is called Palo de Vaca, or Arbol de Leche. Its milk, which is obtained by making incisions in the trunk, so closely resembles the milk of the cow, both in appearance and quality, that it is commonly used as an article of food by the inhabitants of the places where the tree is abundant. Unlike many other vegetable milks, it is perfectly wholesome, and very nourishing, possessing an agreeable taste, like that of sweet cream, and a pleasant balsamic odour; its only unpleasant quality being a slight amount of stickiness. The chemical analysis of this milk has shown it to possess a composition closely resembling some animal substances; and, like animal milk, it quickly forms a yellow cheesy scum upon its surface, and, after a few days' exposure to the atmosphere, turns sour and putrifies. It contains upwards of thirty per cent. of a resinous substance, called *galactin* by chemists. [A. S.]

BROSSEA. An imperfectly known genus of *Vacciniaceae*, comprising a West Indian shrub, bearing solitary axillary or a

few terminal flowers, whose stalks have two bracts, a conoid corolla, five included stamens. The capsule has five many-seeded compartments, and is covered by the enlarged limb of the calyx; seeds very small. *B. coccinea* is in cultivation, and is described as a cistus-like shrub, with scarlet flowers half an inch long. [M. T. M.]

BROUALLE R'LEVE'E. (Fr.) *Browallia elata*.

BROUGHTONIA sanguinea is a handsome West Indian epiphytal pseudobulbous Orchid with oblong coriaceous leaves, and ashort spike of deep crimson flowers. It has a spur completely immersed beneath the surface of the ovary. It is common in Cuba on bushes, but more usually comes from Jamaica. Its nearest affinity is with *Leilia* and *Cattleya*.

BROUSSONETIA. This genus is allied to the Mulberry, and belongs to the same order of Morads (*Moracee*). Three species have been defined, but they may probably be all referred to one, namely, *B. papyrifera*, the Paper Mulberry, which is so called on account of its fibrous inner-bark being used by the Japanese and Chinese for making paper. It grows wild in China and Japan, and also in many of the islands of the Pacific Ocean, where the natives manufacture a large part of their clothing from its bark. It forms a small tree, attaining about twenty or thirty feet high, with a trunk seldom more than a foot in diameter, and generally branching at a short distance from the ground. The young branches are covered with short soft hairs. The leaves are deciduous, and vary very much in shape, those of young trees being frequently divided into three or five sharp-pointed irregular lobes, while those of older trees are mostly entire and of a somewhat egg-shaped outline; they are very rough upon the upper surface, and slightly hairy beneath. It has distinct male and female flowers produced upon separate trees; the males being in cylindrical drooping catkins, each flower growing from the base of a small bract, and having a four-parted calyx and four stamens; while the females are congregated into round heads or balls about the size of marbles, and each have a tubular three or four-toothed calyx, a single style produced from the side of the ovary, and a tapering stigma. They are succeeded by deep-scarlet pulpy fruits, resembling a mulberry in structure, and of a sweetish flavour, but rather insipid.

The Japanese cultivate this plant very much in the same way that we grow osiers, and they use only the young shoots for the manufacture of paper; these are cut into conveniently sized pieces, and boiled until the bark separates readily from the wood, when it is peeled off and dried for future use. To convert this bark into paper, they proceed in the following manner:—The dried bark is first moistened by soaking for a few hours in water; all superfluous matter is then removed by scraping with a

knife, after which the bark is boiled in a ley of wood-ashes until its fibres are thoroughly separated, when it is reduced to a pulp by heating with wooden batons; this pulp is then mixed with mucilage and spread upon frames made of rushes. The paper thus made is of a whitish-brown colour, and very strong; it is in common use in Japan. Instead of paper, the natives of the South Sea Islands manufacture from this bark an exceedingly tough cloth, called *tapa* or *kapa* cloth, which they commonly use for clothing, either plain or printed, and dyed of various colours. This cloth is principally made by the women, who adopt the following method of manufacture:—The bark is first softened by being soaked in water for a considerable length of time: it is then placed upon a log of wood and beaten out with a baton



Broussonetia papyrifera.

until it is of the requisite degree of fineness: the baton is made of very hard wood, and has four flat sides, each of which is sharply ribbed. Two or four women usually work together, and as they keep time in beating, the noise they make is loud and musical. In some islands, however, another and inferior method is adopted, the bark being placed upon a flat board, and scraped with different kinds of sharp-edged shells while kept constantly wet. By employing mucilage obtained from the arrow-root, the natives join pieces of the cloth together, and Admiral Sir Everard Home states that the King of Tongataboo (one of the Friendly Islands) had a piece made which was two miles long and 120 feet wide.

[A. S.]

BROWALLIA. The name of certain plants belonging to the order of Linariads, characterised thus: calyx-teeth unequal; corolla salver-shaped with a border divided into five parts, all of a roundish outline and slightly notched at the tip, one piece broader than the others; end of the style or appendage of the seed-vessel four-lobed. The genus was named by Linnaeus in honour of John Browallius, bishop of Abo, who strenuously supported

the system of that great botanist. The plants of this genus are natives of tropical America, usually of erect habit, smooth, or hairy and viscid; the leaves alternate, stalked, ovate in outline; the flowers violet or blue, more rarely white. Their handsome flowers and easy cultivation render them favourite objects of culture. *B. elata*, an upright-growing species, and *B. demissa*, of more spreading habit, have been long in cultivation; the latter is a native of Panama, and has the leaves oblong-ovate, oblique at the base, the branches and flower-stalks downy, the corolla pure pale blue, tending to purple or red: sometimes all three colours are associated on the same plant. [G. D.]

BROWNEA. A genus of small evergreen trees belonging to the *Leguminosae* and to that section having regular corollas. The species are peculiar to Venezuela, New Grenada, and some portions of central America, one of them being also found in Trinidad. The leaves are alternate, equally pinnate, and from one to one and a-half foot long, with from four to twelve pairs of entire leaflets. The flowers are rose-coloured or crimson, and disposed in dense terminal or axillary sessile heads. The pods are compressed scimitar-shaped, often covered with rusty pubescence, and contain many seeds. It would be difficult to point out a more beautiful genus of stove-plants than this, and few tropical plant-houses of any pretensions are without some of them. *B. grandiceps* has long pinnate leaves with about twelve pairs of leaflets and axillary or terminal flower-heads eight inches in diameter; the flowers are pink, very numerous, and arranged in tiers as it were round a conical axis, the outer ones expanding first, followed by the others until all are open, when the flower-head is not unlike that of a *Rhododendron*. The leaves droop during the day so as almost to hide the flowers from view; but they have been seen to rise up in the evening and remain erect all the night; the flowers are thus exposed to the falling dew, but the leaves drooping again during the day, protect the flowers from the heat of the sun. This species is a native of Venezuela, where it is called *Rosa del Monte* or *Palo de Cruz*, and was introduced to England in 1823. Altogether there are six species in cultivation, some of them with bright scarlet flowers, as in *B. coccinea*, which was the first known in our gardens. The genus is named in honour of Patrick Browne, who wrote a history of Jamaica. [A. A. B.]

BROWNIAN MOTION. A phenomenon sometimes called molecular motion, which occurs in minute particles, both of vegetable and mineral origin, consisting in a rapid whirling motion, the nature of which is obscure, but is certainly independent of evaporation or other appreciable external causes which produce motion in minute bodies. It may be seen admirably in a weak solution of gamboge, with a

power of 250 linear. It is frequently observed in the minute anatomy of vegetables, especially when the tissues are diseased. [M. J. B.]

BROWNLOWIA. A genus of the Lime-tree family. *B. elata*, a native of Chittagong in Burmah, is the best known species, and attains a great size, full-grown trees being about fifteen feet in circumference at four feet from the ground; the branches are numerous and spreading, forming a large ovate shade; head, and the leaves, like those of the lime-tree in form, are entire, five to seven-nerved, and often a foot in length and eight inches broad. The flowers are in terminal panicles, very numerous and showy, white or pale yellow in colour. The fruit is made up of five baccate carpels, each containing one seed. [A. A. B.]

BROWN RED. Dull red, with a slight mixture of brown.

BRUCEA. A genus of *Simarubaceae*, so called in honour of the famous Abyssinian traveller. It consists of shrubs with compound leaves; flowers in heads, unisexual or sometimes hermaphrodite; parts of the flower in fours; stamens attached to a central gland-like four-lobed gynophore or stalk supporting the four drupes. The stamens are sterile in the female flowers. The species are natives of Abyssinia, China, &c., and some of them possess bitter properties similar to quassia, a drug furnished by a tree of the same natural order. [M. T. M.]

BRUEA. A genus of *Artocarpaceae*, comprising a shrub with alternate somewhat heart-shaped serrated woolly leaves, and having leafy bracts, and terminal stalked dicerious flowers. Calyx tubular, irregularly four-toothed; ovary oblique; stigma lateral, sessile, very long, fringed; fruit hairy. Native of Bengal. [M. T. M.]

BRUGMANSIA. The name of a genus of *Solanaceae*, or of one which was formerly included in that order, but which has been separated by Miers, under the name *Atropaceae*. The species were formerly comprised under the genus *Datura*, as there is a close resemblance in the flowers; but these plants are shrubs, and their fruit is smooth, not spiny, and contains but two cells. *B. suaveolens* is a well-known ornament of our greenhouses, with its large fragrant tubular white blossoms, which are sometimes produced in great profusion; it is perhaps better known under its old name of *Datura arborea*. Other species with orange and red flowers are in cultivation; and both white and red varieties are common in gardens in India. All are natives of Peru and South America. Their seeds are dangerous stimulating narcotics.

The name *Brugmansia* is also applied to a genus of plants parasitical, in Java, on the roots of certain species of *Cissus*. They consist of little else but flowers, which are of the size of the flat, hermaphrodite, with a whitish perianth, which is two or three-

cleft and internally scaly or hairy. These plants are nearly allied to the curious and gigantic *Bufflesias*. [M. T. M.]

BRUGUEIRA. One of the genera of the Mangrove family (*Rhizophoraceæ*), and known by having a top-shaped calyx adherent to the ovary below, and having a persistent five to thirteen-lobed limb; five to thirteen oblong petals, cleft into two segments, leathery, woolly at the margin, and so folded that each petal conceals two stamens, whose filaments are not of equal length, but all shorter than the petals opposite which they are placed in pairs; their anthers are linear, or arrow-shaped. The ovary has two to four compartments, each containing two ovules; stigma two or four-toothed on the end of a style, which is about the length of the stamens. The fruit is crowned by the persistent calyx, and the seed within it germinates before it has fallen from the branch, as in the true mangroves. The trees are natives of the East Indies, where the bark is used as an astringent, for tanning purposes, and for dyeing black. [M. T. M.]

BRUMAILLE. (Fr.) *Erica scoparia*.

BRUNELLIA. A genus of *Xanthorrhoeaceæ*, consisting of trees with simple or compound leaves, and unisexual flowers in axillary or terminal panicles. The calyx is four or five-parted. There are no petals. The eight or ten stamens of the male flowers arise from a depressed hairy disc. In the female flowers the stamens are absent, but there are four or five ovaries, each terminated by a short style. The fruit consists of four or five two-seeded capsules, which open inwardly. The species are natives of tropical America, and the Sandwich Islands. [M. T. M.]

BRUNFELSIA. A name given to a genus of *Scrophulariaceæ* in honour of Otto Brunfels of Metz, who lived about the middle of the sixteenth century, and contributed to the revival of botanical science. The genus is known by the possession of a five-cleft calyx; a corolla with a long tube, very slightly dilated at the top, and a flat limb, five-cleft with rounded lobes, bilabiate in maturation; four fertile stamens with anthers which are confluent at the top; and a style which is bent inwards at the top, where it is divided into two stigmatic lobes. The capsule is leathery or fleshy, more rarely indehiscent and drupe-like; seeds several, rather large, imbedded in pulp. The species are shrubs or small trees natives of South America and the West Indies, and have handsome fragrant flowers of blue or white colour. Some of the species are in cultivation. [M. T. M.]

BRUNIACEÆ. A small family not separated by any positive character from *Hamamelidææ*, although very different in habit. They are mostly much-branched henth-like shrubs from South Africa or Madagascar. The leaves are usually small, crowded and entire, without stipules. The

flowers in terminal heads, with an inferior or half-inferior one to three-celled ovary, having one to two pendulous ovules in each cell; a five-cleft calyx; five petals alternating with the calyx-lobes; five stamens alternating with the petals; and a simple or two and three-cleft style. The fruit is dry and indehiscent, or separates into indehiscent cocci. There are about sixty species known, distributed into fifteen genera, including *Grubbia* and *Ophira*, of which some botanists form a distinct family, still more nearly allied to *Hamamelidææ* in habit as well as in character. The *Bruniaceæ* will indeed probably hereafter be entirely included in *Hamamelidææ*, notwithstanding their want of stipules, which is now supposed to be the only constant differential character.

BRUNIA. A genus of epigynous Exogenous plants, typical of the group *Bruniaceæ*, distinguished chiefly by having the flowers aggregate in little heads; calyx superior, five-parted; filaments of the stamens inserted into the claws of the petals; stigmas cleft, with small two-celled ovaries. The species are all natives of South Africa, and, consequently, require the protection of a greenhouse in England. *B. nodiflora* is the species which is most generally cultivated, and when well grown, it forms a very handsome plant. [D. M.]

BRUNNEUS. Deep brown; not much different from chestnut-brown.

BRUNNICHIA. A genus of *Polygonaceæ*, containing a single species, *B. cirrhosa*, a native of the warmer regions of North America. The stem is shrubby, twining, with alternate shortly-stalked smooth ovate-acuminate entire leaves; the leaf-stalks are dilated at the base, and half-clasping, a hairy line completing the circle round the stem; peduncles axillary and terminal often ending in tendrils; bractlets small with several flowers from the axil of each, the whole so arranged that the flowers are racemose on the peduncles; perianth herbaceous, very small, bell-shaped, five-parted; stamens eight or ten; styles three; nut three-angled. [J. T. S.]

BRUNONIA, BRUNONIACEÆ. The genus *Brunonia* consists of two Australian herbs with capitate blue flowers, giving them the aspect of a *Scabiosa* or of a *Globularia*; whilst in their structure, and especially in their stigma, enclosed in a two-valved cup, they are more nearly allied to *Goodeniaceæ*. Robert Brown, in whose honour the genus was named, considered it as a section or anomalous genus of the latter family; whilst others have thought that the completely free ovary and exalbuminous seeds, combined with the inflorescence, are sufficient to mark it as a distinct family under the name of *Brunoniaceæ*.

The *Brunonias* grow up with tufts of entire spatulate radical leaves, and naked scapes terminated by the compact head of small blue flowers, which are surrounded by bracts. The five-cleft calyx has three

bracts at the base; the corolla is five-parted, the two upper segments separate from the others; the five stamens are hypogynous, with the anthers slightly cohering; the ovary is free, one-celled and one-ovuled, with a simple style; and the fruit is a membranous utricle enclosed in the hardened tube of the calyx. [J. T. S.]

BRUNSVIGIA. A genus of *Amaryllidaceae*, distinguished by broad recumbent hiemal leaves, an autumnal precocious flower-scape, a very short-tubed recurved perianth, recurved style and filaments, the filaments not adhering beyond the tube, and a triangularly turbinate capsule. The *Brunsvigias* are rather remarkable bulbous plants of South Africa, closely related to *Amaryllis* itself. The typical species, *B. multiflora*, has a globose bulb as large as an infant's head, and produces distichous obtuse striated lingulate leaves seven or eight inches long, and a fleshy compressed scape, a span or more in height, supporting an umbel of from twenty to sixty purple flowers, which have lance-shaped segments spreading or revolute at the tips. There are but few other species referred to the genus. [T. M.]

BRUSE. (Fr.) *Ulex europæus*.

BRUSH-APPLE. The native Australian wood of *Achras australis*.

BRUSH-CHERRY. The native Australian wood of *Trochocarpa laurina*.

BRUSH-SHAPED. See *Aspergilliform*.

BRUSSELS SPROUTS. A cultivated variety of the Cabbage, *Brassica oleracea*, having the leaves blistered, and the stems covered by little close heads or hearts.

BRUYERE. (Fr.) *Calluna vulgaris*. — DU CAP. *Physica ericoides*.

BRYACEÆ. A large group of *Acrocarpous* Mosses distinguished by the capsules having a double row of teeth, the inner of which are united at the base by a common plicate membrane. Very rarely there is a single row only, or the teeth are obsolete. The capsule is almost always pendulous. The stem is at first simple, but at length branched by means of new shoots, called innovations, given off near the tip, or the base, sometimes from subterranean creeping shoots. The leaves have a central nerve, and consist of large reticulations, and are mostly serrated at the margin and thickened. Very rarely the fruit is lateral as in *Mielichhoferia*. Many of the species of *Mnium*, as *M. punctatum*, *rostratum*, *undulatum*, &c., are a great ornament to woods and rocks from their large leaves and handsome capsules, while various species of *Bryum* attract notice on walls, gravel-walks, and marshes, by their tufted habit and abundant pendulous capsules. Amongst these *Bryum argenteum* is peculiarly conspicuous from the silvery white of its leaves. *Bartramia* and one or two closely allied genera are remarkable for their nearly spherical capsules, which are almost all

ways more or less streaked or furrowed, especially when dry. Our more common species, as *Bartramia pomiformis*, are sub-alpine, or occur in bogs. Sometimes the term *Bryaceae* is applied to the whole of the true mosses, as in Lindley's *Vegetable Kingdom*. [M. J. E.]

BRYA. A genus of Leguminous plants (*Fabaceae: Papilionaceae*) consisting of three species, small trees or large shrubs, natives of tropical America. They have a five-toothed, somewhat two-lipped calyx; a papilionaceous corolla; and stamens united into a tube, which is split down one side. Their fruit is a flattened two-jointed pod, the upper half of which is generally imperfect, the lower containing a solitary seed. The leaves are solitary, or in clusters, or pinnate.

B. Ebenus, the Jamaica or West Indian Ebony-tree, is a large shrub or small tree, growing twenty or thirty or even forty feet high, with a trunk seldom exceeding four inches in diameter; it has long slender tough and flexible branches, which are armed with short sharp spines, and bear numerous small evergreen leaves, resembling those of the common Box, but rather broader at the top end. The flowers are of a bright orange-yellow colour, produced in great abundance upon the young branches, and have a very sweet odour. Although the wood of this tree is known in Jamaica by the name of Ebony, it is not the true ebony-wood, that being produced by a totally different tree. The Jamaica Ebony is of a greenish-brown colour, very hard, and so heavy that it sinks in water; it takes a good polish, and is used in Jamaica for making



Brya Ebenus.

various small wares. Part of the wood known in commerce as Green Ebony, and which is much used by turners and dyers, is probably obtained from this tree. The

tough twiggy branches are used in Jamaica as riding-whips; and it is said that in former days they were kept at all the wharfs about Kingston to scourge the refractory slaves. [A. S.]

BRYANTHUS. A genus of *Ericaceæ* containing a single species, a native of Siberia and Kamtschatka, so nearly related to *Menziesia* that it is generally considered as belonging to that genus. It differs chiefly in having a pentamerous arrangement of the flower, although Ledebour, and apparently also Swartz, have seen specimens in fruit with four divisions of the calyx and capsule. The divisions also are deeper than in *Menziesia*. [W. C.]

BRYOBIUM. A supposed genus of small unimportant Orchidaceous epiphytes from India, not distinct from *Mycaranthus*, and like it now merged in *Eria*.

BRYOLOGY. The part of botany which treats of Urn-mosses.

BRYONIA. The technical name of the genus to which the common Bryony of the hedges belongs. Among the *Cucurbitaceæ* this genus may be known by the stamens and pistils being on the same plant, but in different flowers; by the calyx having five small teeth; the corolla five lobes; stamens five in three parcels, the anthers sinuous; style three-lobed, with capitate stigmas; and fruit globular, succulent. *B. dioica*, the Common Bryony, has a thick tuberous rootstock of considerable length, yellowish-brown, and wrinkled transversely on the outer surface. The stems that spring from this are annual, and rough. They climb by tendrils, and, what is very unusual, the direction of the spiral is now and then altered, so that after proceeding in one course for some distance, the tendril suddenly changes to an opposite direction. The leaves are angular, three to seven-lobed, the terminal or middle lobe being the longest; they are rough like the stem. The male flowers are in clusters, bell-shaped, greenish-yellow, and veined, the female blossoms are smaller, disposed in a corymb or umbel, and have a globular ovary which ripens into a scarlet berry, containing several flattened seeds. The male and female flowers are sometimes on different plants, hence the name *dioica*, but this is not always the case. The plant has a fetid odour, and possesses acrid, emetic, and purgative properties, and from its elegant appearance, especially in autumn when it adorns the hedges with its brilliantly coloured fruit, accidents are likely to occur to children and others incautiously tasting the fruit. The root is used as an application to bruises, and occasionally as a purgative; but it is unsafe from its uncertain and sometimes violent action, whence the French call it *Devil's-turnip*. Its acridity is due to a chemical substance called bryonin. The writer of this notice was once called on to ascertain what vegetable substance had been administered to a farmer, his family, and his cattle, by a

'wise man,' who purported to be able to remove the spell of witchcraft, under which he said they were all suffering. The man succeeded in obtaining considerable sums of money at different times from the credulous farmer, whose suspicions were at length awakened by the dangerous illness of some of the members of his family. It was not distinctly proved that the man had administered bryony, but the symptoms complained of corresponded with those which would be produced by that root, a quantity of which was found in the man's house, and also a powder which was found to consist of the leaves of the hart's-tongue (*Scolopendrium vulgare*). When the mandrake was more esteemed than it is now, this root was frequently sold for it, as it occasionally branches in a similar manner, and, indeed, was forced to do so, by being grown in moulds. Even now it is occasionally to be met with in herbalists' shops as mandrake. The young shoots of bryony may be used as a vegetable with impunity, and are said, when boiled, to resemble asparagus in flavour. This plant must not be mistaken for the black bryony (*Tamus communis*), also a climbing plant, but whose leaves are heart-shaped, smooth, and shining.

Bryonia alba, a central European species has similar properties to the English Bryony, as also have *B. americana* and *B. africana*. The root of *B. alba*, when cooked, is said to be eaten with impunity. The seeds of *B. callosa* are used in India as a vermifuge, and yield an oil used for lamps. *B. laciniata*, *B. rostrata*, and *B. scabrella* are all used for medicinal purposes in India, while the leaves of some are boiled and eaten as greens. *B. epipura* was at one time supposed to furnish calumba root, which it resembles both in appearance and properties. It is used in India as an external application and for other medicinal purposes. [M. T. M.]

BRYONY. The common name for *Bryonia*. —, **BLACK.** *Tamus communis*. —, **RED.** *Bryonia dioica*.

BRYOPHYLLUM. A name expressive of the peculiarity that the leaves have, under certain circumstances, of producing small buds on their margins. The genus to which the name applies, belongs to the House-leek family (*Crasulacæ*), and is known by its bell-shaped distended calyx, which is four-cleft; the tube of the corolla somewhat quadrangular, the lobes of its limb, ovate or somewhat triangular; a number of gland-like compressed scales at the base of the carpels; and carpels on very short stalks. The leaves are unequally pinnate and fleshy. *B. calycinum*, when in flower, has loose panicles of drooping greenish-purple blossoms, which are very elegant. It is of particular interest from the formation of small buds at the notches on the margin of its leaves; sometimes these buds are produced naturally, but the plant may be made to form them by pos-

gling a detached leaf close down to the soil, when the buds will root into the ground, and form new plants. The species is a native of the Moluccas, Madagascar, the Mauritius, &c., and grows in dry situations in the clefts of the rocks. In the Mauritius it is used as a fomentation or poultice in intestinal complaints. [M. T. M.]

BRYUM. A large genus of *Acrocarpous* Mosses, now subdivided, but formerly almost equivalent to the natural family *Bryaceæ*: which see. [M. J. B.]

BUBANIA. A little known genus of *Plumbaginaceæ*, having the habit of *Gonolimon*, but possessing five clavate and not capitate stigmas. It differs from that genus, as well as from *Statice*, in having the styles united through a considerable extent of their length, and in the filaments being papillose at the base. The genus is founded on a single species from Algeria, which has not yet been satisfactorily described. [W. C.]

BUBON. A genus of *Umbellifera*, which has an obsolete calyx, and obovate entire petals, with the point bent inwards. The fruit is compressed and has a dilated flattened edge; while each half of it has on its outer surface four ridges, the central ones filiform, the lateral ones passing into the flattened margins of the fruit. In the channels between the ridges, in the interior of the fruit, are canals containing volatile oil, while on the inner face of the two halves are two such canals. The species are natives of the Cape of Good Hope, and have yellowish flowers. *B. Galbanum* secretes a resinous juice somewhat like galbanum. [M. T. M.]

BUCAIL. (Fr.) *Fagopyrum esculentum*.

BUCCÆ. The lateral sepals or wings of the flower of an acouite; seldom used.

BUCHANANIA. A genus of *Anacardiaceæ*, named in compliment to Dr. Buchanan Hamilton, a distinguished investigator of Indian botany. The genus consists of Indian trees with simple leathery leaves, hermaphrodite flowers in axillary panicles, with a five, or more rarely a three or four-cleft calyx; five petals rolled backwards; ten stamens shorter than the petals; and a ten-lobed disc wrapping round the ovaries, which are five in number, but only one perfect, the remaining four being represented only by the styles. The fruit is a drupe with one seed, borne on a little stalk within it. The seeds of *B. latifolia* are eaten by the natives as almonds, and they furnish an oil known as the cheronee oil; the fruits also supply a black varnish. The unripe fruits of *B. lanceifolia*, according to Major Drury, are eaten by the natives in their curries. [M. T. M.]

BUCHNERA. A large genus of *Scrophulariaceæ*, generally distributed over the tropical and subtropical regions of the world. They are stiff scarcely-branched herbaceous plants, with the lower leaves opposite and the upper alternate, and with

flowers in terminal spikes. The calyx is tubular with five short teeth; the corolla tube is straight and slender, and the limb has five nearly equal spreading lobes, the two upper ones inside in the bud. The two pairs of stamens are included in the tube; they have obtuse one-celled anthers. The style is club-shaped. The capsule is straight, opening loculicidally in two entire valves. [W. C.]

BUCHU. The same as Bucku.

BUCCIDA. A genus of trees belonging to *Combretaceæ*, native of tropical America and the West Indies, with alternate wedge-shaped entire leaves, smooth or hairy on the margins, and axillary peduncles bearing rather small, spicate or capitate flowers. Calyx tubular, adhering to the ovary, above which it is bell-shaped and five-toothed at the margin; corolla none; stamens ten with long filaments; style simple, subulate; drupe one-seeded. The ends of the peduncles sometimes grow into spiny horn-like excrescences, from which the genus takes its name (*bous*) or. *B. Buceras*, the Olive-bark, or Black Olive of Jamaica, produces wood which is valuable on account of its not being liable to the attacks of insects; the bark is also used for tanning purposes. [J. T. S.]

BUCKBEAN. *Menyanthes trifoliata*.

BUCK-EYE. An American name for the species of *Pavia* and *Æsculus*, especially *Æ. ohioensis*.

BUCKLANDIA. The name of a genus belonging to the order of Witch Hazels, having stamens and pistils in the same flower, or in different flowers on the same plant; or some plants have stamens only, while others have only pistils. The calyx is almost bell-shaped, adherent below to the seed-vessel; the anthers are supported on awl-shaped filaments. The flowers are in head-like groups, each subdivision of which consists of eight flowers. The name *Bucklandia*, which has also been employed to designate certain fossil species of plants, was given in honour of the late Dr. Buckland, well known as a geologist. The only species is an Indian tree with the general aspect of a poplar; its leaves are alternate, stalked, and variable in outline. [G. D.]

BUCKLER-SHAPED. Having the form of a small round shield, like a Highland target.

BUCKTHORN. The common name for *Rhamnus*. —, DYER'S. *Rhamnus infectoria*. —, SEA. *Hippophaë rhamnoides*.

BUCKU. A name applied in South Africa to several species of *Broussa*, especially *B. crenata*, *crenui. &c.*, and *terrestrifolia*.

BUCKWHEAT. *Fagopyrum esculentum*.

BUCKWHEAT TREE. *Mycocarpus nigrostrum*.

BUD. The young undeveloped branch or flower.

BUDDELEIA. A large genus of *Scrophu-*

lariacea, containing nearly eighty species from America, India, and South Africa. They are trees, shrubs, or herbs, generally tomentose or woolly, especially on the young branches, the under surface of the leaves, the peduncles and calyx, and sometimes even on the corolla. They have opposite leaves, and many-flowered peduncles, axillary or frequently in a terminal thyrse or panicle. The short campanulate calyx is divided into four equal teeth. The corolla is campanulate or tubular, with the limb spreading and divided into four equal teeth. There are four included stamens inserted either in the throat on very short filaments, or in the middle of the tube. The ovary is two-lobed, and bears a simple style with a capitate stigma. The capsule dehisces septically with two valves; it contains numerous small seeds. [W. C.]

BUENA. One of the genera of *Cinchonaceae* consisting of shrubs closely resembling the *Cinchona* itself, but distinguished by their solitary terminal flowers, and by the limb of the calyx being deciduous, so that the ripe fruit is not crowned by the calyx as in *Cinchona*. The species are natives of Peru and Western tropical America. [M. T. M.]

BUETTNERIA. *Byttneria*.

BUFFALO BERRY. *Shepherdia argentea*.

BÜFFELHORN. The South African name of the wood of *Burchellia capensis*.

BÜFFELSBALL. The South African name of the wood of *Gardenia Thunbergia*.

BUFFONTIA. A genus of the Alsineous group of *Caryophyllaceae*, containing small herbs or undershrubs, natives of central Europe, the Mediterranean region, and temperate Asia. They have stiff slender stems, often paniculately branched, and somewhat resembling the toad-rush (*Juncus bufonius*) in habit; leaves awn-shaped, closely applied to the stem; flowers small cymose, arranged in a spicate, racemose, or paniculate manner; calyx four-parted, scarious, compressed; petals four, white; stamens four to eight; styles two; capsule two-valved; seeds two. One species, *B. annua*, is said to have been found in Britain in Plukenet's and Dillenius's time, but has not occurred since, and it is not improbable that some other plant may have been mistaken for it. [J. T. S.]

BUGBANE. *Cnicifuga*.

BUGHIVILLEA. *Bougainvillea*.

BUGLE. The common name for *Ajuga*.

BUGLE-WERD. *Lycopus virginicus*.

BUGLOSS. The common name for *Anchusa*. —, **SMALL.** *Lycopsis* or *Anchusa arvensis*. —, **VIPER'S.** The common name for *Echium*. —, **WILD.** The common name for *Lycopsis*.

BUGLOSS. (Fr.) *Anchusa officinalis*. —, **PETITE.** *Lycopsis arvensis*.

BUGRANE COMMUNE. (Fr.) *Ononis procurrens*.

BUGWORT. The common name for *Cimicifuga*.

BUIS. (Fr.) *Buzus sempervirens*. — **DE MAHON.** *Buzus balearica*.

BUISSON ARDENT. (Fr.) *Crataegus Pyracantha*.

BUKKUM WOOD. The wood of *Cassia pinnata* Sappan, used as a dye stuff.

BUKUL. *Mimusops Elengi*.

BULB. A leaf-bud, the scales of which are fleshy, and which propagates an individual. —, **NAKED.** A bulb whose scales are loose and almost separate, as in the crown imperial. —, **SOLID.** A *Coma*; which see. —, **TUNICATED.** A bulb whose outer scales are thin and membranous.

BULBIL. An axillary bulb with fleshy scales, falling off its parent spontaneously, and propagating it.

BULBILLARIA. A genus of *Liliaceae*, scarcely distinct from *Gagea*, which the only species, *B. gageoides*, from Mount Libanus, closely resembles, differing only by having the ovary on a conspicuous club-shaped stalk within the perianth; there are no radical and only one cauline leaf, which is linear. The plant is remarkable for the small bulbs which occur in the axils of the leaf-like bracts. [J. T. S.]

BULBINE. A section of the Liliaceous genus *Anthericum*, containing several plants natives of South Africa. They have the segments of the perianth spreading and yellow; the filaments, or at least the alternate ones, bearded with short hairs; leaves somewhat fleshy, like those of the onion; root fasciculate; stem short. Several species are cultivated as greenhouse plants, and are not only pretty, but often fragrant. [J. T. S.]

BULBOCAPNOS. A section of the Fumariaceous genus *Corydalis*, containing the species which have a large tuberous rootstock, a persistent style, and a digitate process at the base of the seed, which has an embryo, of which the two cotyledons are united into one. Stem usually succulent, with few thin glaucous twice-ternate leaves, having cut leaflets, and a terminal raceme of purple flowers, and a paler marking. Several species occur in Europe and temperate Asia, but none are truly native in Britain, though one species, *Corydalis solida*, often found in gardens, flowering in spring, is naturalized in several places. This plant has solid tubers, a sheathing scale below the leaves, leaf-like bracts digitately cut, and rather large flowers. [J. T. S.]

BULBOCASTANUM. *Bunium Bulbo-castanum*.

BULBOCHÆTE. A genus amongst the

Confervecous articulated *Alga*, remarkable for its hyaline bristle-like branches, which are bulbous at the base. The fruit consists of globose capsules, with a green and then a dark red endochrome. The mode of impregnation in this genus, as also in *Oedogonium*, is very curious. Some of the cells produce little bodies, which are furnished with flagelliform appendages, by means of which they swim about till they fit themselves on or near the swollen joints, which are to produce the spores. These bodies become clavate, with one or two joints, and just when the contents of the swollen cells are ready for impregnation, a lid comes off, and makes way for the exit of one or more globose spermatozooids, which are admitted to the endochrome of the female cells by means of a little aperture. After impregnation, the endochrome acquires a membrane, and after a time becomes free. The spore, when liberated, elongates—in a few hours attaining twice its original length. The endochrome, by successive division, gives rise to four distinct bodies, which acquire a nearly globular form, and are furnished at one extremity with two sets of ciliary processes, by means of which they move about, and thus appear in the condition of zoospores, which ultimately reproduce the species. *B. setigera* is our most common species, but others occasionally occur in this country. [M. J. B.]

BULBOCODIUM. Bulbous plants with the habit of the *Colchicum*, and members of the same family, *Melanthaceæ*. The perianth consists of six coloured segments, with long taper claws or stalks, which form a slender tube; the upper portion of each segment is elliptical, and prolonged at the base into two small acute processes, so that the perianth may be described as consisting of six sagittate stalked segments. The stamens are six, attached to the segments of the perianth, and of unequal lengths; the style three-cleft, with simple stigmas. Ovary three-celled; ovules indefinite. Fruit a capsule, dividing when ripe into its component carpels. The species are pretty bulbous plants, natives of Europe, the Levant, &c. [M. T. M.]

BULBODIUM. The solid bulb of old botanists; the same as a corm.

BULBONAC. (Fr.) *Lunaria biennis*, and *rediviva*.

BULBOSI PILI. Hairs that proceed from a swollen base.

BULBOSPERNUM. A genus of *Liliaceæ*, containing a small fibrous-rooted herb, from Java (*B. javanicum*), which has the stem somewhat bulbous at the base, with two or three long-stalked lanceolate radical leaves, which are membranous and many-nerved, but the sheaths and peduncles are frequently without any blade; scape short erect, with racemose flowers at the top; undermost bracts larger than the others, and frequently empty; flowers on long pedicels, with a six-parted greenish perianth; stamens six, monadelphous; ovary

three-lobed, opening at the top when ripe, and showing the seeds, which are as large as peas, three or four in each of the three cells of the capsule, and with a soft thick seed-coat. [J. T. S.]

BULBOSUS. Having the structure of a bulb; having bulbs.

BULB-TUBER. A corm; which see.

BULL, or **BULLET GRAPE.** *Vitis rotundifolia*.

BULLACE. *Prunus institia*.

BULLACE PLUM, JAMAICA. The fruit of *Melicocca bijuga*.

BULLATE. Blistered; puckered. When the paracuticula of a leaf is larger than the area within which it is formed.

BULL-HOOF. *Murucuja ocellata*.

BULLOCK'S HEART. A name given to the fruit of *Anona reticulata*, a kind of custard apple.

BULL-RUSH, or **BULRUSH.** *Scirpus lacustris*; and sometimes *Typha*.

BULLY, or **BULLET TREE.** A name given in Guiana to a species of *Mimusopa*. — **BASTARD.** *Bumelia velutina*. — **BLACK.** *Bumelia tngens*. — **JAMAICA.** *Lucuma mammosa*.

BULRUSHWORTS. A name given by Lindley to the *Typhaceæ*.

BUMELIA. A Greek name for the common ash, but applied in modern times to a genus of *Sapotaceæ*, having a corolla with a short tube, and a five-parted limb, at the base of each segment of which are two small scales. There are five fertile stamens attached to the tube of the corolla, opposite its lobes, and alternating with five petaloid barren stamens. The ovary has five one-seeded compartments, some of which, however, become arrested in their growth, so that the berry-like fruit frequently contains but one cavity and seed. The species consist of trees or shrubs, with a milky juice, a spiny stem, simple alternate leaves, and small white or greenish flowers. Some of them are sufficiently hardy to bear our climate, if protected by a wall, while others are grown in hot-houses. [M. T. M.]

BUNCHOSIA. Tropical American trees or shrubs, belonging to the order *Malpighiaceæ*, and nearly allied to the genus *Malpighia*, but having the racemes of flowers axillary. Styles separate, or fused together; fruit fleshy, indehiscent, externally smooth, without angles and containing two or three seeds, which are convex on the back. The flowers are for the most part yellow. Several kinds are in cultivation as stove shrubs. The seeds of one species, *B. armeniaca*, a Peruvian tree, are reputed to be poisonous. [M. T. M.]

BUNGEA. A genus of *Scrophulariaceæ*, containing a single species, a native of America. It is a small herb, growing in densely leafy tufts. The leaves are linear,

and deeply trifid. The flowers are on short pedicels, with two bracts. The calyx is tubular at the base, and has four long leafy divisions of the limb. The upper lip of the corolla is acuminate. The stamens are didynamous, hid under the upper lip, and have two equal mucronate cells. The style has a capitate stigmatose apex. The ovoid capsule dehisces loculicially, and contains few larlish seeds. This genus is very near to *Cymbaria*, from which, however, it is separated by its four leafy segments of the calyx, and its acuminate galea. From *Rhinanthus*, to which it was formerly referred, it differs in possessing two bracteoles under the calyx. [W. C.]

BUNIAS. A genus of *Cruciferae*; herbs from central Europe, the Mediterranean region, and temperate Asia, having erect branched stems, entire or pinnatifid, often runcinate leaves, and elongated racemes of rather small yellow flowers, on short spreading pedicels. Pouch resembling a small four-sided ovoid pyramidal nut, often tuberculated or muricated, indehiscent two-celled; cells two-seeded; embryo with the cotyledons rolled up on themselves, which distinguishes the genus from all except *Brucaria*, which has a jointed pod breaking across into two segments.

[J. T. S.]

BUNIUM. A genus of tuberous-rooted Umbelliferous plants (*Apiaceae*), chiefly inhabitants of Southern Europe and Western Asia. They are small herbaceous plants, seldom more than two feet high, and have very finely-cut leaves. Their flowers are white, and borne in compound umbels, generally destitute of an involucre, but occasionally with a few small bracts. The technical characters of this genus and its allies are derived from the fruit: in the present it is slightly flattened on two sides, and drawn in at the top, terminating in two straight styles; each half of the fruit has five indistinct longitudinal ribs, with several oil cells between them.

B. scariosum is a native of Western Europe, but is found wild in Britain. This grows erect about a foot or more high, with a few branches towards the top. Its leaves are very few in number, and very finely divided and sub-divided into numerous slender narrow divisions—those on the upper part of the stem having much finer divisions than the lower ones. The round tuberous roots of this plant have a sweetish aromatic taste, mingled with a considerable amount of acridity, which renders them unpleasant eating while raw, although they are often eaten in that state by children; but when boiled or roasted, they are palatable, resembling the chestnut in taste—hence the name Earth-chestnuts; they are also called Pig-nuts, Ar-nuts, Jur-nuts, Yur-nuts, Kipper-nuts, &c.

B. ferulagium, which grows in the islands of Cyprus and Candia, produces tubers as large as filberts, which are eaten

by the Greeks under the name of Topana. It has branching stems about a foot in height, and leaves primarily divided into three divisions, each of which are then subdivided into three leaflets. [A. S.]

BUN-OUCHRO. An Indian name for *Urena lobata*.

BUNT. The common name of *Tilletia caries*, a parasitic fungus belonging to the section *Coniomycetes*. *Tilletia* differs from other genera of the group *Ustilaginei* in the perfectly globose spores having a cellular outer coat. These are at first developed from the ultimate branchlets of a very delicate web which at length completely vanishes, so that the seed in which they grow contains nothing but spores. These are held together for a long time in consequence of the toughness of the outer coat of the seed, and in this way the bunted grains are carried home with the rest of the produce, so that when the grain is threshed the spores of the bunt are dispersed, and many of them adhere to the seed-corn, ready to germinate when the seed is sown. The first thread protruded by the spores is thick and coarse, so that it cannot penetrate the tissues of the sprouting grain; but a tuft of far more delicate threads soon crowns its apex, and after becoming united with each other by means of little lateral processes, they produce secondary spores, which in their turn germinate. As the wheat crop often suffers seriously from bunt, many measures are adopted by the farmer to kill the bunt-spores. Arsenic and corrosive sublimate are ineffectual because the grain, if not sown at once, is apt to lose its power of vegetating; sulphate of copper has not the same inconvenience, and is much used, as is also quicklime slacked with boiling water. The best practise is perhaps that pursued in some parts of France. The wheat is thoroughly wetted with a strong solution of Glauber's salts (sulphate of soda), and then dusted with quicklime. The effect of this is to set the caustic alkali free, while the sulphur and lime combine to form gypsum. Bunt scarcely occurs in barley, but has been found in Algiers on *Hordeum murale*. Another species of *Tilletia* occurs on *Sorghum*, and a third species, which has been communicated by the late Dr Curtis, has been found on wheat in the United States. [M. J. B.]

BUNYA-BUNYA. *Araucaria B. nobilis*.

BUPHANE. A small group of *Amayrids*, remarkable in having precocious flower-scapes, supporting from 100 to 200 or more flowers in a single head. The flowers have a straight cylindrical tube, and a regular six-parted expanded limb, their filaments being erect and distinct from the tube. The capsule which succeeds them is turbinate and dry, three-valved, with numerous distinct ovules. Only four species are referred to the genus by Herbert, and these are all South African. The peduncles are at first crowded and suberect, but diverge so as to form a spherical head. *B. tolosaria* is called

the Poison Bulb, and is said to be fatal to cattle. The bulbs of *B. disticha* are met with as large as a man's head. The former of these produces crowded umbels of flesh-coloured flowers, the segments of which are linear-lanceolate, and its leaves are elongately lorate. [T. M.]

RUPHTHALMUM. A family of Compound flowers deriving their name (equivalent to Ox-eye) from the broad open disk of their flowers. Among the plants of this family most frequently cultivated in English gardens are *B. grandiflorum*, a herbaceous perennial growing about a foot and a half high, with narrow smooth leaves, and large yellow flowers; and *B. coratifolium*, also a herbaceous perennial, forming a large tuft; the root-leaves are heart-shaped, the upper ones smaller, egg-shaped and sessile; the flowers large, bright yellow with long rays. Both are natives of central Europe. [C. A. J.]

RUPLEURUM. Hare's-ear, Thorow-wax, or Thorow-leaf. The only common English species of this strongly-marked family of Umbelliferous plants is *B. rotundifolium*, which occurs in corn-fields on a chalky soil, especially about Swaffham and in Cambridgeshire. It may be known by its roundish-oval leaves, which are alternate, and so extended at the base that every branch doth grow thorow evert leafe, making them like hollow cups or sawcers' (Gerarde). The flowers are small and of a greenish-yellow hue, and far less conspicuous than the large bracts at the base of the partial umbels. *B. fruticosum* is a shrubby species, a native of the South of Europe, with purplish branches and sea-green leaves. Several other species are cultivated, all of which are more or less remarkable for the unusual development of the floral bracts (involucre), and are of easy cultivation. French, *Bupleure*, *Oreille de lièvre*; German, *Hufenschrchen*. [C. A. J.]

BUPLEVER. An English name adapted from the French, proposed by Bentham for *Bupleurum*.

BUR-BARK. The fibrous bark of *Triumfetta semitriloba*.

BURCHARDIA. An Australian genus of the Colchicum family (*Melanthaceæ*). The perianth is coloured, of six slightly-stalked segments, each having a nectariferous pore near the base; stamens six, inserted on the very base of the segments of the perianth; anthers peltate, opening outwardly; ovary triangular, containing three compartments, each with several ovules in two rows; styles three. Fruit a capsule, opening by the separation of its constituent carpels. *B. umbellata* is in cultivation; it is a herbaceous plant with thick rootlets, linear sheathing leaves; flowers white in umbels. [M. T. M.]

BURCHELLIA. A name given in honour of Mr. Burchell, an African traveller, and used to denote a genus of *Chinchonaceæ*.

The characteristics of this genus are the flowers closely packed in a head, surrounded by a few bracts; corolla funnel-shaped, swollen above the middle; limb five-cleft, small, naked at the throat; stamens inserted above the middle of the tube of the corolla; anthers on very short filaments; stigma club-shaped. The fruit is succulent, two-celled, many-seeded, crowned by the deeply five-cleft calyx. The species are shrubs with handsome flowers, and are natives of S. Africa. *B. capensis* and *B. parviflora* are grown in greenhouses for the sake of their clustered handsome scarlet flowers. [M. T. M.]

BURDEE. An Arabic name for *Papyrus antiquorum*.

BURDOCK. The common name for *Arctium Lappa*; also applied to *Centothea lappacea*. —, PRAIRIE. An American name for *Silphium laciniatum*.

BURKEA. A genus of the Pen family, and belonging to the section with regular flowers. *B. africana* is the only species of the genus, and is a shrub or sometimes a small tree, thirty feet high, with twice pinnate leaves, and very numerous oval leaflets from one to three inches long, and when young covered with silvery hairs. The flowers are small, white, and fragrant, disposed in panicles made up of long slender branching spikes. The pods are stalked, thin, and about one and a half inches long, with one or two seeds. This is one of the many plants which are common to the eastern and western sides of tropical Africa. The genus is named in compliment to Mr. J. Burke, a plant collector, who made extensive collections of S. African and N. American plants. [A. A. B.]

BURLINGTONIA. A genus of epiphytal Orchids inhabiting the tropics of Brazil. The species have large and often fragrant white yellow or pink flowers attached to a weak drooping or pendulous spike. All that are known are in cultivation in this country.

BURMANNIACEÆ. A family of Monocotyledons, allied to orchids in their inferior ovary, either three-celled or with three parietal placentas, in their trimerous flowers, and especially in their minute seeds, with a loosely netted testa enclosing an apparently homogeneous nucleus or embryo; but differing in their perfectly regular flowers, with three to six distinct stamens and a central simple or three-cleft style. They are all herbaceous, with blue or white flowers, inhabiting marshy or shady places. In some genera the annual slender stems have no leaves except small colourless scales, which led former botanists to suppose them to be root parasites; but it has now been ascertained that they grow on rotten leaves and other decayed vegetable substances, and not on living plants. There are scarcely more than thirty species of *Burmanniaceæ* known, all tropical, except one North American *Burmussia*. They are distri-

buted into ten or eleven genera, including *Tacca*, which some botanists treat as a distinct family under the name of *Tac-*

others of the species furnish a resinous substance. The shrubs are natives of the West Indies. [M. T. M.]

BURMANNIA. A genus of *Burmanniaceae*, the principal one of the family, although consisting of only six or seven species. It is distinguished by the three-angled or three-angled ovary and capsule, completely divided into three cells, with numerous seeds attached to the inner angle of each cell. They are mostly marsh plants, with short flat sedge-like leaves, forming radical tufts or crowded at the base of the stem, and terminal blue flowers in short simple or two or three-branched spikes. One species, however, *B. capitata*, is a slender almost colourless plant, without other leaves than minute scales, and with very small capitate flowers. They are natives of the tropical regions of Asia, Africa, and America, one species extending northward as far as Virginia.

BURNET, GARDEN. *Poterium Sanguisorba*. —, **GREAT.** *Sanguisorba officinalis*. —, **LESSER.** The common name for *Poterium*. —, **SALAD.** *Poterium Sanguisorba*.

BURNING BUSH. An American name for *Euonymus atropurpureus*, and *E. americanus*; also sometimes applied in gardens to the Artillery plant, *Pilea serpyllifolia*.

BURR. The Burdock, *Arctium Lappa*.

BURSARIA. A genus of South Australian and Tasmanian shrubs belonging to *Pittosporaceae*. Branches not infrequently spiny; leaves alternate, subsessile, obovate wedge-shaped retuse and entire, or oblong-linear and toothed; peduncles terminal, ternate, or panicle, the flowers small, white, sometimes tinged with pink outside; sepals, petals, and stamens, five each. Ovary free; style thread-like. Capsule obovate, compound, extremely like that of the shepherd's purse (*Capsella Bursa-Pastoris*), incompletely two-celled, two-valved at apex; seeds one or two in each cell. [J. T. S.]

BURSERIA. One of the genera of *Amyridaceae*, consisting of trees with alternate compound leaves, flowers in axillary clusters, a small three to five-parted calyx, a corolla of three to five petals, larger than the segments of the calyx, inserted with the six to ten stamens beneath an entire circular disc. Ovary sessile, with three compartments, each containing two suspended inverted ovules, placed side by side. Fruit globose or somewhat angular, with a leathery outer rind bursting into three pieces, and an inner hard shell, containing three bony seeds, surrounded by a small quantity of pulp, or a single seed, by the abortion of the rest. *B. pantocista*, called Bois de Colophane in the Isle of Bourbon, contains an abundance of oil, like turpentine, which exudes when the bark is pierced, and speedily congeals, till it acquires a buttery consistence;

others of the species furnish a resinous substance. The shrubs are natives of the West Indies. [M. T. M.]

BURSICULA (adj. **BURSICULATE**). A small purse. A pouch-like expansion of the stigma, into which the caudicle of some orchids is inserted.

BURSINOPETALUM. A genus of *Oleaceae*, containing an Indian tree (*B. arborescens*), which has ovate acuminate leathery leaves and small panicle white flowers, remarkable for the form of the petals, which have an inflexed lobe at the point, and terminate in two small sharp teeth. Calyx superior, with a five-cleft limb; stamens five, connivent. Fruit a one-celled drupe. Bentham and Hooker include this plant in the *Cornaceae* genus *Mastrea*. [J. T. S.]

BURTONIA. A genus of dwarf heath-like shrubs belonging to the pea-flowered section of the Leguminous family, all of them natives of West Australia. They have simple or trifoliate sessile leaves, which are usually awl-shaped. The flowers are axillary and often thickly-gathered on the ends of the branches; the corollas rich purple, the keel generally of a deeper colour, and the standard having sometimes a yellow blotch at its base. The pod is small, ovate, and sessile, with two seeds. The species are very pretty objects when in flower, and are often to be met with in greenhouse collections. *B. scabra* was introduced in 1803, but there are now five species in cultivation and seven species known. The genus bears the name of Mr. D. Burton, who collected plants in W. Australia for the Kew Gardens. [A. A. B.]

BURWEED. The common name for *Xanthium*.

BUSBECKIA. The name of a genus of *Capparidaceae* characterised by a calyx of two sepals, valvate in the bud, deciduous; petals seven, inserted at the base of the hemispherical receptacle, unequal, imbricate in the bud; stamens several, inserted on the torus; ovary on a long stalk, one-celled, with two or more parietal placentas, bearing several curved ovules; stigma sessile, round; berry globose, leathery, rough on the outer surface; seeds kidney-shaped, imbedded in pulp, and with a leathery coat. A Norfolk Island shrub of climbing habit, with alternate leaves furnished with spiny stipules, and solitary axillary stalked flowers. The fruit is of the size of a large orange. The *Busbeckia* of Martius is now included in the genus *Salpichroma*. [M. T. M.]

BUSH SYRUP. A saccharine fluid obtained from the flowers of *Protea mellifera*, in the Cape Colony.

BUSSEROLE. (Fr.) *Arctostaphylos Uva-ursi*.

BUSSU. A S. American name for *Montecaria saccifera*.

BUTCHER'S BROOM. *Ruscus* — *tus*; also a common name for *Ruscus*.

BUTEA. The three or four species constituting this genus of Leguminous plants (*Fabaceae: Papilionaceae*) form either small trees or large climbing shrubs, and are all natives of India. Their flowers are produced in racemes consisting of numerous flowers arranged in threes. The calyx has two small bracts near its base, and is usually covered with black velvety down; it is bell-shaped and two-lipped, the upper lip being nearly whole, and the lower one three cut; the corolla is papilionaceous; the stamens are ten in number, nine of them being united into a tube, and the tenth separate. The fruit is a stalked flattened thin and membranaceous pod, containing one seed placed near the apex.

B. frondosa, the Dhak or Pulas of India, is a fine tree growing to about thirty or forty feet high, common in the jungles of Bengal. Its leaves are composed of three roundish leaflets, covered with silky hairs, somewhat resembling the pile of velvet; the young branches likewise are hairy. The racemes of flowers are produced early in spring, before the leaves have made their appearance; each individual flower being about two inches long and of a very bright orange-red colour. Dr. Hooker states that when in full flower the Dhak tree is a gorgeous sight, the masses of flowers resembling sheets of flame, their 'bright orange-red petals contrasting brilliantly against the jet-black velvety calyx.' The Dhak tree supplies the natives of India with several articles of a useful nature. The most important of these is the red astringent juice which exudes from wounds in the bark, and which, when hardened by evaporation, forms one of the brittle ruby-coloured substances called kino, this particular variety being termed butea kino or gum butea. Sometimes, however, it goes under the name of Bengal kino; but it must not be confounded with East Indian kino, which is produced by *Pterocarpus Marsupium*. This substance is procurable in large quantities, but it has not yet come much into use. The natives employ it for tanning leather, and it has been tried in this country for the same purpose, but the dark colour which it communicates to the leather is considered objectionable; it might probably be turned to account by the dyer. The flowers are called teesoo or keesoo in India, and afford either a beautiful bright yellow, or a deep orange-red dye; but unfortunately these tints are not permanent. A coarse fibrous material obtained from the bark of the stems and roots is used in India for caulking the seams of boats as a substitute for bakum. The lac insect (*Coccus*) likewise frequents the Dhak tree, and by its punctures in the young twigs causes the formation of the substance known as stick-lac, which is used in the manufacture of sealing-wax and in dyeing. And, finally, the seeds yield a small quantity of oil, called moodooga oil, which the native doctors consider to possess anthelmintic properties.

B. superba is a large climbing shrub with leaves resembling those of the last species; its flowers, also, are of a similar bright orange-red, but rather larger, so that when in full flower the plant presents a very gaudy appearance. Its products are similar to those of the dhak; the flowers yielding a colouring matter, and the juice hardening into kino.

B. parviflora is a shrubby climber resembling the last in general appearance, but having very much smaller flowers than either of the preceding. The gum of this species is given, dissolved in arrack, in hysteria and colic. [A. S.]

BUTOMACEÆ. (*Butomads*; the *Flowering Rush* family.) A natural order of Hypogynous Monocotyledons belonging to Lindley's Allisial alliance. Aquatic plants, often milky, with very cellular leaves, and umbellate showy flowers. Perianth of six pieces, the three inner (corolla) being coloured like petals. Stamens either below or above twenty in number, hypogynous. Ovaries three to six or more, either separate or united; ovules numerous. Fruit consisting of achenes or follicles, separate or united. Seeds numerous, attached to a net-like placenta, which is spread over the whole inner surface of the fruit: no albumen. Natives of the marshes of Europe and Siberia, the north-western provinces of India and equinoctial America. The Flowering Rush, *Butomus umbellatus*, is an ornament of our lakes; its underground stem is roasted and eaten in Asia. There are four genera and seven species. Illustrative genera: *Butomus*, *Limnocharia*. [J. H. B.]

BUTOMUS. The Flowering Rush: one of the stateliest and most elegant of English aquatics, improperly called a rush, though the similarity of its long smooth knotless flower-stalk to the stalk of the bulrush (*Scirpus*) sufficiently accounts for the name having been given. Gerard, who suggests the name of Lillie-grasse, calls it the Water Gladiolus or Grassie Rush, and says, that 'Of all others it is the fairest and most pleasant to behold, and serveth very well for the decking and trimming up of houses, because of the beaute and braverie thereof; consisting of sundry small flowers, compact of six small leaves, of a white colour mixed with carnation, growing at the top of a bare and naked stalk, five or six foote long, and sometime more.' The leaves are narrow, triangular, and very cellular, shorter than the flower-stalks, but they, nevertheless, greatly exceed two feet, the dimensions assigned to them in botanical works, as the plant generally grows in water at least two or three feet deep. The bottom of the main stalk as well as the partial flower-stalks are frequently tinged with purple. The flowers are large, of six sepals, and contain each nine stamens and six styles. The seeds and root were formerly employed medicinally, and in the north of Asia the latter is roasted and eaten. A variety is cultivated which has striped leaves. (French, *Butome*. German, *Blumenbutse*.) [C. A. J.]

BUTTER OF CACAO. A pleasant concrete-oil, obtained from the seeds of *Theobroma cacao*. — **OF CANARA.** Piny tallow, a solid oil obtained from the fruits of *Fateria indica*.

BUTTER AND EGGS. The double flowered variety of *Narcissus (Queltin) aurantiac*.

BUTTER AND TALLOW TREE. *Pentadema butyrosa*.

BUTTER-BUR. The common name of *Petasites*, a group of the *Tussilago* family.

BUTTERCUP. The popular name for *Ranunculus acris* and its near allies, *R. repens* and *bulbosus*.

BUTTERFLY-PLANT. *Onchidium Popilio*. — **INDIAN.** *Phalanopsis amabilis*.

BUTTERFLY-SHAPED. The same as *Papilionaceae*.

BUTTERFLY WEED. *Asclepias tuberosa*.

BUTTER TREE, INDIAN. *Bassia butyrosa*. — **AFRICAN.** The Shea Tree, *Bassia Parkii*.

BUTTERWEED. *Erigeron canadensis*.

BUTTERWORT. *Pinguicula*.

BUTTON-BUSH. An American name for *Cephalanthus*.

BUTTON-FLOWER. The common name of *Gomphia*.

BUTTON-TREE. *Conocarpus*.

BUTTON-WREED. The common name of *Spermacoce*. Also an American name for *Diodia*.

BUTTON-WOOD. *Cephalanthus occidentalis*; also an American name for *Platanus*.

BUTUA. The Brazilian name for the roots of *Botryopsis platyphylla* and *B. cinerea*. According to Pereira, Butua root is the root of *Cissampelos Pereira* or *Pereira Brava* of commerce. — **DO CURVO.** The Brazilian name of the roots of *Cochlospermum insignis*.

BUXBAUMIA; BUXBAUMIACEÆ. A most singular genus and division of Mosses, in which the capsule bears an extraordinary proportion to the vegetative part, which is sometimes all but obsolete. It has a double peristome, of which the outer one is either nearly obsolete, or consists of a triple or quadruple circle of teeth, and the inner forms a truncate cone. The species are few in number. Three are found in this country: *B. phycium foliosum*, which has a nearly sessile ovate-conical capsule, and occurs on the ground and on rocks in sub-Alpine districts; another, *Buxbaumia aphylla*, remarkable for its long-stalked capsule being flat on one side, and convex on the other, like the roses of cer-

BUXUS. A small but important genus of Spurge-worts (*Euphorbiaceæ*), one species of which is the well-known Box-tree of our gardens. They are shrubs or small trees, with opposite entire evergreen leaves, and their flowers being produced in clusters from the angles of the leaves, each cluster consisting of several male flowers, surmounted by one or two females. They have a calyx, consisting of four minute sepals, the males having four stamens, and the females three styles. The fruit is three-celled, containing two shining black seeds in each cell, and splitting open when ripe.

The Common or Evergreen Box-tree (*B. sempervirens*) is a native of both Europe and Asia. In Europe it extends as far north as the fifty-second parallel of latitude, and is found plentifully on the coast of the Black Sea, also in Spain, Italy, and the southern and eastern provinces of France. In this country the only place where it is really indigenous is Boxhill in Surrey. In Asia it is found in Persia, Northern India, China, and Japan. It varies considerably in height, some varieties growing as high as twenty or thirty feet, with a trunk eight or ten inches in diameter; while others never exceed three or four feet, and have very small stems. As commonly seen in this country it is either a shrub eight or ten feet high, or artificially dwarfed and only a few inches high. Its leaves vary from half an inch to an inch long, and from an egg-shaped to an elliptical form; they are of a shining deep-green colour, and of a thick leathery texture. The wood of the Box-tree has long been celebrated for its hardness and closeness of grain; it is mentioned by Theophrastus, and also by Pliny, the latter asserting that it is as hard to burn as iron. Other early authors also mention it as being used for musical instruments, carving, turnery, &c. Its chief characteristics are excessive hardness, great weight, evenness and closeness of grain, light colour, and being susceptible of a fine polish. These are the qualities that render it so valuable to the wood engraver, the turner, the mathematical and musical instrument makers, and others. Between 2,000 and 3,000 tons are annually imported; in 1838, the imports amounted to 2,704 tons, valued at 28,270*l*. The finest quality, and the best suited for the engraver, comes from Odessa, Constantinople, and Smyrna, being grown in the vicinity of the Black Sea; it is generally in logs about four feet long, and seldom more than eight or ten inches in diameter. For the use of the engraver these logs are cut across the grain into slices about an inch thick. In the early days of wood engraving, these slices were cut lengthways with the grain, and it was not till the middle of the last century that the present method was adopted. For the turner and other manufacturers of small wares, wood of an inferior description from smaller trees is suitable, and large quantities of box-wood articles are consequently made in different parts of France, where the tree abounds, though it does not attain a great size. The Box-tree is greatly

added *B. inculcata* to the list of our British species.

[M. J. B.]

employed in ornamental gardening, particularly for the formation of geometric designs. The kind commonly used for the edges of flower-beds is merely a dwarf variety of the common species.

The *Miuorca* Box, *B. balearica*, is a native of several of the Mediterranean islands and of Asia Minor. It is a larger tree than the last, growing sometimes as high as sixty or eighty feet, with a straight smooth trunk; the leaves also are of a much paler green than those of the common box, and much larger, being about three inches long and of an elliptical shape. The wood much resembles that of the common box, but is said to have a coarser grain; it no doubt forms part of the wood exported from Constantinople and Smyrna. [The common Box-tree, *B. sempervirens*, is the badge of the clan McIntosh, and its variegated variety that of the M'Thersons.] [A. S.]

DYBLIS A genus of *Droseraceae* containing Australian herbs resembling sundews (*Drosera*). They have very short stems, and tufts of linear leaves, with revolute margins. The peduncles are axillary, one-flowered; sepals and petals five each, the latter blue; stamens five; style simple. The capsule, which is obovate, ventricose and two-celled, contains but few seeds. [J. T. S.]

BYRSANTHES. One of the genera of the order *Labelliales*. Calyx tube adnate to the ovary, its limb five-parted; corolla funnel-shaped, leathery (hence the name Leather-flower), its limb five-parted, with erect equal segments; stamens five, inserted with the corolla on to the tube of the calyx, the anthers coherent in a tube, some or all of them hairy at the top. Ovary two-celled, containing several ovules, adhering to the two-lobed placenta; style not projecting from the flower; stigma two-lobed, the lobes spreading, roundish, hairy. Shrubs inhabiting the Andes, covered with snow-white hairs; flowers stalked. [M. T. M.]

BYRSONIMA. An extensive genus of plants belonging to the order of *Malpighiads* (*Malpighiaceae*), and containing about eighty species, inhabitants of Tropical America. They form shrubs or small trees, seldom exceeding thirty or forty feet in height, and have opposite entire leaves, destitute of the glands common to those of allied genera. Their flowers are produced in racemes at the ends of the branches, and are generally of a yellow colour; the calyx has ten glands or wart-like swellings, two at the base of each sepal; their ten stamens are connected together by a ring at the base, and they have three distinct styles terminated by pointed stigmas. Their fruit has a fleshy pulp surrounding a hard three-celled stone, containing three seeds.

B. Cumingiana is common in New Grenada, Panama, and Veraagua, forming a small tree about twenty-five or thirty feet high. Its leaves are lance-shaped, about three inches long and an inch and a half wide, the widest part being at the top end; both their upper and under surfaces, but particularly the latter, are covered with a thick coating of light brown woolly scurf, which gives them a rather dull appearance.

The racemes of flowers are about six inches long, and being of a deep yellow colour, give the tree a fine effect when in full flower. In Panama it is called Nanci, and the inhabitants consider the bark an efficacious remedy in certain skin diseases common in that country; they likewise use the wood for building purposes, and eat the small acid berries.

B. crassifolia is a native of the West Indies and the Northern part of South America, where it forms a small tree about fifteen feet high. It has oval leaves about four inches long and two broad, smooth upon the upper surface, and covered with brownish silky down underneath. The bark possesses astringent properties, and is used for tanning leather; it is also said to be useful as a medicine, a decoction being employed as an antidote to the bite of the rattlesnake; and in Cayenne it is employed as a febrifuge. The Carib Indians call the plant Moulse-le, and use its bark for painting their paddles and arrow-heads.

B. spicata is a tree thirty or forty feet high, growing in some of the West Indian Islands and in Brazil. It has lance-shaped blunt-pointed leaves about four or five inches long and an inch and a half broad, of a shining green upon the upper side and a dull rusty brown colour beneath. The bark of this, as indeed of all the species of the genus, is very astringent, and is commonly used by the Brazilian tanners, under the name of Muruxi bark; it also contains a colouring matter, and is used by the Indians for dyeing their garments red. The yellow acid berries of this plant are very good eating when ripe, but rather astringent; they are considered to act beneficially in cases of dysentery.

B. verbascifolia is a small shrub with a short thick knotty stem, the wood of which is of a bright red colour. Its leaves are about ten inches long and of an obovate shape, i.e. having the top half broader than the bottom; they are generally woolly on both sides, and a microscopic examination of the hairs of this and other species will show them to be centrally attached. In Brazil and Guiana, where this plant grows, a decoction of the roots and branches is used for washing ulcers, and is considered to possess healing properties. [A. S.]

BYSSACEOUS. Composed of fine entangled threads.

BYSSI. A name which formerly included a heterogeneous mass of perfect and imperfect plants of various affinities, but is now exploded, the term byssoid alone being retained to express a peculiar fringed structure in which the threads or fascicles of threads are of unequal lengths. [M. J. B.]

BYSSUS. The stipe of certain fungals.

BYTTNERIEE (*Byttneriaceae*). A tribe of the natural order *Sterculiaceae*, regarded by some botanists as a distinct order, and referred by Lindley to his Malval alliance of *Thalamiflorae* Exogonae. They consist of trees or shrubs, with hermaphrodite flowers, in which respect they differ from the true

Soroulias, being further distinguished by having their five petals concave or cucullate at the base. Benthain and Hooker associate the *Sytnieria*, under *Sorouliaceae*, with the *Soroulian*, *Helicterea*, *Eriofansea*, *Domboya*, *Hernandisia*, and *Lasiopetala*, which are the several tribes into which the plants referred to this order are distributed. The nutritious beverages known as Chocolate and Cocoa are prepared from the seeds (Cacao beans) of *Theobroma Cacao*, a small tree found in the forests of Demerara; the seeds of which contain a tonic substance called theobromine, allied to theine, while a fatty oil is expressed from them called the butter of cacao. From the pulp of the fruit a kind of spirit is distilled. Illustrative genera:—*Glossostemon*, with palmnerved leaves; *Abroma*, with palmlobed or entire leaves; *Theobroma*, with simple penninerved leaves; *Hernandia*, with palmated or digitate leaves; *Guanuma*, with simple leaves; *Buettneria*, noticed below; and *Swillingia*, with the leaves simple or lobed. [J. H. B.]

BYTTNERIA (*Buettneria*). This genus gives its name to the group to which it belongs. The species are numerous, and are widely distributed, being found in India, Java, and Madagascar, in the Old World, and in America as far north as Texas, reaching south to Buenos Ayres, and attaining their greatest number in Brazil. They are very diverse in appearance, some being small erect herbs about one foot high; others tall straight bushes with winged or angled stems and very narrow leaves; *B. castalipfolia* grows to a tree thirty feet high, with long-stalked heart-shaped leaves; but the greater number are scandent prickly bushes, scrambling over other plants as the brambles do in our hedges. The leaves in all the species are simple, and in the greater part more or less heart-shaped in form, with entire or notched margins. The flowers are small, generally dark purple in colour, and arranged in axillary simple or compound umbels. The petals are curiously hooded at the apex, and from the outer surface of the hood grow one, two, or three strap-like appendages. The fruit is a five-celled woody capsule, spherical in form, from half an inch to two inches in diameter, and armed with long or short rigid bristles. Each cell contains one seed. *B. heterophylla*, a native of Madagascar, is often to be found with entire or three-lobed leaves on the same plant; it is an extensive climber, scrambling over the tops of the highest forest trees, and is said to cover nearly the whole slope of the sides of the mountain called Tantanarivo, and to occur nowhere else in the island. The name is named in honour of David S. A. formerly professor of botany at Göttingen. [A. A. B.]

BYWA. A Japanese name of *Ericodonta japonica*, the Lo-quait of the Chinese.

CAA-APIA. A Brazilian name for *Dorstenia brasiliensis*.

CAA-ATAICA. *Fundella diffusa*.

CAA-CUA. A Brazilian name for some scrophulariaceous plant.

CAAPÉBA. The Brazilian name for the *Pareira brava*, *Cissampelos Pareira*.

CAAPIM DE ANGOLA. *Panicum spectabile*, a fodder grass of Brazil.

CAAPOMONGA. *Plumbago scandens*.

CAA-TIGUÁ. A Brazilian name for *Moschoxyylon Catigua*, a plant which imparts a bright yellow stain to leather.

CABALLINE ALOES. Horse Aloes, *Aloe caballina*.

CABARET. (Fr.) *Asarum europæum*. — **DES OISEAUX.** *Dipsacus sylvestris*.

CABBAGE. The common name for *Brassica*; specially applied to the plane-leaved hearting garden varieties of *Brassica oleracea* —, **DOGS.** *Thelygonum cynocrambe*. —, **KERGUELEN'S-LAND** *Pringlea antiscorbutica*. —, **ST PATRICK'S.** *Saxifraga umbrosa*. —, **SKUNK.** The fetid antispasmodic *Symplocarpus foetidus*.

CABBAGE-BARK TREE. The Worm Bark, *Andira inermis*.

CABBAGE-PALM. *Arca oleracea*.

CABBAGE-TREE. A common name for the genus *Arca*; also a garden name for *Eriola nerifolia*. —, **AUSTRALIAN.** *Corypha australis*, the leaves of which are made into plait for hats, baskets, &c. —, **BASTARD.** *Andira inermis*.

CABBAGE-WOOD. *Eriodendron anfractum*.

CABEZA DE NEGRO. Negro's head, the Columbian name for the fruit of *Phytolapha macrocarpa*.

CABOMBACEÆ. (*Cabomba*; *Hydrophilis*; *Water-shield*.) A natural order of Thalamifloral Dicotyledons belonging to Lindley's Nymphaeal alliance. Aquatic plants with floating shield-like leaves; sepals and petals three or four, alternating; stamens six to thirty-six. Carpels distinct, two to eighteen; seeds not numerous; embryo in a membranous bag, outside abundant fleshy albumen. The plants are obviously allied to the Water-lilies. They are found in America, from Cayenne to New Jersey, as well as in New Holland. There are two genera, *Cabomba* and *Hydrophilis*, which comprise three species. [J. H. B.]

CABOMBA. A genus of aquatic herbs giving its name to the small order of *Cabombaceae*. The species are small water plants with shield-shaped entire floating leaves, and finely-cut submerged ones, like those of the common water ranunculus. The flowers have three sepals, four

or five petals, six stamens with ovate four-cornered anthers, and two ovaries. They are natives of North America. [M. T. M.]

CABOTZ. *Brayera anthelmintica*.

CACALIA. The generic name of plants belonging to the Composite order, distinguished by the flowers being all tubular, and having both stamens and pistils: the heads of flowers surrounded by a single row of leaf-like bodies varying from five to thirty in number. The appendage on the top of the fruit or seed is in the form of a short cone, hairy at the base; the fruit is oblong and smooth. The species are perennial herbs with the leaves alternate, toothed or lobed, and the flowers varying in colour. Most of them are plants of peculiar aspect, owing to their clumsy fleshy stems, and the dingy colour of their leaves. They are natives of the warmer parts of America, middle Asia, and Eastern Africa. The Chinese employ as food the leaves of *C. procumbens*, and those of *C. ficoides*, a native of the Cape, are also wholesome. [G. D.]

CACALIE E'CARLATE. (Fr.) *Emilia sonchifolia*.

CACAO or **COCOA.** The seeds of *Theobroma Cacao*, which form, or should form, the chief ingredient in chocolate.

CACHIBOU RESIN. A gum-resin obtained from *Bursera gummiifera*.

CACHRYS. One of the genera of *Umbellifera* (*Apiaceae*), deriving its name, it is said, from a Greek word indicative of the hot or carminative properties of the fruit. The prominent characteristics of the genus are: the absence of an involucre; the margin of the calyx five-toothed or wanting; entire petals bent inwards at the point: the stylopods or thickened base of the styles not very distinct; the fruit thick and spongy, each half with five thick ribs, and containing several oil channels in its rind. The species are natives of Southern Europe, Siberia, &c. The Cossacks are said to chew the seeds of *C. odontalgica* as a remedy for tooth-ache, the effects being due to the salivation they induce. Several species are in cultivation, but are of no particular interest. [M. T. M.]

CACTACEÆ. (*Cacti*; *Cactee*; *Opuntiacae*; *Noxaleæ*; *Indian Figs*.) The cactus family, a natural order of Calycifloral Dicotyledons. They consist of succulent shrubs with remarkable spines clustered on the stems, which are angular two-edged or leafy, and have their woody matter often arranged in a wedge-like manner. Calyx of numerous sepals, combined and epigynous; petals numerous; stamens numerous, with long filaments. Ovary one-celled with parietal placentas; style single; stigmas several. Fruit succulent; seeds without albumen. They are natives of America, whence they have been transported to various quarters of the globe. The fruit of many of the Indian Figs is subacid and

refreshing; in some instances it is sweetish and insipid. The stems of some of the species are eaten by cattle. These stems present very varied forms; some are spherical, others jointed, others have the form of a tall upright polygonal column. Their succulent character enables them to thrive in arid climates, and some of them have been called vegetable fountains in the desert. A South American species, *Cereus peruvianus*, has stems thirty to fifty feet high, and one to two feet in diameter; *C. Thurberi* has a stem ten to fifteen feet high, and *C. Schottii* has one eight to ten feet in height. The spines and bristles on a specimen of *Echinocactus platyceras* were reckoned at 51,000, those of a *Pilocereus sentis* at 72,000. *Opuntia vulgaris*, the common Prickly Pear, has an edible fruit, and *O. cochinealisera*, the Nopal plant, supplies food to the cochineal insect (*Coccus Cacti*). The number of known genera is eighteen, and of species about 800. Illustrative genera: *Cactus* or *Cereus*, *Melocactus*, *Mammillaria*, *Opuntia*, *Pereskia*. [J. H. B.]

CACTUS. This name includes in popular estimation all the various species referred by botanists to *Cereus*, *Epiphyllum*, *Echinocactus*, *Echinopsis*, *Mammillaria*, and *Melocactus*; under which genera their several peculiarities will be noticed. It is this old familiar name, sometimes still used under the plural form of *Cacti*, which has given the title of *Cactaceae* to the family to which these plants belong. [T. M.]

CACTUS, HEDGEHOG. *Echinocactus*. — **LEAF.** *Epiphyllum*. — **MELON-THISTLE.** *Melocactus*. — **NIPPLE.** *Mammillaria*.

CADABA. A name applied to a genus of *Capparidaceae*, characterised by a calyx of four sepals, distinct or coherent at the base only; petals sometimes wanting; stamens more or less united below; fruit berry-like, stalked, subtended by a strap-shaped nectary. The plants are natives of Africa, India, and Australia. The root of *C. indica* is said to be aperient and anthelmintic. [M. T. M.]

CADE. (Fr.) *Juniperus Oxycedrus*.

CADEN. An Indian name for *Phanera sylvestris*.

CADETIA. A little-known genus of one-leaved epiphytal Orchids with the habit of *Pleurothallis*. Five species are described from the Moluccas and New Guinea. The genus is hardly distinct from *Dendrobium*.

CADJII GUM. A South American gum obtained from *Anacardium occidentale*.

CADUOUS. Dropping off.

CAENOPTERIS. A name which has been sometimes adopted for the *Davae* section of *Asplenium*: a group of species usually distinguishable by the unisporiferous ultimate segments of their fronds. The name has also been given to another fern, now referred to *Onychium*. [T. M.]

CAEOMACEI. A term applied to those species of truly parasitic *Fungi* known

familially under the name of Rust and Mildew, which have naked spores free from dissepiments. They are, however, so closely connected with those with septate spores that it is far more natural to unite them. We accordingly refer for further information to the article *Puccinias*. [M. J. B.]

CERULEUS or **CERULEUS**. Blue; a pale indigo colour.

CESALPINIA. A genus of Leguminous plants typical of the section *Cesalpinieae*, containing about fifty species, most of which are small trees or large shrubs, inhabiting tropical countries. Their leaves are compound, being what is termed bipinnatifid. Their flowers are produced in racemes, and have a top-shaped calyx, divided at the end into five parts, the lowest of which is larger than the others; five unequal stalked petals, the upper one shorter than the rest; ten stamens, and a long slender style.

C. coriaria is a small tree twenty or thirty feet high, native of several of the West Indian Islands, Mexico, Venezuela, and North Brazil. The primary divisions of its leaves vary from nine to fifteen, each bearing from sixteen to twenty-four narrow oblong blunt leaflets, marked with black dots on the under surface. It has branched racemes of white flowers, which produce curiously flattened pods, about two inches long by three-fourths broad, and curved so as to bear some resemblance to the letter S. The large percentage of tannin in these pods renders them exceedingly valuable for tanning purposes; they are known in commerce under the names of Divi-divi, Libi-divi, or Libi-dibi, and are chiefly imported from Maracaibo, Paria, and St. Domingo.

C. cristata, a native of the West Indian Islands, grows about twenty feet high, and has smooth prickly branches, and leaves with eight primary divisions, each having from three to five pairs of leaflets, which are generally notched at the top, and of an oblong shape, rather broader at the top end. The flowers are yellowish-red, and produce scimitar-shaped pods about three inches long, containing eight or ten seeds. *C. echinata* is a Brazilian tree with prickly branches, elliptical blunt-pointed leaflets and yellow flowers producing spiny pods. The woods known in commerce as Brazil, Pernambuco, Nicaragua, Lima, and Peach-woods, are said to be produced by this genus, but nothing certain is known upon the subject. They are generally attributed to the two last-named species, and to another called *C. brasiliensis* (the correct name of which is *Peltophorum Linnæi*), but which is not a native of Brazil. They are all exceedingly valuable to the dyer, producing various tints of red, orange, and peach-colour. The imports of Brazil-wood in 1856 amounted to 1,052 tons, and of Nicaragua-wood to 4,767 tons, the aggregate value of which was 153,637l.

C. Sappan, an East Indian tree growing about thirty or forty feet high, has

prickly branches, the primary divisions of the leaves varying from twenty to twenty four, and having ten or twelve pairs of obliquely oval-shaped leaflets, notched at the tip, with minute dots on the under surface. The brownish-red wood of this tree furnishes the Sappan-wood of commerce, the Bukkum or Wukkum of India, from which dyers obtain a red colour, principally used for dyeing cotton goods. Its root also affords an orange-yellow dye. In 1858, 4,116 tons of Sappan-wood were imported into this country.

Of other useful species *C. Pipai* produces pods which possess some astringency, and are called Pipi pods; the seeds of *C. digyna*, an East Indian climber, yield an oil used for burning in lamps in India; the roots of *C. Nuga* are diuretic; and in China the pods of several species are called Soap pods from their being commonly employed for producing a lather as a substitute for manufactured soap.

[A. S.]

CÆSAREA. A genus of *Vivianiaceae*, containing but few species, all of them natives of Southern Brazil. They are slender herbs one to three feet high, with opposite, or, towards the base of the stem, verticillate leaves, having serrate margins, generally smooth above, and covered with white down underneath. The flowers are axillary towards the ends of the branchlets, white, yellow, or of a reddish colour. None of the species are in cultivation, although they would be pretty greenhouse plants. The genus bears the name of Cesar de S. Hilaire, a captain in the French navy, who first introduced the Mocha coffee to Bourbon.

[A. A. B.]

CÆSIA. A genus of *Liliaceae*, containing herbs from Australia and Tasmania, with fasciculate roots often with thickened tuberous fibres, grass-like radical leaves, and rather small white or blue flowers in simple or compound racemes. Perianth six-parted, the segments petaloid and spirally twisted after flowering; stamens six, with glabrous filaments; ovary three-celled, with two ovules in each cell; capsule sometimes one-celled; seeds with an appendage at the base.

[J. T. S.]

CÆSIUS. Lavender colour.

CESPITOSE. Growing in tufts or patches.

CÆSULIA. The only species of this genus, *C. asiloria*, which belongs to the Composite family, grows in moist places in many parts of India, and is a small weed with alternate linear toothed leaves, and what appear to be single sessile flower-heads, but which are in reality a number of flower-heads enclosed in a common involucre, each of them containing only one floret and provided with a two-leaved involucre, the lower part of which at length unites with, and forms part of the achene, the upper portions remaining free and giving the achene an eared appearance. The florets are purple or white.

[A. A. B.]

CAFE' FRANÇAIS. (Fr.) *Oleer arietinum*. — **MARRON.** The wild Bourbon *Coffea mauritiana*.

CAFE'IER or CAFFE'YER. The Coffee tree.

CAFFER-BREAD. A South African name applied to various species of *Encaphalartos*.

CAHINCA or CAINCA. A Brazilian drug obtained from *Chiocorea densifolia*.

CAHOUN NUTS. The fruits of *Attalea Cohune*, which yield an oil equal to that of the coco-nut.

CAIANNE. (Fr.) A kind of olive.

CAILLEBOTTE. (Fr.) *Fiburnum Opulus*.

CAILLELAIT. (Fr.) *Galium verum*.

CATOPHORA. A genus of *Loasads*, distinguished from its congeners by having on the calyx ten spirally-arranged ribs; the divisions of the corolla notched at the tip or with three teeth; style or appendage on the ovary single, blind at the end, the two pieces approximate. The name appears to be derived from the Greek verbs signifying 'I burn,' and 'I bear,' in allusion to the numerous stinging hairs which produce a burning sensation when they pierce the skin. The species are herbaceous plants, natives of Peru and Chili, of branched and climbing habit, armed with sharp stings. The leaves are opposite, lobed or deeply cut; the flowers solitary from the angles of the leaves or at the ends of the branches.

The plants have the general aspect of *Loasa*, a genus in which some of them were formerly included. One of the most notable is *C. coronata*, discovered by Dr. Gillies on the sides of the Cordillera, between Mendoza and Chile, at an elevation of 8,000 to 11,000 feet. Dr. Gillies observes of it: 'the general aspect of the plant is very peculiar, and on examining its whole economy we are struck with the care taken to protect the flower, and insure impregnation.' It forms a large convex mass, rising one or two feet from the ground; the upper part is composed entirely of a great abundance of dark green leaves, along the margins of which, and protected by them, are arranged the large whitish flowers, forming one or two or more circlets or fillets, giving the whole a very singular and elegant appearance. The corolla, which is contracted towards its mouth, is of considerable size; the transverse section, at the widest part, being in some cases as large as that of a hen's egg. When the capsules are ripe, they are generally prostrate on the ground, the stalk being too weak to support them. [G. D.]

CAJANUS (from *Cajang*, the Malayan name for one of the species) is a small genus of Leguminous plants of the section *Papilionaceae*, forming shrubs, with leaves composed of three stalked leaflets, and flowers produced in racemes from the

angles between the leaf-stalks and stems. Their calyx is bell-shaped and cut half-way down into four divisions, the upper of which has two small teeth; their corolla is papilionaceous; and they have ten stamens, nine of which are united together, and the tenth free. The fruit is a pea-like pod, containing many seeds, and having its husk or shell constricted between each seed.

C. indicus is a native of the East Indies, but is now naturalised and cultivated in the West Indies, in tropical America and Africa, and in some islands of the Pacific Ocean. There are two varieties, differing only in height and in the colour of their flowers. It is a perennial shrub growing from three to ten feet high, but in places where it is cultivated, it is generally treated as an annual, the stems being pulled up and used for firewood as soon as the crop of seeds has been gathered. All parts of the plant are more or less covered with soft silky or velvety hairs. The leaves are composed of three oval-lance-shaped stalked leaflets. The variety *bicolor* generally grows from three to six feet high, and has yellow flowers marked with crimson streaks on the outside; its pods are spotted or marbled with dark lines. It is called the Congo Pea in Jamaica. The variety *flavus* is a larger kind, forming bushes twenty feet in circumference, and varying from five to ten feet high; it has pure yellow flowers and uniformly-coloured pods. In Jamaica it is called the No-eye Pea. Both of these varieties are cultivated in various parts of the tropics for the sake of their seeds or pulse. In India the pulse is called Dhal or Dhol, or Urhur, and it forms a large part of the food of all classes of natives, being ranked as third in value among the pulses. In the West Indies they are called Pigeon Peas, being commonly used for feeding pigeons and other birds; besides which they are highly esteemed as an article of human food, the variety called No-eye Pea being considered to be little inferior in a green state to our English peas, and, when dried and split, quite as good. The Congo Pea is harder and coarser, and is only used by negroes, requiring a great deal of boiling. Pea meal of very good quality is prepared from both the varieties in Jamaica. Horses and cattle of various kinds are very fond of the young branches and leaves, either in a fresh or dried state. The late Dr. McFadyen, speaking of this plant, says: 'There are few tropical plants so valuable. It is to be found round every cottage in the island (Jamaica), growing luxuriantly in the parched savannah and mountain declivity, as well as in the more fertile and seasonable districts.' [A. S.]

CAJUPUTI. An old synonym of *Melaleuca*, one species of which, *M. Cajuputi*, yields the stimulant oil of cajuput, used in medicine. [T. M.]

CAKILE. A sea-side herbaceous plant belonging to the *Cruciferae*, easily distinguished by its oblong deeply-lobed

sessy leaves, which are smooth and of a glaucous hue: by its lilac flowers; and by its spores when matured is

by a horizontal partition into two cells, the upper containing a single erect seed, the lower a pendulous one. It is known to sea-side visitors by the name of Sea Rocket. Closely allied species inhabit the shores of the Mediterranean and the West Indian Islands. They are all annuals. French, *Cagulle*. [C. A. J.]

CALABA TREE. *Calophyllum Calaba*.

CALABASH. *Oreocnida Oryza*, a tropical tree bearing great gourd-like fruits.

— **SWEET.** *Paeiflora maliformis*.

CALABASH NUTMEG. *Monodora Myrsinacea*.

CALABUR TREE. *Muntingia Calabura*.

CALADENIA. A genus of exquisitely beautiful little terrestrial Orchids inhabiting Australasia. They generally produce one grassy leaf, from within which arises a scape bearing a few ringent flowers, covered in various places in a very remarkable manner with glandular hairs, which have suggested the name. In many species the sepals or petals or both are prolonged into long slender tails; in others they have the usual oval outline. The genus is admirably illustrated in *Hooker's Flora Tumentosa*.

CALADIUM. The generic name of certain plants of the *Arum* family, having a hood-like spathe rolled round at the base; a spadix whose upper portion is entirely covered with stamens, but ultimately becomes bare at the extreme top, provided with blunt glands or sterile stamens in the middle, and ovaries beneath; the anthers shield-shaped and one-celled; the ovaries numerous, two-celled, with from two to four ascending ovules in each cell; the fruit a one or two-celled berry, with few seeds. These plants partake of the acrid properties, which pervade the *Araceae*, but, nevertheless, the rootstocks or rhizomes of some of the species are eaten as food in the West Indies, the Sandwich Islands, &c., in consequence of the abundance of starch contained in them, the process of cooking depriving them of their noxious qualities. It is stated that the rootstocks or tubers of *C. pettiatum* were on one occasion mistaken for potatoes on board ship, and were given to some animals with fatal results. The leaves of *C. angustifolium* are boiled and eaten in the West Indies as a vegetable. Both the rhizomes and the leaves of *C. coccineum* are commonly exposed for sale in the bazaar of Bombay, Funn, &c., and are eaten by the natives. The species are natives of the warmer regions of the globe, where they are cultivated in abundance for the above-mentioned purposes. Several are also grown in hot-houses in this country; and lately several varieties with variegated foliage have been [M. T. M.]

CALAMAGROSTIS. A genus of

belonging to the tribe *Gramineae*, distinguished chiefly by the inflorescence being in branched panicles, and only one flower in the spikelets, or within the glumes, which has long silky hairs at its base; sometimes the rudiment of a second flower is present; glumes nearly equal, keeled and pointed; pales two, small. There are eighty-six species described in Steudel's *Synopsis*. They have an extensive range over the globe. The greater number are, however, natives of rather temperate climates, and some reach the Arctic circle. Three species only are natives of the British Islands, and neither of these of common occurrence; indeed, *C. stricta* is one of the rarest British grasses, and only grows sparingly in a few localities. They are not valuable for agricultural purposes, though very ornamental. [D. M.]

CALAMBAC. The commercial name of Aloe-wood, Eagle-wood, or Lign Aloe, which is produced by *Aloexylum Agallochum*.

CALAMINT. (Fr.) *Calamintha* *nalis*.

CALAMINTHA. A genus of Labiate flowers which as at present constituted, comprises several plants described in less recent works under the names of *Thymus*, *Actinos*, *Melissa*, and *Olinopodium*. The essential generic characters of *Calamintha* are: 'calyx two-lipped; stamens diverging; upper lip of the corolla nearly flat, tube straight.' *C. Actinos*, or Basil-thyme (formerly called *Thymus Actinos* and *Actinos vulgaris*), is a low somewhat shrubby plant with stems from four to six inches high, small leaves, and rather showy violet-purple flowers, which grow in whorls of six together. The whole plant is fragrant and aromatic, and well deserves its name from the Greek *basilikos*, royal, *M.*, as Gerard tells us, 'the seeds cureth the infirmities of the hart, taketh away sorrowfulness which cometh of melancholie, and maketh a man merrie and glad.' It is most frequently found in chalky or gravelly pastures. *C. officinalis* (L.) *Melissa* (L.) *laminata*, *C. Nepeta*, and *C. ophiolaminta* or 'Excellent Mint,' as their name imports, are herbaceous aromatic herbs to which great medicinal virtues were anciently ascribed. They bear their flowers in stalked tufts which proceed from the axils of the opposite leaves, and are only to be distinguished from one another by a minute comparison of characters. They all possess a strong aromatic odour resembling that of penny-royal, and are employed to make herb-tea. *C. officinalis*, the Wild Basil, formerly *Olinopodium vulgare*, is a straggling hedge plant with hairy stems from one to two feet long, bearing its rather large purple flowers in dense whorls in the axils of the hairy ovate distant leaves, and having numerous bristly bracts at their base. The odour is aromatic, but not so agreeable as in the other species. [C. A. J.]



a. *Artocarpus*
incisa

b. *Caladium*

c. *Pandanus*
odoratissimus
in fruit

d. *A. crinum*

CALAMOSAGUS. The four species constituting this genus of Palms do not possess any individual features of interest beyond their technical characters. They are all natives of the forests of the Malayan peninsula, and have climbing whip-like stems, growing to a great length, and supporting themselves by means of their hooked spines. The footstalks of their pinnate leaves are likewise armed with prickles and hooked spines, and terminate in a long whip-like tail; the leaflets are of a green colour on the upper surface, and covered with a bluish bloom underneath; their top half is broad and very much jagged, the lower half being entire and wedge-shaped. One of the chief characteristics of the genus is the presence of a broad leafy expansion called the ligule, near to and partly surrounding the base of the footstalk of the leaf. They have perfect flowers, arranged in branching spikes resembling bunches of catkins, each flower being half buried in a dense mass of wool, and having a three-toothed calyx, a three-parted corolla, six stamens, and a three-celled ovary covered with scales, and crowned by a three-toothed awl-shaped style. None of the species are known to possess any useful properties, but as their stems bear a close resemblance to some of the species of *Calamus*, they are probably used for similar purposes. One species, *C. harinasfolius*, is called Rotang Simote by the Malaysians, and another, *C. ochriger*, Rotang Donam. [A. S.]

CALAMPELIS. *Ecromocarpus*.

CALAMUS. The stems of several species of this genus of Palms are well known in this country under the names of Rattans or Canes. Upwards of eighty species are described, nearly all natives of Asia, abounding in the Malayan Peninsula and Islands, also in the eastern and north-eastern provinces of India; two are found in Australia, and one in Africa. They have reed-like stems, seldom more than an inch or two in thickness, but often much less, generally growing to a great length, climbing over and amongst the branches of trees, and supporting themselves by means of hooked spines attached to their leaf-stalks; a few, however, form low bushes or small trees. Their leaves are pinnate, and in many of the species, the leafstalk is prolonged beyond the termination of the leaflets into a whip-like tail. The flowers are small, generally of a rose or greenish colour, and arranged very close together upon long branching spikes, the ultimate branches somewhat resembling catkins. They have a three-toothed calyx, and a three-parted or three-petaled corolla; the males having six stamens joined together at the base, and the females imperfect stamens, and a three-celled ovary, more or less covered with scales, and bearing three stigmas (no style). The spikes are surrounded by numerous bracts or spatheae, which, however, do not completely enclose them, and each branch of the spike has a

separate bract at its base. The fruits are covered with smooth shining scales, which are fixed by their upper edges, and overlap each other from the top downwards, like plates of mail; they generally contain a single seed, surrounded by an eatable pulp.

C. Rotang, *C. rudentum*, *C. verus*, *C. viminalis*, and probably several other species, furnish the canes or rattans so commonly employed in this country for the bottoms of chairs, couches, sides of carriages, and similar purposes; and of which no fewer than 18,625,368 were imported in 1858, and valued at 38,960*l*. In the countries where these palms abound, the inhabitants make use of them for a great variety of purposes, baskets of all kinds, mats, hats, and other useful articles being commonly made of them. Their most important use, however, is for the manufacture of the ropes and cables usually employed by junks and other coasting vessels. In the Himalayas they are used in the formation of suspension bridges across rivers, the construction of which Dr. Hooker thus describes: 'Two parallel canes, on the same horizontal plane, were stretched across the stream; from these others hung in loops, and along the loops were laid one or two bamboo stems for flooring; cross pieces below this flooring hung from the two upper canes, which they thus served to keep apart. The traveller grasps one of the canes in either hand, and walks along the loose bamboos laid on the swinging loops.'

C. Scipionum, the stems of which are much thicker than those of the preceding, furnishes the well-known Malacca canes so much prized for walking-sticks. They are imported from Singapore and Malacca, but are chiefly produced in Sumatra. Some are of a uniform rich brown colour, whilst others are variously mottled or clouded as it is called; the colour, however, is said to be artificially imparted to them by smoking. *C. Draco*, the species yielding the red resinous substance called dragon's-blood, is now placed in the genus *Demonorops*, as also are several other *Calami*. [A. S.]

CALAMUS. A fistular stem without an articulation.

CALAMUS AROMATICUS. *Acorus Calamus*. — **ODORATUS.** *Andropogon Schoenanthus*.

CALANDRENIA. A genus of Purslanes consisting of smooth fleshy plants of annual or perennial duration, with entire leaves, and, in the case of the species in cultivation, showy purple or rose-coloured flowers expanding only in sunny weather. It is well distinguished among the other genera of the order by its two persistent sepals, which close over the seed-vessel after the petals have fallen: three to five

or valves, and containing numerous seeds adhering to a central placenta. A few only of the species are introduced, but they include probably the most interesting members of the genus. As a type of one section, reference may be made to the *C. discolor*, which has large oblong or lanceolate pointed glaucous leaves, mostly radical, green on their upper surface and purplish beneath, whence its specific name; and flowers one and a half inch across, of a bright rose colour, produced in a long distant raceme on a sort of scape, the foot-stalks being deflexed before and after flowering, and furnished with one or two ovate bracts at their base; a calyx of two broad concave pieces spotted with black, and petals inversely heart-shaped. The *C. grandiflora* closely resembles it, but has, notwithstanding its name, rather smaller flowers, with leaves which are more tapering at the point and base, and green on both surfaces. Both of these species, though usually treated as annuals, are perennial in warmer latitudes than our own, and are, as well as the following plant, natives of Chili. *C. umbellata* differs very considerably in habit from the two preceding, forming a small spreading tuft with shrubby shoots thickly set with linear foliage, fringed at the margins. The flowers are produced in terminal umbels, more or less compound, according to the strength of the plant, each blossom being about half an inch in diameter, and of a rich purple-crimson colour. Possessing a harder constitution than the foregoing plants, it frequently endures our winters in dry soils, though often treated as an annual. *C. speciosa*, a Californian annual, is of procumbent habit with numerous branched stems radiating from the crown of the root, thickly clothed with narrow spatulate glossy leaves, and producing singly from its axils a profusion of crimson purple flowers rather larger than in *umbellata*. The seeds of this species are lenticular in form, and of a glossy black colour, by which they are readily distinguishable from those of the three previously-named. There is a variety of this with flowers of a coppery-red colour. [W. T.]

CALANTHE. A large genus of terrestrial stemless vandeus Orchids with broad many-ribbed leaves, and long spikes of flowers, the lip of which is calcarate and adherent to the column, while the waxy pollen masses are eight, adhering to a separable gland. Some thirty species are known, chiefly from tropical and extratropical Asia; a few are American. The flowers, which are white, or lilac, or purple, or copper-coloured, are ornamental, wherefore several species are in gardens. Of these *C. vestita* is one of the handsomest.

CALATHEA. A genus of *Marantaceae*, deriving its name from its cup-shaped stigma. These plants have large leaves springing from the contracted stem near the root, from which they appear directly to emerge. The flowers are in terminal

spikes and protected by bracts; they have a calyx of three segments; a corolla of six pieces, the external ones lance-shaped, the internal ones blunt and irregular in shape; three petal-like stamens, one of which bears a linear one-celled anther, attached to its edge, while the rest are sterile; and a petal-like style, the stigma hooded, angular. The species are natives of tropical America, and some of them are in cultivation for the sake of their handsome foliage, especially *C. zebrina*, the leaves of which have alternate dark-coloured and green stripes. The leaves of some of the South American kinds are used for making baskets. [M. T. M.]

CALATHIAN VIOLET. *Gentiana Pneumonanthe*.

CALATHIDA, CALATHUS, CALATHIDIUM. The head of flowers borne by Composites.

CALATHIFORM. Cup-shaped, or almost hemispherical.

CALATHODES. A genus of *Ranunculaceae* containing one species, *C. palmata*, from Sikkim, growing at an altitude of about 10,000 feet. A perennial herb with the habit of *Trollius*, having palmately cleft leaves, a simple stem one and a-half foot to two feet high; flowers large terminal and solitary, with five ovate acute petaloid sepals; petals none; ovaries ten or more, oblong, gibbous externally, beaked; ovules eight or ten; style bent down outwards after flowering. [J. T. S.]

CALAVANCE. A name for several kinds of Pulse, including *Dolichos barbadensis* and *D. sinensis*.

CALBOA. A synonym of *Quamoclit*.

CALCAR (adj). *Calcaratus*. A spur; hollow process of some part of a flower.

CALCAREOUS. Dead-white, like chalk. Also growing in chalky places, or having the substance of chalk.

CALCARIFORM. Shaped like a calcar or spur.

CALCEARIA. *Coryanthes*.

CALCEOLARIA. A beautiful genus of *Scrophulariaceae*, distinguished chiefly by the peculiar form of the corolla, which has two lips, the lower of which is inflated, somewhat elongated and turned downwards, having some resemblance to a shoe; the stamens are two in number. The name is derived from the Latin word 'Calceolarius,' a shoemaker. The peculiar form of the corolla, above described, is nevertheless not invariably a character of the genus; the plant known in collections as *C. violacea*, a native of Chili, has the corolla in the form of two equal gaping lips; it was formerly placed in the genus *Jorullana*, but is now considered by the best authorities as a true *Calceolaria*. The numerous species of this favourite and well-known genus are either herbaceous or shrubby in habit, with leaves in pairs or three to

gether, rarely alternate, either entire toothed or deeply cut, often more or less hairy, the flowers variously grouped and distributed, the prevailing colours, yellow white or purple. They are natives of South America, confined either to the western side of the Andes, or to the southern extremity of the mainland and the adjacent islands. Some are found only near the level of the sea, and others are inhabitants of the higher parts of the Cordilleras; hence it is that, among the numerous introduced species in our collections, a few are more or less hardy, others require protection. *C. floribunda*, for instance, is a native of the vicinity of the city of Quito, at an elevation of 11,000 feet above the level of the sea, and several occur at low altitudes in the Falkland Islands, &c., forming a prominent feature of the native vegetation. In the *Flora Antartica*, Dr. Hooker thus alludes to the *C. Polakowskii* of Port Famine: 'Though inferior in stature and beauty to many of its congeners, this is among the prettiest of the wild flowers of the Falklands, and the attention of the voyager who is familiar with the genus *Calceolaria* only in the conservatories of Britain, must be attracted by its appearance on the exposed shores of these inhospitable islands.' Many of the original pure species have been modified by hybridising, and are not now so common in collections. The hybrids are numerous and some of them greatly prized; not only is the size of the flower modified but the colour as well, the shades of yellow and purple being highly varied, as also the characters of the spots on the slipper-like portion. The handsome aspect of different species and crosses has always recommended them to the attention of cultivators, and acted as a stimulus to the exercise of ingenuity in discovering the proper method of treatment. The results have been such, that on plants attaining a height of two feet or little more, the flowers may sometimes be counted by hundreds, expanded about the same time. [G. D.]

CALCEOLATE. Having the form of a slipper or round-toed shoe.

CALCEOUS. Dead-white, like chalk.

CALCITRAPA. The Star Thistle, *Centauria Calcitrapa*.

CALDASIA. A genus of *Polemoniaceae*, containing annual herbs from Mexico with glandular hairs, branched stems, and alternate crenate-serrate leaves. Peduncles axillary, in pairs, one-flowered; calyx five-sided, five-toothed at apex, scarious in fruit; corolla violet blue, funnel-shaped, with a five-parted limb, the lobes notched at the apex, and two of them apart from the other three; stamens five, protruding, bent down; capsule three-celled; seeds in each cell with a spongy coat. [J. T. S.]

CALDOLUYIA. A genus of *Omontaceae*, containing a small tree from Chili, with opposite simple lanceolate serrated leathery

leaves, glaucous below; stipules lanceolate, deciduous; flowers in axillary panicles; calyx deciduous, four or five parted; petals four or five, inserted on a disk which has as many glandular notched lobes as there are petals; stamens eight or ten, inserted within the disk; ovary free, two or three-celled; ovules numerous; styles two or three, becoming reflexed. [J. T. S.]

CALEA. The species of this genus, which belongs to the Composite family, are natives of tropical America, extending from Mexico to South Brazil. They are herbs or small shrubs with opposite or whorled entire or toothed leaves, generally three-nerved and very rough on the surface, many of them resembling those of the common nettle in form. In one group the species are dwarf and unbranched, bearing a long-stalked terminal flower-head, about an inch in diameter, containing both strap-shaped and tubular florets, the former having pistil only, the latter both stamens and pistil. In another group the plants are larger, the flower-heads small and numerous, disposed in corymbs at the ends of the branches, and bearing tubular florets only. The flowers of most of them are yellow and the pappus is made up of from five to twenty lanceolate pointed scales. Upwards of thirty species are known. *C. Zacatechichi*, a Mexican species with nettle-like leaves and small flower-heads, is known there by the name of 'Jurullillo,' and is said to contain, in a fresh state, a considerable quantity of camphor, and to be employed against fevers, and the powdered leaves for healing wounds. The leaves of *C. jamaicensis* are said to be powerfully bitter, and steeped in wine or brandy are used as a stomachic in the West Indies; but this account is thought to apply rather to *Neurolema lobata*. [A. A. B.]

CALEANA. A few brown-flowered terrestrial Orchids confined to New Holland bear this name. They have simple filiform roots terminated by a small tubercle, solitary radical leaves, and a slender few-flowered scape. The column is broad, thin, and concave; the sepals and petals narrow and reflexed; the lip posticous, peltate, unguiculate, and highly irritable. In fine weather or when undisturbed, this lip bends back and leaves the column uncovered; but if it rains or the plant is jarred, down goes the lip over the column, which it securely boxes up. See *DRAXEA* and *SPICULÆA*, in which a similar phenomenon occurs.

CALEBASSE. (Fr.) The Bottle Gourd, *Lagenaria vulgaris*.

CALEBASSIER. (Fr.) The Calabash tree, *Crescentia Cujete*.

CALECTASIA. A genus of *Juncaceae* containing a small branched shrubby plant from South Australia, with needle-shaped leaves sheathing at the base, and solitary flowers on short terminal branches, having a salver-shaped perianth with a six-parted limb of petaloid blue segments

spreading like a star, the three outer pubescent; stamens six. The ovary is one-celled with three ovules. [J. T. S.]

CALKE KUSTOOREE. An Indian name for the Musk Ochro, *Abelmoschus moschatus*.

CALERYNA. A section of *Evelyna*.

CALENDULA. The name of a genus belonging to the Composite order, having numerous flowers grouped on a nearly flat surface, those at the circumference strap-like, in two or three rows and with pistils only, those in the centre tubular with stamens only, both kinds hairy at the base, the whole surrounded on the outside by a series of scale-like leaflets. The name *Calendula* is founded on the circumstance that species may be in flower on the calends of every month. They are annual or perennial, chiefly natives of the Mediterranean borders, with yellow or orange-yellow flowers, usually of a powerful, not pleasant odour. One of them, *C. officinalis*, the Pot Marigold, formerly enjoyed repute as a domestic remedy, being used in forming a distilled water or vinegar. [G. D.]

CALF'S SNOUT. *Antirrhinum Oronotum*.

CALICATE. Furnished with a calyx.

CALICINAR. When a flower becomes double by an increase in the number of lobes of the calyx or sepals.

CALICIUM, CALICIEL. A genus and family of Lichens known at once by the sporidia forming ultimately a dusty stratum over a little orbicular disc which is either nearly sessile or supported upon a short stalk so as to look like a little nail more or less completely driven home. The sporidia, as in other lichens, are at first contained in asci, which soon, however, disappear. One of the most familiar species is *C. inquinans*, which is common upon gate-posts, and attracts notice from leaving the print of its discs upon the finger when touched. The crust is sometimes very obscure or almost obsolete. All the species of *Calicium* are, we believe, found in Europe, though several of them occur elsewhere. [M. J. B.]

CALICO BUSH. *Kalmia latifolia*.

CALICULAR. A term of aestivation, when the outer bracts of an involucre are much shorter than the inner.

CALIMERIS. The generic name of plants belonging to the Composite order, having the flowers in heads, those at the circumference in one row, strap-like, the heads surrounded externally by two to four rows of nearly equal scale-like leaves. The surface supporting the flowers has numerous four-cornered pits or depressions toothed at the angles. The fruit is flat and hairy. The name *Calimeris* is of Greek derivation, and indicates general beauty of parts. The species are perennial herbs, natives of middle and Northern

Asia, with the leaves entire or toothed and cut at the margin; the heads of flowers yellow in the middle, and white or blue at the circumference. [G. D.]

CALIPHRURIA. A genus of *Amaryllidæ*, forming a link between *Euryales* and *Brignia*, and having, except in the inflorescence, much the appearance of *Eucrocia*. The species, *C. Hartwegiana*, has ovate bulbs, petiolate depressed perennial oval acuminate somewhat plaited leaves, with a blade six inches long or more, a glaucous scape a foot high bearing an umbel of about seven subdeclinate flowers, having a green tube and white limb. The tube of the perianth is narrowly funnel-shaped and nearly straight, the limb regular with the segments turned back in the form of a star, the sepaline ones rather the broader. The filaments of the six stamens are inserted at the base of the segments of the perianth, and have a white bristle on each side, and they are associated with a straight style terminated by a somewhat recurved three-lobed stigma. *C. Hartwegiana* is a native of New Grenada. [T. M.]

CALLA. A genus of *Orontiaceæ*, consisting of herbaceous marsh plants with creeping or floating stems, heart-shaped entire leaves, the stalks of which emerge from a sheath. The flowers cover a spadix, which is protected by a flat spathe, the flowers themselves having neither calyx nor corolla. The upper flowers are female, consisting of a one-celled ovary, from the base of which arise the ovules; the lower flowers are hermaphrodite with numerous thread-shaped stamens, flattened and dilated at the top, and springing from below the ovary. The species are natives of Northern Europe and North America, and possess acrid caustic properties. The rootstocks of *C. palustris* yield eatable starch, prepared by drying and grinding them, and then heating the powder till the acrid properties are dissipated. [M. T. M.]

CALLA D'ETHIOPIE. (Fr.) *Richardia æthiopica*.

CALLCEDRA-WOOD. The timber of *Pinus australis*.

CALLERYA. The name formerly given to a plant of the Leguminous family, but now found to be a species of *Milletia*, and perhaps the same as *M. nitida*, which is, like this, a native of NE. China. It is a small tree, with alternate unequally pinnate leaves, about a foot long, with two pairs of ovate leaflets from one to three inches in length; numerous flowers in terminal panicles; and two-valved pods one to three inches long, containing one to five seeds, covered externally with a velvety pubescence. [A. A. B.]

CALLIANDRA. A beautiful genus of Leguminous plants peculiar to America, found as far north as California, and extending southwards to Buenos Ayres. A few are herbs not more than a foot high, but the greater portion shrubs or small

trees, most frequently met with on river banks. The leaves of all are bipinnate, the leaflets varying much in size and number. In one section the leaves have one to four pairs of pinnae, with few but large leaflets (one to eight inches long), the ultimate ones always the largest; while in another there are many pairs of pinnae, the leaflets scarcely half an inch long, linear in form and almost numberless. The flowers are usually borne on stalked globose heads, but sometimes in terminal racemes; the corollas small and hidden by the very numerous long filaments of the stamens, which are almost always of a beautiful red colour. From this latter circumstance the genus is named *Calliandra*, signifying 'beautiful stamened.' It differs from all allied genera in the valves of its compressed pod rolling backwards in a remarkable manner from apex to base when the seeds are ripe. Many of the species are in cultivation in plant-stoves, and almost all of them produce bright red balls of flowers, which stand erect from amongst the ferny foliage of some of the species in great profusion. In *C. diademata* the stamens are beautifully curved backwards and pink in colour; the leaves twice pinnate with eight or nine pinnae which have each from thirty to forty leaflets, so that



Calliandra Tweedii.

each leaf is made up of no fewer than six or eight hundred leaflets. This is a native of Brazil, and in cultivation. *C. hama-tocephala*, a lately introduced species, has binate leaves, each portion or pinna with about ten pairs of leaflets half an inch long, and its round balls of flowers are of a rich red colour. The Peruvian women decorate their hair with the flowers of *C. atrovirens*, calling them *seda-seda* or *Silk-flower*. More than eighty species are enumerated, all of them more or less orna-

[A. A. B.]

CALLICARPA. A considerable genus of *Verbenaceae*, chiefly from the tropical and subtropical districts of Asia, but found also, though more sparingly, in similar districts in Africa and America. They are shrubs, more or less woolly with stellate hairs, nearly glabrous, and often with numerous resinous glandular dots, especially on the under surface of the leaves. The flowers are small in axillary cymes. The calyx is truncate or four-toothed; the corolla tube is short, and the limb has four nearly regular lobes. There are four exserted stamens, a four-celled ovary, with a single ovule in each cell; and the fruit is a small juicy berry or drupe, with four distinct seed-like nuts or kernels. [W. C.]

CALLICOMA. A genus of *Ononitaceae*, containing small trees or shrubs from South Australia, with opposite simple lanceolate leaves, white beneath, furnished with elliptical membranous caducous stipules. The peduncles are long, axillary, with a dense globular head of small yellow flowers, which are sessile on a woolly receptacle, and surrounded by a four-leaved reflexed involucre. Flowers with four or six membranous bracts forming an involucre; calyx-tube very short, scarcely adhering to the ovary at the base; the limb four or five parted, persistent; corolla absent; stamens eight or ten; ovary woolly, two-celled, many-ovuled, the styles two, diverging. [J. T. B.]

CALLIGLOSSA. *C. Douglasii* is a pretty little yellow-flowered Californian annual of the Composite family, with few strap-shaped leaves, toothed at the apex, about half an inch long and very narrow. The yellow flower-heads are single at the ends of the branchlets. Being a very free flowerer, it is often used as a bedding plant in flower gardens, and, like many of our best annuals, was introduced by Mr. Douglas. The genus does not differ from *Callichroa*, and the plant is therefore generally called *Callichroa Douglasii*. [A. A. B.]

CALLIGONUM. A genus of shrubs belonging to *Polygonaceae*, natives of the Eastern Mediterranean region, and Central Asia. They are leafless plants with dichotomous jointed branches, each joint with a small membranous sheath at the base. Flowers small, on short-jointed pedicels springing from the axils of the sheaths; perianth coloured red, five-parted, reflexed in fruit, the two outer segments larger. The fruit is a large four-cornered nut with the corners expanded into double longitudinal spinous wings, the sides between the wings being covered with long branched shaggy filaments. [J. T. B.]

CALLILEPIS. A small genus of *SB.* African plants belonging to the Composite family. They are herbs, about a foot high, branching from the base, or simple, with lanceolate entire or slightly serrated leaves, which are opposite on the lower part of the stem, and alternate above. The flower-heads single and terminal, nearly an inch

in diameter, with strap-shaped ray florets bearing a pistil only, and tubular disc florets bearing both stamens and pistil. The pappus is made up of three unequal scales. The flowers are yellow. [A. A. B.]

CALLIOPSIS. A genus of plants belonging to the Composite order, distinguished from their allies by the involucre or covering which surrounds the heads of the flowers being formed of two rows of scales, the outer short and spreading, the inner larger erect and united at the base. The receptacle or part supporting the flowers is flat, having on it narrow scales which fall early and are shorter than the flowers. The fruit is truncated, incurved, destitute of appendages. The name is from two Greek words which together signify 'beautiful eye, aspect, or appearance,' in allusion to the general elegance of the species or the eye-like spot on the flowers. The genus comprehends a number of interesting herbaceous plants, natives of North America, several of which were, and indeed still are, referred by some authorities to the genus *Coreopsis*. They are usually free from hairs, the leaves opposite, more or less divided; the flowers at the circumference of the heads yellow, with a dark purple or rose-coloured spot at the base, those in the centre yellow or purple. The elegance of the flowers, so marked in these plants, renders them desirable in flower-beds. The more hardy species, whether annual or perennial, are generally of easy cultivation. *C. rosea* has been long known, and may be specially alluded to as an example of the genus; having the stem smooth, leaves opposite, long and narrow, the heads of flowers small on short stalks. [G. D.]

CALLIPELTIS. An annual erect much-branched slender herb belonging to the order *Rubiaceae*. The flowers grow in whorls of six, and are whitish four-parted and bell-shaped. The fruit, which is one-seeded by abortion, is partially enveloped by a large hollow membranous bract. The leaves and leaf-like stipules form whorls of four. *C. cucullaria*, the only species, a native of the Levant, is an unimportant plant growing from six to twelve inches high. [C. A. J.]

CALLIPHYSA: A genus of *Polygonaceae*, differing from *Calligonum* only by having the nut not winged at the angles but rounded, and covered with bristles, and expanded at the apex into a bladder-like envelope to the nut. [J. T. S.]

CALLIPYRRA. A genus of *Ullaceae* plants, found in California, and consisting of dwarf halibous herbs with small radical linear-ensiform leaves, and bearing the flowers in umbels at the top of a scape. The perianth is bell-shaped, six-parted, with equal-spreading segments; it is furnished with six stamens, all perfect, with petaloid bilobed filaments, the alternate ones shorter, and the anthers sessile between the lobes; and it has a stalked three-

celled ovary containing many ovules, and surmounted by a three-lobed stigma. *C. lutea*, the only species, is a dwarf plant, producing umbels of yellow star-shaped flowers resembling those of an *Ornithogalum*. [T. M.]

CALLIPSYCHE. A genus of *Amaryllidaceae*, founded on a Mexican species allied to *Eucrosia*, and named *C. encrostoides*. The plant has roundish bulb, furnished with a few green tessellated and pitted leaves, a foot long and four inches wide, and produces at a different season, before the leaves are developed, a glaucous scape upwards of two feet high, bearing an umbel of declinate flowers, which are stalked. The perianth consists of a short green tube, full of honey, and an erect regular limb nearly an inch long of bright red segments, the apical of which are boat-shaped, and the petaline obtuse. The six stamens are pale green, and with the style are about four times as long as the perianth. The filaments are free, inserted in the mouth of the tube, and are tuberculate at the base. In our gardens the leaves die away in the autumn, and the flower-scapes appear in spring before they are again developed. [T. M.]

CALLIPTERIS. A genus of polypodiaceous Ferns of the group *Aspleniceae*. They belong to the diplazoid series, having the sori more or less abundantly and constantly placed in pairs back to back on the same vein; and are specially distinguished in the typical group by having the veins joined together in a connivent manner, that is, the main veins that spring out from the midrib are parallel, and the venules which branch out from them set off at an angle and meet the opposite ones in the centre, and so form a series of acute angles one above the other. In one group the junction of the veins is less regular and frequent. The species, ten or twelve in number, are almost all found in the eastern tropics, but one or two occur in the W. Indies and S. America. They are generally large growing plants with coarse pinnated or twice or thrice-pinnated fronds, the rachis sometimes proliferous. [T. M.]

CALLIRHÖE. A genus of beautiful North American Mallow-worts, comprising several perennial herbaceous species, sometimes known by the name of *Nuttallia*, which, however, belongs to a genus of *Rosaceae*. They are very nearly allied to *Malva* itself, from which they differ in certain slight technical peculiarities of the fruit; and also in some of the species, by wanting the involucre or whorl of bracts which is found exterior to the calyx in many of the genera of this order. The involucre, when present, consists of from one to three bracts, which are sometimes remote from the flowers. The calyx is five-cleft; the corolla five-petaled, the petals truncate wedge-shaped, and often erose-toothed at the tip. The filaments of the stamens are united into a columnar tube which bears a tuft of many stamens

at the end. The carpels are numerous, united by a short beak, and are one-seeded. About half-a-dozen species are recorded, and some of them are known in cultivation. *C. digitata*, which is one of the original typical species, has no involucre beneath the flowers. It is an herbaceous perennial, with palmately five-parted root-leaves, having lobed or toothed segments, and a smooth slender branching stem two to two and a half feet high, producing a few leaves towards the base, but leafless above, and producing the flowers in corymbosely racemose heads. The flowers are five-petaled, a couple of inches across, the petals imbricately toothed at the truncate apex, and bearded at the base, of a rich dark crimson-purple, and very handsome. This plant is sometimes called *Nuttallia grandiflora*. *C. Papaver*, another species of the genus, a good deal resembles *digitata*, but this is furnished with a three-lobed involucre. It has five-lobed leaves with lobate segments and large solitary long-stalked flowers from the upper axils, these being of a rich bright rosy-lake colour, and very showy. The name *Callirhoe* has also been given by Link, to a group synonymous with *Amaryllis*. [T. M.]

CALLISIA. A genus of the order of Spiderworts, distinguished by three stamens having their filaments or supports bearded, and in the form of a flat circular surface at the top; the style or appendage on the top of the fruit thread-like and ending in three points. The name is derived from the Greek, and indicates the beautiful or handsome aspect of the species, which are natives of the warmer parts of America, having stems trailing at the base, the leaves sheathing the stem, their general outline lance-shaped, often with hard projections at the margin. *C. repens*, a native of the West Indies, is one long known in cultivation; its graceful habit, and brilliant leaves with purple edges are sufficient recommendations. [G. D.]

CALLISTACHYS. A genus of pretty Australian plants belonging to the Leguminous family, and having alternate stalked entire smooth or silky leaves, and long racemes of yellow or purple flowers. The stalked pods are divided when young into as many partitions as there are seeds, but these divisions are obliterated as the pod ripens. The generic name is derived from the Greek, and signifies 'beautiful spike.' A number of the species are in cultivation in greenhouses. *C. lanceolata* has racemes of golden yellow flowers, nearly as large as those of the broom, and the stems and leaves are covered with beautiful silky hairs. *C. linearis* has dull purple flowers, while *C. longifolia* has racemes of yellow flowers with a purple keel. The species with one exception, *C. sparsa*, which is found in N.S. Wales, are all natives of the Swan River colony. [A. A. B.]

CALLISTEMON. A name indicative of the beauty of the stamens in the genus of *Myrtaceæ* to which it is given. The calyx

tube is hemispherical, while the limb is divided into five obtuse lobes; petals five; stamens numerous, of considerable length, and not united together; style thread-like; capsule with three many-seeded compartments, included within the hardened tube of the calyx. These handsome flowering trees or shrubs are natives of Australia. *C. salignum* has much the appearance of the common weeping willow. The young foliage of some of the kinds is of a pink colour, so that the trees when putting forth their leaves appear from a distance to be in blossom. The outer bark of some of the kinds, according to Dr. Bennett, peels off in layers, hence the trees are called Paper Bark trees. Many of the kinds are grown in this country for their handsome flowers. [M. T. M.]

CALLISTEPHUS. The generic name of plants belonging to the Composite order, the distinguishing characters of which are the following: the involucre or part surrounding the heads of flowers consists of three or four series of spreading scales fringed at the edge; the receptacle or surface which supports the flowers is somewhat convex and slightly pitted; the fruit compressed, thickest above, its pappus or crown in two rows, the outer of partially united bristles, the inner of longer rough hairs. The name is derived from two Greek words, which together signify 'beautiful crown,' in allusion to the appendages on the ripe fruit. The genus was originally founded on the characters of a plant long known as *Aster stenosia*. The species are annuals, chiefly natives of China; they have erect branched stems, with stalkless alternate and toothed leaves, the branches with single heads of flowers. The one already alluded to as *Aster stenosia*, and a very general favourite with cultivators, has the individual florets either strap-shaped or tubular, and presenting various tints of rose, violet and white; it is the 'Reine Marguerite' of gardeners. It has these recommendations: it is hardy, of easy cultivation, and flowers freely for weeks in succession; it is therefore a desirable plant in flower-beds. [G. D.]

CALLISTHENE. A genus of the *Vochistia* family, found in Brazil, and composed of a few somewhat resinous opposite-leaved trees, which differ from the others in the family in the following combined characters: the five-parted unequal calyx, the upper and larger segment of which is prolonged behind into a spur; the single inversely heart-shaped and stalked petal; and the solitary stamen whose anther is four-celled. The leaves are either smooth or downy, and have entire margins; in one species they are oval and about two inches long, while in another they are linear and scarcely half an inch in length. The yellow flowers (about the size of those of a pea) are either single or numerous in the axils of the leaves, and, like all the others of the family, are remarkable for the unsymmetrical arrangement of their parts. We have first an irregularly five-parted

calyx, one of whose divisions is prolonged into a spur somewhat like that in a bed-stem flower; then comes a single yellow striped petal, instead of five, as would generally be the case; next a solitary stamen; and lastly a three-celled ovary, which, when mature, becomes a woody capsule about the size of a hazel-nut, containing a number of seeds, and splitting into three portions. [A. A. B.]

CALLITHAMNION. A beautiful genus belonging to the division *Ceramiceae* of the rose-spored *Algae*, to which it bears nearly the same relation as *Cladophora* does to the chlorosperms. The frond is generally more or less branched, and often most beautifully pinnate, consisting of jointed threads, the stem alone being occasionally slightly compound from decurrent branchlets, as in *Batrachospermum*. The tetraspores and capsules often occur on different plants, the latter containing irregularly distributed spores. Antheridia again are mostly produced on distinct plants. The species are extremely numerous and occur in most parts of the world on other algae, and on almost any object which is washed by the waves. One or two species are found on rocks only occasionally immersed. From their beautiful ramification these plants are the delight of wanderers on the sea-shore, and afford great gratification to those who possess only imperfect microscopes. [M. J. B.]

CALLITHAUMA. A genus of Peruvian *Amaryllidaceae* related to *Pancratium*, and remarkable for the large size of the staminal cup or coronet of its perianth, which is equal to that of the limb. *C. viridiflorum* has large oblong-cylindrical bulbs, long flat ensiform suberect leaves, and a flower scape, which is said sometimes to reach six feet in height in its native country, supporting four or five emerald green flowers, which have a horizontal slender tube two inches long, acuminate spreading limb segments; and a large cup or coronet. Mr. Mathews found this with scapes three feet high growing in dryish exposed situations. The other species, *C. angustifolium*, is similar in character, but rather smaller. [T. M.]

CALLITRICHE, CALLITRICHACEÆ. A small aquatic plant with simple entire opposite leaves and minute unisexual axillary flowers, so reduced in structure as to afford little indication of its real affinities, and to have induced botanists to propose it as a distinct family, under the plural name of *Callitrichaceæ*. The male flowers consist of a single stamen, between two small bracts; the females have a six-lobed four-celled ovary and fruit, crowned by two styles without any perianth, each cell enclosing one pendulous ovule and seed. The genus has been most frequently associated with other minute-flowered aquatic plants, under *Haloragaceæ*, but, more recently, it has been proposed, upon more plausible grounds, to

consider it as a much-reduced aquatic form of *Caryophyllaceæ* or *Elatinaceæ*.

C. aquatica is common in our ponds and still waters, often floating over them in large masses, and it is found in most parts of the world. It varies much in its leaves, either all narrow and submerged, or more frequently the upper floating ones, oblong or obovate, in the size and form of the fruits, the erect or recurved styles, &c.; and it has been, therefore, variously divided into from two to twenty supposed species, which are now more generally admitted to be varieties of a single one.

This apetalous genus, which is so singular in its structure, consists of small herbaceous plants, natives of Europe and North America, growing in ponds and streamlets, usually immersed, but becoming more luxuriant in habit and producing much more seed when growing out of the water. The most common form in the British Islands is that called *C. verna*. The axillary flowers are usually unisexual, the males and females growing on the same plants; but not unfrequently they become hermaphrodite, apparently from the male flowers producing ovaries. The male flower consists of but one stamen without a calyx, its only envelope being two lateral bracts, which are in some species wanting; and the anther is two-celled, or more commonly one-celled, from the two cells having become confluent. The female consists of a four-celled ovary having but two stigmas, and is elevated on a short stalk, and enveloped by two lateral bracts as in the male. The cells contain one ovule each, suspended from the side, and the seed is albuminous. Mr. Babington states that at its first formation the ovary is only two-celled, and that the four-celled condition is produced by the midrib of each carpel extending inwardly between the two ovules to the centre of the ovary to which it becomes adherent. Very numerous flat stems have been observed on the young stems by Dr. Lankester and others (*Linn. Proc.* ii. 94). These give a glistening appearance to the plant when growing out of the water, something like that of the *Tetragoniaceæ*, which is also owing to the presence of minute glands. [B. C.]

CALLITRIS. A genus of Conifers allied to *Thuja*, but differing from it in having the cones with four to six woody scales, which separate one from the other like the valves of a capsule; and three to six winged seeds to each scale. *C. quadrivalvis* is a large tree with straggling jointed furrowed branches, having rings of small scales at the joints. It is a native of Barbary, but is cultivated in this country in sheltered situations. The resin of this tree is used in varnish-making under the name of gum sandarach; while powdered it forms Pounce, used for preparing paper and parchment for writing upon. The timber also, according to Dr. Lindley, is durable, very hard, fragrant, and of a mahogany colour, for which reason it is largely used in the construction of

mosques and similar buildings in the N. of Africa. [M. T. M.]

CALLIKENE. A genus of *Liliaceae*, containing branched under-shrubs from extra-tropical South America, with the base knotted, scaly, and leafless, the upper part with alternate half-clasping elliptical leathery leaves with thickened margins, and terminal or axillary flowers on short peduncles. The perianth is six-parted, coloured red, the three inner segments with two glands at the base; stamens six; style thick; berry small, three-celled, with two or three seeds in each cell. [J. T. S.]

CALLOGRAMMA. A name given by Professor Fée to *Syngramma allaniasfolia*.

CALLOSO-SERRATE. When serratures are callosities.

CALLUNA. The true 'Heather' of Scotland, called also Ling and Common Heath. A low much-branched tufted shrub, distinguished from *Erica* by having a calyx of four coloured leaves concealing a bell-shaped corolla, and accompanied by four bracts resembling an outer calyx, the true heaths having a calyx of four green leaves. *Calluna* derives its name from the Greek *calluno*, to 'cleanse or adorn,' an appropriate name, whether taken in reference to the use to which heather-brooms are applied, or to the exquisite beauty of its flowers. By this plant much of the moorland scenery of Great Britain is redeemed from utter sterility; for being indifferent to soil and capable of enduring a low temperature and the most parching winds, it everywhere finds itself a home, and when it has attained a moderate size hospitably affords shelter to other plants somewhat less hardy than itself. To red and black grouse it affords not only shelter but food, since both these birds are in the habit of concealing themselves among its branches and of feeding on its tender shoots; and it is no less serviceable to the mountain hare (*Lepus variabilis*). The moorland sportsman is therefore indebted to this plant for no small portion of his amusement. It is also much employed as fuel, for thatching houses, weaving into fences, covering underground drains; and a thick layer forms a by no means despicable bed. The flowers abound in honey, and are much frequented by bees. In various parts of Scotland and the north of England, bee-hives are carried, in the beginning of August, from the cultivated to the heathy districts, for the sake of the flowers, where they are allowed to remain two or three months, and are brought back in the autumn. Heather is a plant of slow growth, but very durable on this account; and because it is patient of any amount of clipping it is not unfrequently used as an edging in gardens instead of box. In the common form of the plant the flowers are purplish red, but varieties are cultivated in which this colour is replaced by crimson or white. Another variety with double flowers is well worthy of cultivation. The tint of the foliage

varies considerably, being pale green, purplish, or hoary with down. In all the varieties the flowers retain their form and position long after they have ceased to perform their functions. Ling is found throughout Europe, in the Azores, Greenland, Newfoundland, and rarely in the N. United States. It is the badge of the clan M'Donnell. French, *Bruyère commune*; German, *Heide*. [C. A. J.]

CALLUS (adj. **CALLOSE**). A hardened part; anything which has acquired unusual hardness and toughness; also used in the sense of verruca; also the hymenium of certain fungi.

CALOCEPHALUS. An Australian genus of *Compositae*, consisting of nine species of annual or perennial herbs, or rarely under-shrubs or small shrubs, more or less cottony or woolly, white or rarely glabrous. They have alternate, or in two species opposite, entire mostly linear leaves, and terminal clusters of sessile or pedunculate flower-heads, usually yellow, but white in *C. lacteus*. The achenes are usually compressed, and surmounted by a pappus of several narrow linear scales or bristles, which are sometimes united into a ring at the base. [J. Br.]

CALOCHILUS *compactus* is a slender leafy-stemmed Australian Orchid with testiculate roots and nearly closed greenish flowers, the tip of which is deeply clothed with long delicate hairs. *C. karbuccus*, supposed to be a second species, is regarded by Hooker as a mere form of the other.

CALOCHORTUS. A genus of beautiful bulbous plants belonging to the *Liliaceae*, and closely allied to *Cyclobothra*, from which it differs in being destitute of a honey-pit on the segments of the perianth, and in having flat smooth instead of roundish angular seeds. They have tunicated bulbs, and produce rigid ensiform leaves, and an erect scape supporting a few large showy flowers which are racemously arranged and remain open for several



days. The perianth is deciduous, six-leaved, the three outer or calycine divisions linear and beardless, the three inner petals, very much larger and broader

than the outer, and bearded on the inside; the flowers, therefore, appear to consist of three large spreading petals, and three narrow sepals. There are six stamens adherent to the base of the perianth, and a three-celled ovary crowned by three subsessile stigmas. The few known species, which are found in Mexico, California, and N.W. America, are all plants of gorgeous beauty, but found to be exceedingly difficult of cultivation. *C. venustus* is one of the handsomest: it grows about two feet high, and produces large flowers, upwards of three inches across, with narrow green sepals, and broad roundish wedge-shaped petals which form a cup, and are white above, yellowish towards the base, each of them marked with a wedge-shaped deep crimson stain, terminating in a yellow spot, and above this, in the same line, with a deep red spot bordered with yellow, and a spot of lighter red. *C. macrocarpus* is another very fine species, growing nearly two feet high; this has three narrowish sepals very much longer than the petals, which are broad cucurbitate-obovate, forming a cup, and of a rich rose-purple, paler towards the base, and beautifully bearded with yellow hairs. [T. M.]

CALODENDRON. A genus of *Rutaceæ*, so named from the beauty of the flowers and foliage. The flowers are regular, consisting of a five-parted calyx, five narrow spreading petals, hairy on the outside, five fertile stamens, alternating with and shorter than five petal-like sterile ones, which are tipped with a gland and placed on the outside of a shallow tubular disc; style long; fruit a stalked capsule with five angles, and five two-seeded cavities opening by as many valves. *C. cupense* is a very ornamental tree, native of the Cape of Good Hope. [M. T. M.]

CALODRACON. A genus of *Liliaceæ* plants, which includes several species formerly referred to *Dracæna* and *Cordylina*. The species are natives of the Malayan and Australasian Islands and of China and Japan, and are handsome shrubs with slender cylindrical stems, crowded with leaves at top, the leaves lanceolate oblong, smooth, often beautifully coloured, and having channelled stalks. The flowers grow in large terminal panicles, and are white or rosey violet. The perianth is deciduous, tubulose-campanulate, six-cleft, with the segments somewhat unequal and imbricating; stamens six, with subulate filaments; style subulate with a trifid stigma. This genus, of which *Dracæna ferren* is the type, agrees with *Cordylina* in having a tubular-campanulate perianth, and with *Dracænopis* in having numerous ovules in each cell of the ovary. *C. Jacquini*, the *D. ferren* above referred to, is well known under the latter name, and that of *D. terminalis*, in the hothouses of this country, where it is prized for its highly-coloured red leaves, which render it gay at all seasons. *C. nobilis* is another species with the leaves richly variegated

with red; and in *C. Sieboldii* they are deep green with paler blotches. The flowers being small, it is for their foliage and erect palm-like habit alone, that these plants are prized by cultivators. The same name has been given to a section of the genus *Dracocephalum*. [T. M.]

CALODRYUM. A genus of *Melincæ* inhabiting the islands of Madagascar, Mauritius, and Bourbon. The calyx is five-cleft; the petals five, more or less adherent; anthers projecting from the tube formed by the united filaments of the stamens; style thread-shaped; ovary five-celled with pendulous ovules. [M. T. M.]

CALOGYNE. A name expressive of the peculiarity and beauty of the stigma in the genus of *Goodeniaceæ*, to which it is applied. The genus consists of herbaceous plants with irregular flowers, and a style with three branches, each branch terminated by a kind of cup. The fruit is a two-celled capsule with several seeds. The plants are natives of the coast of tropical Australia, and one has lately been discovered in the neighbourhood of Amoy, in China. The flowers of this latter species are said by Benthams to have an odour like that of hay. [M. T. M.]

CALONYCTION. A genus of *Convolvulaceæ*, containing fifteen species, natives of the intertropical regions of Asia and America. They are twining herbaceous plants with alternate cordate leaves and very large showy flowers on axillary ones to three-flowered peduncles. The calyx consists of five sepals; the corolla is funnel-shaped with a long tube, and large spreading limb. There are five exserted stamens, with filaments dilated at the base. The ovary is two-celled with two ovules in each cell; sometimes the rudiment of a secondary dissepiment makes it incompletely four-celled. The four-valved capsule contains four seeds. [W. C.]

CALOOSE. The Sumatran name for *Urtica tenacissima* and *Bolneria nitrea*, or their fibre.

CALOPAPPUS. The name applied to a Chilian genus of plants found on the Cordillera, and belonging to that section of the Composite family with two-tipped corollas. They are low heath-like bushes with needle-shaped leaves set thickly on the stems, and single terminal flower-heads which are stalked or sessile, containing five florets, each having a pappus of about fifteen long needle-pointed awns. Two species are known. [A. A. B.]

CALOPHACA. A deciduous shrub allied to *Cytisus*, from which it may be distinguished by its not having all the stamens united into a tube, and by its pinnate leaves. It is a native of desert places near the rivers Don and Volga (hence its specific name *volgarica*). Being hardy and very pretty it is a desirable plant to have in gardens and shrubberies; but is less known than it ought to be in consequence of its being difficult of pro-

pagation except by grafting or from seed. The flowers are yellow, in clusters in the axils of the leaves, and are succeeded by reddish pods. [C. A. J.]

CALOPHANES. A genus of *Acanthaceae*, containing nearly thirty species of herbs or under-shrubs, natives of America. They are mint-like plants, more or less pubescent, and nearly related in structure to *Dipteracanthus*. They have axillary opposite generally cymose flowers, with a blue corolla and spotted throat; the calyx is deeply five-cleft with setaceous divisions; the corolla is infundibuliform with a five-cleft limb; the filaments are united in pairs at the base, and have anthers with two parallel cells spurred at the base or rarely muticous. The capsule is lanceolate, with four seeds in the middle. [W. C.]

CALOPHYLLUM. This genus of *Guttiferae* (*Clusiaceae*) contains about twenty-five species, the majority of which are natives of the Eastern hemisphere, only four or five being found in America. They are large trees with shining leaves marked by numerous parallel transverse veins, and having racemes of flowers, some of which are of only one sex. Their calyx consists of two or four sepals; their corolla of four petals; the stamens are indefinite in number, their anthers bursting on the inner side; and the ovary is one-celled, the style being crowned with a shield-like lobed stigma. The fruit contains one seed. *C. Calaba*, a native of the West Indies and Brazil, is a tree about sixty feet high, having long elliptical oblong leaves, sometimes notched at the top. It has short racemes of white sweet-scented flowers, producing round green fruits about an inch in diameter, and containing a single seed. This tree is called Calaba in the West Indies, and an oil, fit for burning in lamps, is expressed from its seeds. *C. inophyllum*, an East Indian and Malayan tree, with a trunk about ten or twelve feet in diameter, and from eighty to 100 feet high, has the leaves elliptical and usually notched at the top, and it has white flowers resembling those of the last. The seeds of this tree yield a thick dark green strong-scented oil, employed in India for burning and also medicinally. Its timber is used for building purposes, and for masts and spars; and a greenish coloured resin which exudes from the trunk forms one of the kinds of East Indian Tacamahac. Other species likewise yield resin, such as *C. Tucamahaca* in Bourbon and Madagascar; and *C. brasiliense* in Brazil. The fruits of *C. edule* and *C. Madagasco* are eaten in South America; as also are those of *C. spurium* in Malabar. In Ceylon the timber of *C. tomentosum* is valued for building purposes, and an oil is expressed from its seeds. [A. S.]

CALOPHYSA. A genus of *Melastomaceae* containing a Brazilian shrub with opposite petiolate cordate acute seven-nerved toothed leaves, and short axillary crowded

cymes of flowers; calyx-tube adhering to base of ovary; limb with four short lobes; petals four, obovate; stamens eight, without any appendage to the anthers; berry four-celled, with many seeds; whole plant more or less hispid. [J. T. S.]

CALOPOGON. A small genus of tuberous Orchids, inhabiting wet prairies or the edge of pine woods in all parts of the United States. They have grassy radical leaves and naked scapes bearing a small number of purple flowers at the summit. Four species are described: *C. pulchellus*, *multiflorus*, *parviflorus*, and *palidus*. The generic name has been given in allusion to a handsome beard or tuft of hairs growing from the lip.

CALOPSIS. A genus of *Rubiaceae* from the Cape of Good Hope. Sedge-like herbs with deciduous glumiferous flowers in spikelets, arranged in spikes or panicles; stems branched, with split leafless sheaths. It is distinguished from *Redtia* by having three stigmas and an indurated nut covered with a tough membrane. [J. T. S.]

CALOSACME. *Chirita*. [W. C.]

CALOSANTHUS. A genus of *Dignoniaceae*, consisting of a single species, a native of India. It is a very tall slender smooth tree with large opposite bipinnate leaves, the leaflets shortly petiolate subcordate ovate and acuminate. The racemes are terminal and erect; the flowers large, whitish within, exteriorly streaked with red, and having a fetid smell. The calyx is coriaceous, tubular and truncate; the corolla tube is short and campanulate; its limb sub-bilabiate, the upper lip with two, and the under with three lobes. The five fertile scarcely exerted stamens have the anthers pendulous from the apices of the filaments. The stigma consists of two roundish lobes. The pod-shaped capsule is very long, compressed and two-valved, containing numerous seeds which are surrounded with a large membranaceous wing. The wood is soft, spongy, and of no economic value. [W. C.]

CALOGORDUM. A genus of small-growing Lilyworts, found in China. They are allied to *Allium*, from which they are distinguished by a few technical characteristics. *C. neritiformum* has small bulbs and linear leaves which are thick and rounded behind, and the flowers, which are small starry and rose-coloured, form an umbel at the top of a scape. One or two other species are known. The plants have none of the onion-like odour which pervades the *Allium* family. [T. M.]

CALOSERIS. The name given to a plant of the Composite family which is found in Venezuela. It has much the habit and appearance of some of the coltsfoots, but belongs to a different section of the family, namely, that with two-lipped corollas. It has been described twice, under different names, and *Caloseris* being the last published, must give place to the first, *Isotrypa*. [A. A. S.]

CALOSTREMA. A genus of *Amoryllidaceae* consisting of bulbous herbs with linear-lanceolate leaves, and bearing at the top of the scape a many-flowered umbel of pedunculate flowers. These flowers consist of a cylindrical tube, a funnel-shaped limb, and a coronet or crown uniting the stamens into a cup, which is sometimes split. The filaments are short and erect; the stigma small and simple; and the ovary usually two-seeded. There are four or five recorded species, all natives of New Holland. *C. purpureum*, with purple flowers, has twelve triangular teeth placed between the filaments on the edge of the staminal cup. *C. luteum* has narrower leaves, and yellow green-ribbed flowers, with six purple spots at the base of the cup, which is toothed as in the former. *C. album* has white flowers and linear teeth to the cup; and *C. carneum* has pretty pale rose flowers, and is without the teeth to the staminal cup, the spaces between the filaments being either emarginate or merely rounded. *C. candidum* is said to be fragrant, and *C. luteum* to have a strong smell of mint. [T. M.]

CALOSTIGMA. A genus of *Asclepiadaceae*, containing three species of climbing shrubs, natives of Brazil. They have opposite elliptical or oblong leaves, and lateral interpetiolar peduncles with many flowers. The calyx is five-parted; the corolla bell-shaped with a five-cleft limb, the divisions being long, linear and spreading. The staminal corona is composed of five fleshy leaves, and adheres to the tube of the corolla, above which it projects. The gynostegium is short; the anthers terminate in a short membrane; and the elongated projecting stigma has a prominent dilated apex. The pollen masses are connected by a kneed and, in the upper portion, by a winged process to a linear corpuscle. [W. C.]

CALOTHAMNUS. One of the beautiful genera of *Myrtaceae*, in which Australia abounds. The calyx limb has four to five teeth; the petals are four to five; the stamens are arranged in four to five bundles opposite the petals, some sterile or more or less joined to the neighbouring parcel, the anthers attached by the base; the many-seeded capsule is enclosed within the base of the hardened hemispherical calyx tube. The plants are shrubs with scattered needle-shaped leaves. The name indicates that the branches become covered with the beautiful flowers. [M. T. M.]

CALOTIS. A genus of simple or branched small Australian herbs of the *Compositae* family. The leaves are alternate, varying much in form, but most generally oblong and toothed. The flower-heads are terminal and solitary; the strap-shaped ray-florets lilac, and rolled backwards spirally after expansion, the disc-florets tubular and yellow. The seed-crown (pappus) consists of two dilated ear-shaped scales, and a few long needle-shaped awns furnished with reflexed bristles. The genus is near

that of the daisy, but differs in the pappus. It receives its name from the two ear-shaped scales of the pappus. *C. cuneifolia* is a slender herb about a foot high with small flower-heads. The awns of the pappus being furnished with very minute reflexed points get entangled in the wool of the sheep, and it is almost impossible to rid them of it. There are about twenty species known. [A. A. B.]

CALOTROPIS. A genus of *Asclepiadeae*, consisting of three species, which form shrubs or small trees, and are natives of the tropics of Asia and Africa. Their flowers have a somewhat bell-shaped corolla, expanding into five divisions, the tube being composed of five angular swellings. The coronet of the stamens is composed of five narrow leaflets, which are united to the central column, but free and recurved at the base, with their edges rolled inwards. The fruits are produced in pairs resembling the horns of an animal, each being swollen or bulged out on the inside; they contain numerous seeds surmounted by tufts of beautiful silky hairs. *C. gigantea*, the largest of the genus, forms a branching shrub or small tree about fifteen feet high, with a short trunk four or five inches in diameter. Its leaves are about six inches long by two or three broad, and egg-shaped, covered on the under-surface with soft silky down, and they are arranged on the stem in pairs, each pair being at right angles with that above and below; its flowers are of a pretty rose-purple colour, and have the segments of the corolla bent downwards. This plant is called Mudar or Ak in Northern, and Yercum in Southern India. The inner bark of its young branches yields a valuable fibre, capable of bearing a greater strain than Russian hemp. All parts abound in a very acrid milky juice, which hardens into a substance resembling gutta percha; but in a fresh state it is a valuable remedy in cutaneous diseases. The bark of the root also possesses similar medical qualities; and its tincture yields *mudarine*, a substance possessing the property of gelatinizing upon the application of heat, and returning to its fluid state when cool. Attempts have been made to spin the silky down of the seeds, but its fibre is too short; a soft kind of cloth is, however, made by mixing it with cotton; paper has also been made from it. Another species, *C. procera*, a native of India, Arabia, Persia, and various parts of Africa, possesses similar qualities. It is a much smaller plant, and has white flowers with straight segments. [A. B.]

CALPANDRIA. *Camellia*. [B. B.]

CALTEA. A genus of herbaceous plants belonging to the *Ranunculaceae*, distinguished from *Ranunculus* by the absence of a green calyx, and from *Heliborus* by the absence of tubular petals (nectaries). *C. palustris*, the Marsh Marigold, is a stout herbaceous plant with hollow stems, large glossy roundish

notched leaves, heart-shaped at the base, and conspicuous bright yellow flowers, each of which is composed of five roundish petals or sepals. It flowers freely from May to August, and is a native almost throughout the whole of Europe, as well as of Western Asia and North America, in marshy meadows and about the margins of ponds, rivers, and brooks. One of its rustic names is May-Blobs. The flowers, if gathered before they expand, are said to be a good substitute for capers. The juice of the petals boiled with alum stains paper yellow. A double-flowered variety is commonly cultivated in gardens, and the wild plant is liable to several variations, dependent on soil and situation. Several foreign species are enumerated by botanists, all of which are natives of marshes or shallow water, and more or less approach *C. palustris* in habit. The *Calthea* of the Latin poets is considered to be the common garden marigold. French, *Populeja*; German, *Bumpf-dotter-blume*. [C. A. J.]

CALTROPS. The common name for *Tribulus*. —, **WATER.** That of *Trapa*.

CALUMBA, CALOMBA, or COLOMBO. The root of *Cocculus palmatus*, now called *Jatropha palmata*. —, **FALSE or AMERICAN.** The root of *Fraxina Walleri*.

CALVOUS. Quite naked: bald; having no hairs, or other such processes.

CALYBIO, CALYBIUM. A hard one-celled inferior dry fruit, seated in a cupule; as an acorn, or a hazel-nut.

CALYCANTHACEÆ (Calycantha). The Carolina Allspice family, a natural order of Calycifloral Dicotyledons belonging to Lindley's Rosal alliance. Shrubs with square stems having four woody axes surrounding the central one, opposite entire leaves without stipules, and solitary lurid flowers. Calyx of numerous coloured sepals compounded with the petals, and all united below with a fleshy tube bearing numerous stamens on its rim; outer stamens opening outwardly, inner ones barren. Ovaries several, one-celled, adherent to the calycine tube; ovules one to two. Fruit consisting of achenes inclosed by the calyx; seeds without albumen. Natives of North America and Japan. Their flowers have an aromatic fragrance, and their bark is sometimes used as a carminative against flatulence. The bark of *Calycanthus floridus*, Carolina Allspice, is used as a substitute for cinnamon. There are two known genera, viz., *Calycanthus* of America, and *Chimonanthus* of Japan, comprising six species. [J. H. B.]

CALYCANTHUS. A genus giving its name to the family *Calycanthaceæ*, and composed of N. American shrubs with opposite oval or ovate-lanceolate entire leaves, generally rough on the surface; axillary or terminal solitary stalked flowers made up of a great number of lurid purple-coloured narrow sepals and petals; and very numerous stamens, inserted on the

mouth of the calyx-tube, which bears on its inner hollow surface numerous achenes, each with one or two seeds. *C. floridus* is a native of many parts of the United States, where it is called Carolina Allspice, or Sweet-scented shrub. Its wood and roots have a camphorlike smell, and the aromatic bark is said to render it useful as a substitute for cinnamon in the United States. The flowers and leaves have a scent resembling that of the quince. This species and the following are often to be met with in English gardens. Some of its varieties are scentless, and it varies much in the form and pubescence of the leaves as well as in the colour of the flowers. These varieties have by some authors been considered as species. *C. occidentalis*, the only other species, is a native of California. It differs chiefly from the Carolina Allspice in its long flower-stalks, and the cordate base of the leaves. Its flowers are more than three inches across when fully expanded. [A. A. B.]

CALYCERACEÆ (Boopidea). The *Calycece* family, a natural order of gamopetalous Calycifloral Dicotyledons included in Lindley's Campanal alliance. Herbs with alternate leaves without stipules, and with flowers collected in heads. Calyx superior, of five unequal divisions; corolla regular, funnel-shaped, with a five-divided limb; stamens five, their filaments united, as well as the lower part of the anthers. Ovary one-celled; style smooth; stigma capitate. Fruit an achene, usually crowned by the rigid spiny segments of the calyx. The order occupies an intermediate place between *Compositæ* and *Dipsacaceæ*, differing from the former in their seed, which is pendulous and albuminous as in *Dipsacaceæ*, and from the latter in their anthers being united around the style as in composites. There are about twenty species, distributed into six or eight genera. They are natives of South America, found chiefly on the Andes of Chili; two species extend to the Cordillera of Peru; three are found near the straits of Magalhães; seven in the eastern part of S. America, near the Rio Plata; and one from Rio Janeiro, as far as Bahia. The plants do not possess any marked qualities. Illustrative genera: *Boopis*, *Calycece*, *Acicarpa*. [J. H. B.]

CALYCEA. This genus gives the name to the family to which it belongs. It is confined to South America, and the species are mostly found on the Cordillera of Chili. They are small annual or perennial herbs, four to eight inches high; the leaves alternate oblong toothed or pinnatifid, and generally smooth; the flower-heads single terminal and shortly stalked. The genus differs from the others in the family by the presence of two sorts of flowers in the same head, the one set with the calycine teeth flattened and produced into spinous points after flowering, the other not so. The achenes are free and seated on a broad depressed receptacle. The few species are only interesting to the botanist. [A. A. B.]

CALYCFLOREÆ. A sub-class of Exogenous or Dicotyledonous plants characterised by having both calyx and corolla, petals usually separate, and stamens attached to the calyx. [J. H. B.]

CALYCINAL. Of or belonging to the calyx.

CALYCINE. Of or belonging to a calyx; also a calyx of unusual size; or having the texture of a calyx.

CALYCOIDEOUS. Resembling a calyx.

CALYCOMIS. A genus of *Cunoniaceæ*, described by Don, and eight years afterwards renamed by Benthams, *Acrophyllum*. The latter name has been generally adopted, but contrary to the received laws of botanical nomenclature. [J. T. S.]

CALYCOPHYLLUM. A genus of *Cinchonaceæ*, remarkable for one of the five segments of the calyx being much larger than the rest and petal-like, a peculiarity observable also in an allied genus, *Mussonia*. The corolla is bell-shaped, the stamens inserted into its throat; the stigmas are two, reflexed; the fruit is an oblong capsule, opening at the top to allow of the escape of the numerous slightly-winged seeds. The plants are natives of the West Indies and Brazil. [M. T. M.]

CALYCOSERIS. The generic name of a little annual herb of the Composite family, found by Mr. Wright in New Mexico, and named after its discoverer *C. Wrightii*. The plant has pinnatifid leaves with linear segments, and yellow flower-heads; and altogether it bears much resemblance to *Oreopis viridis*, a plant which is very often met with in dry pasture lands throughout Britain. The achenes being furnished with a double pappus, the outer small and cup-shaped, the inner of long soft white hairs, and the receptacle being furnished with numerous capillary bristles, are the most marked characters of the genus. [A. A. B.]

CALYCOTOME. A genus of the Leguminous family, distinguished from that of the broom by the teeth of the calyx falling away early and leaving a notched membranous tube. The species are all thorny shrubs. *C. spinosa* is a stiff spiny bush with trifoliate leaves and numerous yellow flowers, in size like those of the laburnum, but single in the axils of the leaves. It is a native of Southern Europe and North Africa, as are all the species, and is well adapted for growing in shrubberies. It is in cultivation in England. The pods of *C. lanigera* are covered with long rusty hairs. All the parts of *C. intermedia*, an Algerian species, are covered with white silvery hairs. [A. A. B.]

CALYCYLUS. A partial involucre, containing but one, or perhaps two flowers. Also the external bracts of a capitulum, when they form a distinct ring or ring.

CALYDORÆA. The name of an Iridaceous genus separated from *Sisyrinchium*,

and of which *S. spectosum* is taken as the type. This plant, now called *Calydorea speciosa*, is a beautiful bulbous herb with a few narrow linear leaves, and a slender subramose scape, five to six inches high, bearing deep blue purple flowers with a yellow centre, the segments of which are spreading, the three inner ones smaller than the outer. It is distinguished from *Sisyrinchium* by its unequal instead of regular perianth, the petaline divisions of which are reflexed and much smaller than the sepaline, its subulate free filaments, and its trifid spreading style, with emarginate-spathulate fimbriated stigmas. The species is a native of Chili. [T. M.]

CALYMELLA. *Glechénia*.

CALYMENIA, CALYXYMENIA. These names occasionally met with in gardens, refer to some inconspicuous plants now referred to *Oxybaphus*. [M. T. M.]

CALYMMODON. A small genus of polypodiaceous Ferns belonging to the *Gymnogrammeæ*. There are three or four species, found in Java and other eastern islands, and consisting of small plants with fasciculate thin pinnatifid fronds, growing from a short, erect stem, the fertile lobes folded longitudinally so as to partially cover the sori, which, though elongated, have a tendency to the polypodioid structure. The veins are simple and the sori oblong, seated at the tip of the simple vein which occupies each lobe. [T. M.]

CALYPSO borealis is the most beautiful of northern Orchids, being found all over the continents of Europe, America, and Asia in high latitudes, growing in woods, especially of firs, and appearing as soon as snow has melted. It is a tubercous terrestrial plant, with one leaf and one flower only. The leaf is thin, many-nerved, and either ovate or cordate. The rose-coloured flower appears at the end of a slender sheathed stem, and has something the appearance of a *Cypripedium*, owing to its forming a large pouch. The genus appears to be nearly related to *Calogyne* and especially to the section *Pleione*.

CALYPTRA (adj. CALYPTRATE). The hood of an urn-moss.

CALYPTRANTHES. This name of Lid-flower has been applied to a genus of *Myrtaceæ*, in allusion to a lid which the upper part of the calyx forms, and which falls off as the flower expands. These flowers have five very small petals, which are sometimes absent; stamens numerous, distinct; berry one-celled, one to four-seeded. They are American and West Indian shrubs, some of which are in cultivation. The flower-buds of *C. aromatica* might, according to Lindley, be used in the place of cloves. [M. T. M.]

CALYPTRIDUM. A genus of the Purslane order, chiefly distinguished from its allies by having the corolla composed of three pieces joined together so as to form a conical tube, three-toothed at the

top, and covering the seed-vessel like a hood; the name indicates this, being derived from two Greek words signifying 'hood-like.' The only known species is a low succulent plant, a native of California, with alternate leaves and small flowers of a pale rose colour. [G. D.]

CALYPTRIFORMIS. Like an extinguisher, as the calyx of *Eucalyptus*.

CALYPTROSTIGMA. This name is sometimes given to a plant of the Honey-suckle family, a N. Asian shrub with opposite leaves, between ovate and lanceolate in form, and having serrated margins. The flowers are yellow, six to eight in a cluster at the ends of the branches, and in size and form much like those of the fox-glove. The stigma is more or less lobed, and sits like a cap on the top of the style, whence the generic name. By many the genus is not considered different from the well-known *Weigela* or *Diervilla*; and the plant is now in cultivation under the name of *Diervilla Middendorffiana*. [A. A. B.]

CALYBACCION. *C. longifolium* is the only species of this genus of thutifers (*Clusiaceae*). It is a handsome large tree, found in abundance in South Western India, and also in China. Its leaves are opposite, and of a long narrow lance-like form, and thick leathery texture. Some of its flowers are perfect, while others are of distinct sexes, and sometimes borne on different trees. Their calyx, which is globular in the bud, bursts into two pieces; and their corolla consists of four, or rarely five, small concave petals of a yellowish tint streaked with red; the stamens are numerous, arranged in several rows, and either quite free or slightly connected at the base; while the two-celled fleshy ovary is terminated by a short style, and a broad very-fleshy flat-topped stigma. The fruit is unknown. This tree has several local Indian names, such as Surinee and Soorjee, and is interesting on account of the uses made of its flower-buds. These are known by the name of Nag-Kassar or Nagassar; but the same name is applied to the buds of a nearly allied plant, *Morus ferrea*, with which they have been confounded. They are on long stalks and about the size of peppercorns, of an orange-brown or cinnamon colour, and very fragrant, possessing an odour like that of violets or orris-root. In India they are greatly esteemed on account of their fragrance, and are commonly sold in the bazaar; they are also used for dyeing silk, yielding a yellow, or, with sub-carbonate of potash, a deep-orange colour. A quantity of them was imported into London some years ago, but they did not receive the attention they deserved. [A. S.]

CALYSTEGIA. A genus of *Convolvulaceae*, containing about twelve or fourteen species, widely diffused in extratropical regions all over the world. They are climbing or prostrate smooth herbs with milky juice. The leaves are alternate

without stipules, and the large and beautiful flowers are solitary, axillary and peduncled. The calyx of five sepals is enclosed in two leafy bracts. The corolla is bell-shaped, plaited and five-lobed. The ovary is semi-bilocular with four ovules, and bears a simple style and a stigma consisting of two obtuse lobes. The capsule has only a single cell. This is a very distinct genus, easily separated from *Convolvulus* and the allied genera, by the leafy bracts at the base of the calyx, and by the one-celled capsule. It includes the Common Bindweed, *C. septum*. [W. C.]

CALYTHRIX or **CALYOOTHRIX.** A genus of *Chamaelauziaceae* from Australia. Small shrubs with short cylindrical sheath-like leaves, often on short footstalks, and small stipules; flowers axillary, nearly sessile, frequently clustered near the extremities of the branches; calyx with a long tube, adhering to the ovary at the base, and a five-lobed limb, each lobe terminating in a bristle from which the genus takes its name; petals five, purplish, yellow or white; stamens ten or more; ovary inferior, one-celled, two-ovuled; capsule with five ribs, indehiscent. [J. T. S.]

CALYX. The most external of the floral envelopes; it is called adherent or superior when it is not separable from the ovary, free or inferior when it is separate from that part, and calyculate when it is surrounded at the base by bracts in a ring. Also the receptacle of some kinds of fungals. — **COMMUNIS.** The old name of the involucre of composites, &c.

CAMARA. A carpel. Also the name of a hard durable timber obtained in Guiana from *Dipteryx odorata*.

CAMARIDITUM. Under this name have been collected many species of Orchids from tropical America, with the structure nearly of *Cymbidium*, but with distichous leaves and often proliferous stems. Some of them have been referred to *Isotriaena*, a wholly different genus. About a dozen species are known, of little interest. The genus differs but little from *Ornithidium*.

CAMAROTIS. A small genus of scandent Orchids, with narrow hard leaves and lateral racemes of delicate yellowish, rose or purple flowers. They are remarkable for having a long slender rostell, and a fleshy lip hollowed out into the form of a slipper. By means of very long hard roots they cling to the bark of trees in India, the Philippines, and New Guinea. *Micropera* is the same genus, with lemon-coloured blossoms.

CAMASSIA. The Quamash of the North American Indians is the only plant belonging to this genus of Lilyworts (*Liliaceae*). It is the *Camassia esculenta* of botanists, a small bulbous plant resembling the common blue hyacinth; but larger, its leaves being about a foot long, very narrow and grooved down the inside; and its flower

stalks growing a foot or a foot and a half high, and bearing from twelve to twenty blue or white flowers. The principal character of the flower consists in its having a calyx of six sepals slightly connected at the base, and spread out horizontally but not equally, the five upper ones being closer together and inclined upwards, whilst the lower or sixth stands by itself and is bent downwards, each petal having three prominent nerves on its outside, and a stamen attached to its base on the inside, and they do not fall off, but wither and remain till the fruit is ripe. The ovary is nearly round, and is divided into three cells, each of which contains numerous ovules attached to the centre in two rows. This plant grows in great abundance in swampy plains on the north-west coast of America and Vancouver's Island, and its bulbs form the greater part of the vegetable food of the Indians, the different tribes visiting the plains for the purpose of collecting them, immediately after the plant has flowered. The digging of Quamash is a time of feasting and rejoicing amongst the Indians; the entire labour, however, devolves upon the



Camassia esculenta.

women; and the unmarried females endeavour to excel each other in the quantity of the roots they collect, their fame as future good wives depending upon their activity in the Quamash plains. The roots are cooked by digging a hole in the ground and paving it with large stones, upon which a fire is lighted and kept up until they are red-hot, when they are covered with alternate layers of branches and roots till the hole is full: it is then covered with earth and a fire kept burning upon it for twenty-four hours, when the roots are taken out and dried, or pounded into cakes for future use.

[A.S.]

CAMBESSENEDESLA. A genus of Melastomaceae, consisting of erect or ascending dichotomously-branched Brazilian shrubs, with the leaves at the apex of the branches, sessile, opposite, or verticillate, ovate, oblong, or linear, generally three-nerved;

flowers handsome, terminal and axillary in paniculate cymes; calyx bell-shaped, with a five-lobed limb; petals five, obovate, scarlet; stamens ten; ovary free, three-celled; capsule ovate-globose. [J. T. S.]

CAMBIUM. The viscid fluid which appears between the bark and wood of Exogens, when the new wood is forming. Also the mucus of vegetation out of which all new organs are produced.

CAMBOGIA. A genus of tropical shrubs belonging to the *Cistaceae*, and containing one of the plants which yields the well-known pigment gamboge. They have leathery simple leaves; the male and female flowers, on different trees, and the petals white with a pink tinge towards the base. The name *Cambogia* is given from the circumstance of the drug being produced in greatest quantity in that part of Siam called Cambodja. Linnaeus strangely confounded two Ceylon plants under the name *Cambogia Gutta*, (the one, *Garcinia Cambogia* of DeCrouseaux, yielding an insoluble gum-resin, and varying with red and yellow fruits; the other, *G. Morella* of DeCrouseaux, and the *Ebradendron cambogioides* of Graham. This latter species is, according to Mr. Thwaites, the only one growing in Ceylon from which gamboge is obtainable.)

Two kinds of Gamboge are known, the Ceylon gamboge and the Siam gamboge, both of them gummy-resinous exudations, obtained from the wounded stems of the trees or by breaking of the leaves and young twigs, and receiving the yellow juice as it drops in suitable vessels. That of Ceylon is sold in the bazars on the Coromandel coast, and is said to be as good as the Siamese, but the process it goes through in preparation does not purify it sufficiently, and, therefore, it is not sold so readily as that from Siam. By far the greater portion of the gamboge so extensively used in the arts, as a water-colour, and as a varnish for lacquer work, as well as in medicine, is sent from Siam, and is supposed to be the produce of a *Garcinia*, (which has been considered to be a variety of *G. Morella*.) It is said to form part of the tribute paid to the kings of Siam, and is sent to England from Singapore in boxes or bags, or from one to two hundred weight each, the amount annually imported being about 800 cwt. Gamboge is known in commerce in three distinct forms: in rolls or solid cylinders, in pipes or hollow cylinders, and in cakes. The two former are collected in the same manner, the juice when in a liquid state being run into hollow bamboos, about twenty inches long and one and a half in diameter, and allowed to harden. In this form it is known as pipe gamboge. The cake or lump gamboge

is a powerful purgative in doses of three, five, or seldom more than seven grains; on the other hand, it is a dangerous poison in large doses, causing death

by violent inflammation of the bowels. Dr. Christison thinks that the fatal effects which sometimes follow the use of Morrison's Pills arise from the large amount of gamboge in their composition. A detailed account of the gamboge is given by Drs. Christison and Graham, in *Hooker's Companion to the Botanical Magazine* (II. 193, *Platanus* and *Hebradendron* are now generally referred to the genus *GARCONIA*: which see. [A. A. B.]

CAMBON. An Indian name for the grain of *Pennisetum typhloideum*, the *Holcus spicatus* of Linnaeus.

CAMBUY. The fruit of a species of *Eugenia*.

CAMEL'S HAY. *Andropogon Schamantinus*.

CAMEL'S THORN. *Alhagi Camelorum*.

CAMELE'R. (Fr.) *Daphne Oncorum*.

CAMELINA. A small genus of cruciferous plants (*Brassicaceae*), containing two or three European and North American species. They are dwarf annual or perennial herbaceous plants, with stem-clasping leaves, and terminal racemes of yellow flowers. The fruit or pod is somewhat egg-shaped, with the broad end upwards, and has a broad partition parting it in two, each half being very convex, distinctly marked by a central rib or nerve, and having its edges flattened so as to form a narrow border round the pod. The seeds are numerous, and have their radicle, or rudimentary root, folded over upon the back of one of the cotyledons, or rudimentary leaves.

The most interesting species is the *Camelina sativa*. This plant is found growing in cultivated and waste places in Central and Southern Europe, and the temperate parts of Russian Asia; it is generally enumerated amongst the indigenous plants of the British Isles, but it is a very questionable native, being found only in corn and flax fields in England and Ireland, having most probably been introduced along with foreign seeds. It is an annual plant, growing about two feet in height and having a somewhat branching stem; its leaves are lance-shaped, and about two inches long, with their margins entire or slightly toothed, the lower ones having stalks, whilst those higher up have their bases shaped like those of arrow-heads and clasp round the stem. The flowers are in long loose racemes, and produce pear-shaped pods, about a quarter of an inch long, containing numerous small seeds. The English name of the plant is Gold of Pleasure, but why it is so called is unknown. It is cultivated in some parts of the Continent, both on account of the fibre of its stems and the oil obtainable from its seeds, and it has been recommended for cultivation in this country, but it is not likely to prove a profitable crop. The seeds are sometimes imported under the name of Dodder seed, but they have no

thing to do with the true dodder, which belongs to a widely different natural order. By pressure they yield a clear yellow-coloured oil, smelling something like common linseed oil; and the residual cake has been recommended as a food for cattle, but it is of too acrid a nature to be applied to such a purpose. The stems contain a considerable proportion of fibre, and are commonly used for making brooms in many parts of Europe. [A. B.]

CAMELLIA. A well-known genus belonging to the Tea family (*Ternstroemiaceae*), and so nearly related to the teas (*Thea*) as to be with difficulty distinguished from them. The differences that do exist consist in the number of the parts and in the position of the flower. In *Camellia* the calyx leaves are numerous and fall early, the interior stamens twice the number of the petals, the styles generally five, and the flowers sessile and erect; while in *Thea* the calyx leaves are five in number, the interior stamens equal in number to the petals, and the flowers are stalked and drooping. These are generic distinctions as given by Dr. Seemann, and they involve the removal to the teas of a number of plants which have been known as species of *Camellia*.

Camellias are found in the eastern portion of the Himalaya, Cochin China, a great portion of China Proper, and Japan; two species, moreover, are found, the one in Java, the other in Borneo and Sumatra. The genus is named in honour of George Joseph Kamel, a Jesuit, who travelled in the East, the name being Latinised into *Camellus*. The first species cultivated in European gardens was the Japanese *Camellia*, *C. japonica*. It is said to have been introduced in 1739, by Robert James, Lord Petre; this was the single red-flowered or normal form of the species. It was not until 1793 that any of the double-flowered varieties were brought to this country: then the double white and the striped were introduced, both from China; they were shortly followed by the double red. Many more were subsequently introduced, and with these introductions, and the varieties produced from them, through the exertions of cultivators, we have now an endless variety of forms of this beautiful plant. The most marked among them are the double white, the fringed white, which is the only variety with fringed petals, and the anemone-flowered or Waratah *Camellia*, which has a margin of broad petals and a raised centre of smaller ones, somewhat like the flower of a double hollyhock.

The Net-veined *Camellia*, *C. reticulata*, a native of Hong-Kong, is the largest-flowered of the species. The flowers are sometimes six inches or more in diameter, and not unlike those of a *Paeonia*. The petals are not so closely set as in the other species, but it is highly probable that cultivators will be able to do as much for this species as they have done for the Japanese one, although it is said to be difficult of propagation.

C. Sasangu (*Sasanqua* is the Japanese

name of the plant) is found in many parts of China and Japan; it has small white scentless flowers, and is cultivated in English gardens. An oil is obtained from the seeds in China by crushing them to a coarse powder, afterwards boiling them, and finally subjecting them to pressure. The oil has an agreeable odour, and is used for many domestic purposes. The leaves are used in decoration by Japanese women to anoint the hair, and also in a dried state to mix with tea, on account of the pleasant odour contained in them. *C. drupifera* is nearly allied to *C. Sasanqua*, but differs in having a very long point to its ovate-lanceolate leaves; like it the flowers are small and white, but odoriferous; it is also in cultivation, and its seeds yield an oil used in medicine in Cochinchina. This grows in great abundance on the eastern portions of the Himalaya. The lance-leaved *Camellia* is found in Sumatra and Borneo; and the only other species, *C. quinostaura*, is said to be a native of Java. The pink-flowered plant known sometimes in gardens as *Camellia Sasanqua*, as well as the plants usually called *C. roseiflora* and *C. maliflora*, is now referred to the genus *Tsai*; which see. The present genus includes *Culpantria*. [A. A. B.]

CAMERARIA. A genus of the Dogbane family (*Apocynaceæ*), having a small five-cleft calyx; a funnel-shaped corolla with a long tube inflated at each end, and a flat limb with five lance-shaped oblique segments; the connective of the anthers prolonged into a thread; and the two follicles swollen at the base on each side so as to appear three-lobed. The seeds are compressed and slightly winged at the top. Some of the species being shrubs with white or orange flowers, are cultivated in our stoves. [M. T. M.]

CAMÉRISIER. (Fr.) *Lonicera Xylotum*.

CANMOCK. The Rust Harrow, *Ononis arvensis*.

CANOMILE. The common name for *Anthemis*; more frequently written *Chamomile*.

CANOMILE DES CHIENS. (Fr.) *Anthemis* or *Martia Cotula*. — **FAUSSE.** *Anthemis arvensis*. — **ROMAINE.** *Anthemis nobilis*.

CAMOTE. A Spanish name for the Sweet Potato, *Dioscorea edulis*.

CAMPANILLE. (Fr.) *Wahlenbergia*.

CAMPANULACEÆ. (*Campanula*, Bell-wort, Hare-bell family.) A natural order of Calycifloral gamopetalous Dicotyledons, characterizing Lindley's Campanul alliance. Milky herbs or undershrubs with alternate leaves having no stipules, and usually with showy blue or white flowers. Calyx above the ovary (superior), commonly five-cleft, persistent; corolla regular, bell-shaped, usually five-lobed, withering; stamens five, distinct; style with hairs. Fruit one or two-

celled or many-celled; capsule opening by slits at the sides or by valves at the apex; seeds numerous, albuminous, attached to a central placenta. Chiefly natives of the north of Asia, Europe, and North America, and scarcely known in hot regions. In our hemisphere the greatest number of species are found between 26° and 47° of north latitude. The chains of the Alps, Italy, Greece, Caucasus, and the Altai are their true country. Several are found at the Cape of Good Hope. The species opening with lateral slits in the seed-vessels are chiefly natives of the Northern hemisphere; those opening by valves at the top of their seed-vessels belong to the Southern hemisphere. The plants have a milky acrid juice; but the roots and young shoots are often cultivated as articles of food, as in the case of the Rampon *Campanula Rapunculus*. There are twenty-nine known genera and 540 species. Illustrative genera: *Jasione*, *Phyteuma*, *Campanula*, *Platycodon*, and *Adenophora*. [J. H. B.]

CAMPANULA or Bell-flower. An extensive genus of herbaceous plants giving its name to the order *Campanulaceæ*. No less than 200 species of this family have been described, of which upwards of eighty are said to be either indigenous or cultivated in Great Britain. They are chiefly natives of the north of Asia, Europe, and North America, and are scarcely known in the hot regions of the world. In the meadows, fields, and forests of the countries they inhabit, they constitute the most striking ornament. Many abound in milky juice, which is rather acrid; but, nevertheless, the roots and young shoots of some species are occasionally eaten. *C. Rapunculus* (a diminutive of *raps*, a turnip, whence the English name Rampon) is much cultivated in France and Italy, and sometimes in Britain, for the roots, which are boiled tender, and eaten hot with sauce, or cold with vinegar and pepper; *C. persicifolia* and *C. rapunculoides* may also be cultivated for the same purpose. Of the British species, *C. latifolia* is the finest and most stately; the flowers are very large, blue, or (in the Scottish woods) sometimes white. *C. Trachelium*, the nettle-leaved Bell-flower, formerly considered a specific for sore throat (Greek *trachelos*, a neck), is remarkable for the resemblance borne by its leaves to the common plant after which it is named. *C. glomerata* is a handsome plant with large erect flowers crowded into a kind of head. The more edible species, mentioned above, are sometimes also found apparently wild; but it is doubtful whether they have not escaped from cultivation, having been grown commonly in gardens before the time of Gerard. The best-known species is *C. rotundifolia*, Hare-bell, Hare-bell, or Witches' Thimbles, the Blue-bell of Scotland, an elegant plant about a foot high, with a branched wiry stem and graceful drooping pale blue, sometimes white, flowers. The stem-leaves of this plant are exceedingly narrow, and seem to belie the name *rotun-*

divolia, but the root-leaves, which for the most part wither away early in the season, justify the appellation. It has been said that Linnaeus gave this plant its name from having just seen the round leaves on the steps of the university of Upsal. This, however, may hardly be, as it is figured and described under the same name by Gerard (1597). *C. hederacea* is an exquisite little plant, very abundant by the side of streams in the extreme west of England, generally growing with *Anagallis tenella*. The ivy-shaped leaves are of a remarkably fine texture, and delicate green hue; the flowers of a pale blue, sometimes slightly drooping, and supported on long stalks scarcely thicker than a hair.

Of the cultivated species *C. pyramidalis* was a very fashionable plant thirty years ago, and is still cultivated in Holland as an ornament to halls and staircases, and for being placed before fire-places in the summer season. It is still, too, a great favourite in cottage windows in England. In the shade it will continue in flower for several months. *C. lilifolia* is so called from its having at the summit of its stem a tuft of leaves resembling a double flower, which disperse as the stem elongates. 'All the species are elegant and handsome when in blossom, and are well adapted for decorating flower-borders. Some of the smaller perennial kinds answer well for decorating rock-work, or to be grown in pots, among other Alpine plants.' None are more worthy of being cultivated than the white variety of *C. rotundifolia*. French, *Campanule*, German, *Glockenblume*. [C. A. J.]

CAMPANULATE, CAMPANIFORM.
Shaped like a bell.

CAMPANUMOEAE. A genus of *Campanulaceae* containing herbs from Java and India, with tuberous roots and milky juice. The leaves are opposite stalked ovate-cordate or oblong-linear, glaucous beneath. The flowers are solitary or subcorymbose; the calyx with a hemispherical tube, surrounded by a five-parted involucre, its limb truncate; the corolla five-parted; stamens five; ovary inferior, three-celled, capsule globose, five-angled. [J. T. S.]

CAMPEACHY or CAMPECHE-WOOD. The red dye-wood, better known as Log-wood, obtained from *Hamatoxylon campechianum*.

CAMPELEPIS. An *Asclepiadeous* genus belonging to the division *Periploceae*, containing a single species, a native of Lower Bactria. It is an erect branching almost leafless shrub, the remote deciduous leaves being like scales, and the small coriaceous flowers in few-flowered cymes. The calyx is five-parted; the corolla rotate and five-cleft, its throat crowned with five short trilobed scales alternating with the segments; the five stamens have distinct filaments inserted in the throat of the corolla below the scales, and sagittate anthers, with the pollen-masses solitary and granular; the stigma is dilated; the

follicles are slender, cylindrical and spreading, with numerous comose seeds. [W. C.]

CAMPELIA. The name of a genus belonging to the order of Spiderworts, having three petals which remain attached after flowering, and form a cover to the fruit; the style or appendage on the top of the seed-vessel being smooth, bent down, and ending in a round head which has three slight subdivisions. The species, natives of America and the warmer parts of Asia, are perennial herbs with erect stems, the leaves broadly lance-shaped and hairy on the lower surface. *C. Zanonia*, a native of the West Indies, &c., cultivated since 1758 under the name of *Tradescantia Zanonia*, is an interesting species. [G. D.]

CAMPHOR. A well-known stimulant drug, a kind of stearoptene, obtained from *Camphora officinarum*. —, BORNEO or SUMATRA. The drug produced by *Dryobalanops aromatica*, sometimes called *D. Camphora*.

CAMPHORA. The tree which furnishes camphor, *C. officinarum*, was referred by Linnaeus to the genus *Laurus*, but subsequently it has been removed into a new genus of *Lauraceae*, with a more significant appellation. This separated genus differs from *Laurus* in its ribbed leaves, the lesser number of its fertile stamens (nine), and its four-celled anthers. From *Cinnamomum* it differs in having its leaf-buds protected



Camphora officinarum.

by scales, and in the calyx being membranous instead of leathery. Camphor is prepared from the wood of the tree by boiling the chopped branches in water, when, after some time, the camphor becomes deposited, and is purified by sublimation.

It is produced principally in the island of Formosa, and is imported from Singapore, &c. Another kind of camphor is imported from the Dutch settlement of Batavia. What is known as Borneo camphor is the produce of a tree of a different family: see DRYOBALANOPS. Camphor has acrid stimulant properties, and in large quantities is poisonous. There is a very prevalent but erroneous notion that camphor acts as a preventive in infectious diseases. It is, however, much used to prevent the ravages of insects in clothes, and in cabinets of natural history. The wood of the tree is occasionally imported to make cabinets for entomologists. [M. T. M.]

CAMPBOROSMA. A genus of *Chenopodiaceae* consisting of small shrubs or herbs chiefly natives of the saline steppes of Central Asia, though one species occurs in the Mediterranean region. Leaves small, linear or awl-shaped, often downy, scattered or fasciculate; flowers very small, axillary, crowded; calyx tubular, compressed, four-toothed, two of the teeth larger and keeled; stamens four; style two or three-cleft. Fruit a membranous utricle contained in the unchanged calyx-tube. The seeds are vertical with a membranous seed-coat and an annular embryo with green cotyledons; they contain a pungent volatile matter. [J. T. S.]

CAMPHEREE. (Fr.) *Camphorosma monspeliaca*.

CAMPUSIA. A genus of *Goodeniaceae*, characterized by a superior calyx; an irregular corolla having a curved tube and a three-cleft limb with narrow segments; anthers distinct; ovary with two cavities, each containing one ovule; style flattened, glabrous, wavy; stigma large, round, its cup ciliated. The genus has been separated from *Scavola*, and consists of one species, *C. glabra*, a tree inhabiting the island of Oahu, and bearing entire tufted leaves and large yellow solitary flowers. [M. T. M.]

CAMPION. *Ocubalus baccifer*. —, **BLADDER.** *Silene inflata*. —, **CORN.** *Agrostemma Githago*. —, **MEADOW.** *Lychnis Flos-cuculi*. —, **MOSS.** *Silene acaulis*. —, **OF CONSTANTINOPLE.** *Lychnis chalcodonia*. —, **ROSE.** *Lychnis coronaria* and *L. Flos Jovis*. —, **RED.** *Lychnis diurna*. —, **WHITE.** *Lychnis viscaria*.

CAMPUM. A synonym of *Pacilopteryx*.

CAMPSIDIDIUM chilense. The southernmost representative of the order of *Bignoniaceae*, and the only known species of the genus to which it belongs. It is a very handsome climber, with dark shining pinnate leaves, and flowers having a singular five-cleft calyx, a tubular almost regular corolla, of a rich orange colour; and five stamens, one of which is sterile, the anthers placed parallel (a peculiarity shared with only two other bignoniads, *Bignonia venusta* and *Millingtonia hortiensis*). The plant grows in woods,

ascending the trees to the height of forty or fifty feet. It is found in Chili and the adjacent islands, from latitude 40° to 44° south; the Isle of Huasco, where it was found by Egleta, being the southernmost station at present known. According to Mr. Bridges, the inhabitants of Chiloe term it 'pilpil boqui.' [B. S.]

CAMPSIS. A genus of *Bignoniaceae*, consisting of half-a-dozen species distributed over the Eastern Archipelago, China, Japan, and North America, and distinguished from all other members of the order by the branches being climbing and rooting like ivy, eminently qualifying these plants for covering walls and rocks, for which purpose two species, *C. adrepens* (*Bignonia*, or *Tecoma grandiflora*, of some writers) and *C. radicans* (*Bignonia*, or *Tecoma radicans* of botanists, the jacinth-trompette of the French, or Trumpet-flower as we call it) are already used in our gardens. The calyx is regular, with five acute lobes, valvate in maturation; the corolla funnel-shaped, large; the stamens five in number, one of them being sterile, and the four fertile ones of unequal length. The capsular fruit is of oblong shape, two-celled, and the partition runs contrary to the direction of its valves, whilst the winged seeds are arranged in several rows at each side of the partition. The branches are slender; the leaves impart-pinnate, with the leaflets either entire or serrated; and the flowers arranged in terminal bunches, and either pink or of a rich orange colour. [B. S.]

CAMPTERIA. A genus of polypodiaceous Ferns, of the group *Pterides*, distinguished by having the lowermost pairs of veins united, so as to form a series of arcs next the main costa or midrib. The sori are linear continuous and marginal, exactly as in *Pteris*. This group comprises eight or ten species, principally eastern. One of them, however, *C. bicarita*, has a very extended range not only through India and the Eastern Islands to China, but is found also in the Mascaren Islands, South America, the West Indies, Tropical West Africa, and South Africa. [T. M.]

CAMPTOCARPUS. A genus of twining glabrous shrubs belonging to the order *Asclepiadaceae*, natives of Madagascar, and the Isle of Bourbon. They have opposite leaves, and axillary few-flowered cymes. The small calyx consists of five sepals; the corolla is five-cleft and reflexed; the five-lobed staminal corona is inserted in the throat of the corolla, and the gynostegium is adnate to its base; the stamens have broad membranaceous filaments, and sagittate glabrous anthers attached to the margin of the stigma; the pollen mass is granular. The two long slender follicles contain many comose seeds. [W. C.]

CAMPTOSEMA. A genus of scandent or erect shrubs, belonging to the *Pea* family, peculiar to South America, and for the most part found in Brazil. Their leaves

are either simple or trifoliate, the leaflets being oblong or elliptical in form, entire, and either smooth or tomentose. The flowers are disposed in axillary racemes; the calyx being tubular, four-parted, and coloured or green; and the corolla from two to three inches long, either yellow or bright red. The pods are stalked, linear, compressed, and contain from three to six seeds. *C. rubicundum*, a native of South Brazil, is a climbing shrub of great length. The leaves are few with long stalks, their leaflets oblong or elliptical, smooth above, and pea-green beneath; the flowers are bright red, in long drooping racemes, like those of a laburnum. It is a beautiful object when in flower, and has long been in cultivation in English gardens. *C. grandiflorum*, also a Brazilian species, has yellow flowers, two to three inches long, disposed in axillary racemes. [A. A. B.]

CAMPOTOSORUS. A genus of polypodiaceous Ferns, of the group *Asplenies*, and of the scolopendroid series, in which the sori are produced in pairs, set face to face on contiguous veins—the reverse of what occurs in the dipazoid series, in which they are set back to back in pairs on the same vein. The present is a small genus consisting of one North American and one Siberian species, both dwarf plants with simple spreading fronds, which are extended into a long narrow tail-like point, where is produced a young plant. The veins join to form a few angular unequal areoles near the midrib, and send out branches towards the margin. The sori, which are linear, and covered by linear indusia, are usually connivent in irregular unequal pairs, but are sometimes more scattered, owing to the irregularity of the venation. The variously-directed irregularly-disposed yet generally opposite pairs of sori form the peculiar features of the genus. [T. M.]

CAMPOTROPAL. An orthotropal ovule, curved downwards like a horse shoe, with the sides adherent.

CAMPYLANTHUS. A small genus, native of the Canary Isles, Tropical Africa, and India, consisting of branching undershrubs, growing chiefly in the fissures of rocks, having fleshy linear sessile leaves, and small jasmine-like flowers in loose terminal racemes. The calyx is deeply cleft into five linear-lanceolate divisions; the corolla tube is long, cylindrical, and slightly keeled near the middle, its limb deeply five-lobed. Two stamens on very short filaments rise from the curved portion of the corolla tube, and bear divaricate anthers. The capsule is compressed laterally, and dehiscent septically and septifragally, leaving the placentiferous column free; there are numerous roundish seeds. Webb seems to have satisfactorily referred this singular genus to *Scrophulariaceae*, but so different is it from the other genera of the order, that he has been forced to make for its reception a new tribe which he calls *Campylanthaceae*. [W. G.]

CAMPYLOBOTRYS. A genus of *Cinchonaceae*, consisting of low-growing Brazilian shrubs, remarkable for their beautiful glossy foliage. They bear flowers with an obovate calyx-tube, having four small linear segments to its limb, and two or three small glands between them; a salver-shaped corolla; four short stamens, with anthers projecting from the short tube of the corolla; a four-cornered ovary, with two many-seeded compartments, and surmounted by a fleshy disc. *C. regalis* has elliptic leaves with a satiny lustre, and a bronzy-green colour, except the main rib and the larger side ones. *C. bicolor* and other species are cultivated in stoves for the beauty of their foliage. They are, however, now regarded as belonging to *Higginsia*. [M. T. M.]

CAMPYLONEURUM. A genus of simple-fronded polypodiaceous Ferns of the group *Polypodieae*. They have round naked sori as in the other genera of this group, from which they are distinguished by having the principal veins branching from the costa nearly parallel, and united by transverse curved venules, while from the outer side of these are produced two or three short straight veinlets on the middle or point of which the sori are placed. There are about a score of species, all West Indian and South American, and with two exceptions simple-fronded. One of these exceptions is *C. magnificum*, a splendid pinnate Venezuelan fern, of which the pinnae measure eighteen inches long and four inches broad, and bear four rows of sori between the veins. *C. repens* is a well-known illustration of the simple-fronded series. [T. M.]

CAMPYLOSPERMUM. When a seed or seed-like fruit is so rolled up as to have a furrow in the longer diameter of one side.

CAMPYLOSTACHYS. A genus of *Strobilaceae* confined to South Africa. The only species known, *C. cornua*, is a heath-like bush, about one foot high, with closely set linear pointed leaves, about half an inch long, and terminal roundish spikes of flowers, which are reflexed when the seeds become mature. The flowers are very small, and have a long tube with a four-cleft border. The name *Campylostachys* has reference to the curved spike. [A. A. B.]

CAMPYLOTROPAL. An ovule, one of whose sides grows much faster than the other, so that while the chalazm remains at the hilum, the foramen is brought nearly into contact with it.

CAMPYNEMA. A genus of doubtful Amaryllids found in Tasmania. It has been associated with *Azigeanthus* by Herbert, and has been regarded by Brown as intermediate between Amaryllids and Asphodels, coming near to *Melanthaceae*. The only species, *C. lineare*, is a slender herb, about a foot high, with fasciculate fusiform roots; tufted grassy leaves; and one to four terminal inconspicuous yellowish-green flowers. It has a six-leaved perianth

of persistent spreading equal elliptic-lanceolate segments; six stamens; and an inferior three-lobed ovary, containing numerous ovules, and crowned by three recurved styles, terminating in simple stigmas. The name is sometimes written *Campylonema*. [T. M.]

CAMRUO, CAMRUNGA. *Averrhoa Caribbæa*.

CAMWOOD. A West African red dye wood produced by *Baphia nitida*.

CANADA BALSAM FIR. *Abies balsamea*. Canada Balsam is an oleo-resin obtained from this tree, and is extensively used in medicine and manufactures.

CANAGONG. The fruit of *Mesembryanthemum ocellatæ*.

CANALICULATE. Channelled, like the petioles of many leaves.

CANARINA. A genus of *Campanulaceæ*, containing a glaucous herb from the Canary Islands, which has a tuberous root with milky juice, and a branched stem thickened at the joints, the leaves opposite (rarely in a whorl of three), stalked, hastate-heart-shaped, irregularly toothed, shining above. The flowers are large nodding yellowish (a remarkable feature, as purple, blue, or lilac flowers are usually found in this natural order), solitary at the apex of short leafy axillary branches; calyx-lobes six-cleft, reflexed; corolla bell-shaped, six-toothed; stamens six; ovary inferior, six-celled; style with six stigmas; capsule somewhat fleshy, and as well as the roots and young shoots said to be edible. [J. T. S.]

CANARIUM. A genus of *Amyridaceæ*, consisting of trees with compound leaves; the flowers peltate, diœcious, having a bell-shaped calyx, with three unequal lobes; three oblong concave petals; six stamens inserted beneath a cup-shaped disc; and a sessile globular ovary, with very short style, and three-lobed stigma. The fruit is a triangular drupe, with three, or, by abortion, one cavity, containing one seed. *C. commune* is cultivated in the Moluccas for its fruits, which are also eaten in Java, and from them an oil is expressed which is used at table when fresh, and for burning in lamps. A gum exudes from the bark which is said to resemble in its properties Balsam of Copaiba. *C. strictum*, according to Dr. Wight, is known in Malabar as the black Dammar tree, in contradistinction to the white Dammar (*Vateria indica*). The resin of Dammar is of a brownish or amber colour. [M. T. M.]

CANARY CREEPER. A garden name for *Tropæolum aduncum*, commonly but wrongly called *T. canariense*.

CANARY SEED. The grain of *Phalaris canariensis*, much used as a food for small domesticated birds.

CANARY WOOD. The timber of *Persea indica*, and *P. canariensis*.

CANAVALIA. About a dozen species of this genus of *Leguminosæ* are known. They are mostly shrubby climbing plants, with slender twining branches, and leaves composed of three leaflets, and are found inhabiting the tropical regions of both hemispheres. The flowers are in racemes produced from the axils of the leaves; their calyx is bell-shaped, two-lipped, with the upper lip largest, and either entire or cut into two lobes, while the lower is three-lobed or entire; their corolla is papilionaceous; and their stamens are united into a column, one of their number being separated for the greater part of its length. The pods are large, with their sides swelled out, and having three elevated ribs or ridges along the upper edge; they contain numerous seeds, which are separated from each other by a quantity of cellular tissue.

C. gladiata is commonly found growing in woods in the East Indies, tropical Africa, Mexico, Brazil, the West Indies, &c. The leaves consist of three roundish or egg-shaped leaflets, terminating abruptly in a short point, and varying in size from two to six inches long. The flowers are dark-purple, and succeeded by scimitar-shaped pods, about a foot long, containing numerous red or white seeds, resembling large beans. According to Dr. McFadyen, this plant is called the 'Overlook' by the negroes in Jamaica, who plant it along their provision grounds from a superstitious notion that it 'fulfils the part of a watchman, and, from some dreaded power ascribed to it, protects the property from plunder. Even the better informed adopt the practice, although they themselves may not place confidence in any particular influence which this humble plant can exercise, either in preventing theft, or in punishing it when committed.' [A. S.]

CANCELLATE. Composed of veins only, all the parenchyma or intervening web being absent.

CANCER-ROOT. An American name for *Epiphyas* and *Conopholis*; also for *Anoplophorus (Aphyllon) uniflorus*.

CANCHE. (Fr.) *Atra*.

CANDIDUS. Pure white, but not so white as snow.

CANDLEBERRY MYRTLE. The common name for *Myrica*.

CANDLEBERRY TREE. *Aleurites triloba*, the nuts of which are commercially called Candle nuts.

CANDLE TREE. *Parmentiera cerifera*.

CANDLEWOOD, of Jamaica. *Gomphia guianensis*.

CANDOLLEA. A genus of Australian shrubs belonging to *Dilleniaceæ*, with ovate or wedge-shaped leaves, and handsome yellow flowers, which are subsolitary at the tips of the branches; sepals five, oval, mucronate; petals obovate or oboor-

date; stamens polyadelphous; style thread-like; carpels two to five, ovate. [J. T. S.]

The name *Candollea* was also given by Mirbel to a group of Polypodium-like Ferns, now included in *Niphololus*.

CANDYTUFT. Any species of *Iberis*.

CANE. A common commercial name for the stems of various grasses, palms, &c. —, **BAMBOO.** *Bambusa arundinacea*. —, **DRAGON.** A kind of Rattan cane. —, **DUMB.** *Dieffenbachia seguina*. —, **GREAT RATTAN.** *Calamus rudens*. —, **GROUND RATTAN.** *Rhapis flabelliformis*. —, **MA-LACOA.** The stem of *Calamus acipionum*, imported for making walking-sticks. —, **RATTAN.** *Calamus Rotang* and its forms, now called *C. Royleanus*, *C. Rosburghii*, &c. —, **REED.** The stem of some grass often forty feet long, from New Orleans, largely imported for making weavers' shuttles. —, **SWEET.** *Andropogon Calamus aromaticus*. —, **SUGAR.** *Saccharum officinarum*. —, **TOBAGO.** The stem of *Bactris minor*, imported for walking-sticks.

CANE-BRAKE. The common name for *Arundinaria*.

CANELLACEÆ. Two or perhaps three, West Indian or tropical American aromatic shrubs, constituting the two genera *Canella* and *Cinnamodendron*, differ in so many respects from the several orders with which they have been compared, that it has been proposed to class them as a distinct family under the name of *Caneliaceæ*. Their aromatic properties and the structure of their seeds have induced an approximation to *Winteræ* (a tribe of *Magnoliaceæ*), from which, however, their flowers and ovary widely remove them. The stamens, united in a column, with the anthers sessile on the outside, have suggested an affinity with *Guttifera*, *Ternstroemiaceæ*, or even *Sterculiaceæ*; but, upon the whole, it is probably with *Biancheæ* and their allies that *Caneliaceæ* have the nearest connection. They agree with them in their one-celled ovary, with parietal placentas, and they show no marked discrepancy in their foliage, flowers, fruit, or seed, except that the albumen is firmer, with a smaller embryo.

CANELLA. The tree yielding *Canella* bark has been placed in various natural groups by different writers. The characters of the genus, in brief, are the presence of three bracts, and five sepals, no petals; twenty stamens united below, and having narrow anthers; a one-celled ovary, with two or three pendulous ovules. The tree is a native of the West Indies, and furnishes a pale orange-coloured bark, with an aromatic odour, which is used as a tonic. The negroes of the West Indies use it as a spice. The plant is frequently grown in botanic gardens. [M. T. M.]

CANELLA DE OHEIRO. The volatile oil of *Oreodaphne opifera*.

CANESCENTS. Greyish-white; hoary. A term applied to hairy surfaces.

CANL. The sun-dried tubers of the Oca, *Ocaila tuberosa*.

CANKER. A disease resulting in the slow decay of trees, or other plants attacked by it. See *CARCINOIDES*. [M. J. B.]

CANKRIENIA. A genus of *Primulaceæ*, containing a single species from Java, a very beautiful Alpine plant, with erect radical leaves, often half a foot in diameter, verticillate nodding flowers, and erect fruit. The calyx is five-toothed and cup-shaped; the corolla is funnel-shaped, with a five-lobed limb; the five stamens, with short filaments, are inserted in the throat of the corolla opposite to its divisions; the ovary is globose with a rayed apex; the included style remains on the fruit, which is a globular capsule, containing numerous angular seeds. [W. C.]

CANNA. See p. 215.

CANNABINACEÆ. (*Cannabineæ*, *Hemp-worts*, the Hemp family.) A natural order of Monochlamydeous Dicotyledons, belonging to Lindley's Urtical alliance. Rough-stemmed herbs with watery sap, alternate and lobed leaves having stipules, and small inconspicuous flowers. The plants have some flowers with stamens without pistils, and others with pistils without stamens. The staminate flowers are in clusters called racemes or panicles; calyx herbaceous and scaly; stamens few, opposite the sepals; filaments filiform. Pistillate flowers in spikes or cones, with a single sepal; a one-celled ovary containing a solitary pendulous ovule; stigmas two. Fruit a single-seeded nut; embryo hooked or spiral, without albumen. The plants are natives of the temperate parts of the northern hemisphere in the Old World. They possess narcotic qualities and yield valuable fibres. Hemp is the produce of *Cannabis sativa*. It is imported in large quantities from Russia. The plant grows in the cooler parts of India, and there develops narcotic qualities. These properties seem to reside in the Churrus or resin which covers the leaves. The names of Bhang, Gunjah, and Haschisch are given to the dried plant in different states. What are called Hemp seeds, used for the food of birds, are in reality Hemp fruits, each containing a single seed. *Humulus Lupulus*, the Hop, possesses both tonic and hypnotic properties, i. e. a power of inducing sleep. The scales of the hop-heads are covered with resinous matter, which has an aromatic odour. There are two genera in the order, viz. *Cannabis* and *Humulus*, and two species.

[J. H. B.]

CANNABINE. A narcotic gum-resin obtained from the Hemp, *Cannabis sativa*.

CANNABIS. The Hemp-plant, *C. sativa*, is the type of the *Cannabineæ*. It is a native of India and Persia, and is generally cultivated, although it is only in hot dry climates that it forms the resin which gives it such value in the estimation of the natives, apart from its fibre-producing

qualities. The dried plant, or portions of it, are sold in the bazaars of India under the name of Gunjah and Bhang, while the resin itself is known as Churra. This resin is collected during the hot season in the following singular manner:—Men clad in leathern dresses run through the hemp fields, brushing through the plants with all possible violence; the soft resin adheres to the leather, and is subsequently scraped off and kneaded into balls. In Nepal, according to Dr. McKinnon, the leathern attire is dispensed with, and 'the resin is gathered on the skin of the naked coolies!' Gunjah is smoked like tobacco; Bhang is not smoked, but pounded with water into a pulp, so as to make a drink: both are stimulant and intoxicating; but the Churra or resin possesses much more powerful properties. In small quantities it produces pleasant excitement, which passes into delirium and catalepsy if the quantity be increased; if still continued a peculiar form of insanity is produced. Many of

go the public that the fast youths are smoking Bhang.' [M. T. M.]



Cannabis sativa.

the Asiatics are passionately addicted to the use of this means of intoxication, as the names given to the hemp show—'leaf of delusion,' 'increaser of pleasure,' 'cement of friendship,' &c. &c. A recent traveller in East Africa, Capt. Burton, describes this plant as 'growing before every cottage door.' The Arabs smoke the sun-dried leaf with, and the Africans without, tobacco, in huge pipes. 'It produces a violent cough ending in a kind of scream after a few long puffs, when the smoke is inhaled, and if one man sets the example the others are sure to follow it. These grotesque sounds are probably not wholly natural. Even the boys may be heard practising them as an announcement

The Hemp plant is an annual, growing in ordinary situations from four to ten feet high, but in Italy under very favourable circumstances it sometimes grows as high as twenty feet. The stem is grooved or angular, and, in plants growing singly, frequently much-branched, but when cultivated in masses for the sake of the fibre, it is generally straight and unbranched. It consists of a central pith surrounded by a layer of loose woody and cellular tissue, and enclosed in a thin bark containing the fibre which renders the plant so valuable. Its leaves have long stalks with minute awl-shaped stipules at their bases, and are composed of from five to seven long lance-shaped sharp-pointed leaflets, radiating from the top of the stalk, each leaflet having its margin cut into sharp saw-like teeth. The whole plant has a rough harsh feel from the presence of numerous minute asperities. The flowers are of separate sexes on different plants, the males being produced in racemes and generally crowded together towards the top of the plant or ends of the branches, having a five-parted calyx and five stamens; the females are in short spikes, their calyx consisting merely of a single sepal, rolled round the ovary, but open on one side, and they have two hairy stigmas. The fruit (commonly known as 'hemp seed') is a small greyish-coloured smooth shining nut, containing a single oily seed. Of whatever country Hemp is a native, it is certain that it was known in Europe in very early times, for Herodotus, writing upwards of 2000 years ago, mentions it as being cultivated by the Scythians, who used its fibre for making their garments. At the present day it is cultivated in most parts of Europe; in Arabia, Persia, India, China, and other Asiatic countries; in Egypt, and various other parts of the African continent; and in the United States. Russia and Poland, however, are the two great hemp-producing countries, and it is from them that our supply is mainly derived; but the best quality is produced in Italy; the United States and India likewise send hemp to this country, but the quality is inferior to the Russian. For the production of good fibre the seed is sown close, so as to produce straight stems without branches. The harvesting takes place at two periods; the male being pulled up as soon as it has done flowering, and the female not until the seeds are ripe. After pulling, the leaves are struck off with a wooden sword; the stems are then tied in bundles and steeped in water, or water retted as it is technically termed (two other processes, dew-retting and snow-retting, are sometimes substituted), the object being to loosen the fibre; they are then spread out to dry and bleach: this is called 'gassing,' after which the fibre is detached, either by pulling it off by manual labour, or by breaking the stems in a machine, and afterwards scutching them in a similar

manner to that employed for the preparation of flax.

The uses of Hemp for the manufacture of cordage, canvas, &c., are too well known to require more than a passing allusion. The seeds are used for feeding caged birds, and an oil is expressed from them. The imports of Hemp in 1888 amounted to 739,339 cwts., the computed real value of which was 1,034,377l.; and of Hemp seed, 11,000 quarters; value 24,074l. [A. S.]

CANNACEÆ. The Indian-shot family, a natural order of Epigynous Monocotyledons belonging to Lindley's Amomal Alliance. The name of *Marantaceæ* is also given to the order. [J. H. B.]

CANNA. The name of a genus of *Marantaceæ* distinguished by the flowers being in panicles; [by the perianth being in two series, the outer segments shorter, the inner alternate; and by the stamens being represented by certain petal-like organs, the outer series of which are all petaloid and functionless, while one of the inner series is two-celled (as shown by Dr Dickie in *Journ. Lin. Soc.*, x. 54) and polliniferous, and united to the edge of a second, which is petaloid, while the third is usually rudimentary]; the style is also petal-like with a linear stigma, and the fruit consists of a capsule covered with rough tubercles externally, and internally divided into three compartments, each of which contains a number of horizontally-placed seeds. The seeds are round, hard, and black, hence the name of Indian Shot, which is applied to the plants.

Many of the species have brightly coloured flowers—yellow, red or orange; the foliage, too, is highly ornamental and characteristic; hence they are favourite plants in cultivation, and produce a striking effect when grouped in beds out of doors during the summer months. The beauty of these plants is not their only feature of interest, as some of them are also of importance from their fleshy underground stems, containing an abundance of starch. *Tous les mois*, a superior kind of arrowroot, the grains of which are very large, is the produce of one of the West Indian species, probably *C. edulis*. The tubers of other species are eaten as a vegetable, while some have slight medicinal properties. In the Brazil the leaves are used for packing purposes, hence the French call these plants *Balister*, from a Spanish word signifying cover. The seeds are also made use of as beads. [M. T. M.]

CANNE A' SUCRE. (Fr.) *Saccharum officinarum*. — **DINDE.** *Canna indica*. — **DE JONG.** *Typha latifolia*. — **DE PROVENCE.** *Arundo Donax*.

CANNEBERGE. (Fr.) *Oxycoccus palustris*.

CANNELLIER. (Fr.) The Cinnamon tree.

CANNILE'E. (Fr.) *Lemna minor*.

CANNOMIE. A genus of *Restiaceæ*,

differing from *Restia* in the fruit, which is a hard indehiscent nut; and from *Wildenowia* by having two distinct styles. *C. cephalotes*, the original species, has a rigid stem with numerous short barren stems at the base; flowers in a large ovate terminal head, with ovate acute imbricated bracts. This and another species are from the Cape of Good Hope. [J. T. S.]

CANNON-BAY L. TREE. *Couroupita guianensis*.

CANOE BIRCH. *Betula papyracea*.

CANOE WOOD. *Liriodendron tulipifera*.

CANTERBURY BELL. *Campanula Medium*, and *C. trachelium*.

CANTHARELLUS. The scientific name of the Chanterelle.

CANTHIUM. A genus of *Cinchonaceæ* consisting of spiny rigid plants with solitary fragrant white flowers, having the stamens inserted near the throat of the corolla, and a thread-shaped protruding style terminated by a thick globular or mitre-shaped stigma. The fruit is a two-celled berry. *C. parviflorum*, an Indian plant, makes good fences, while the leaves are occasionally added to curries by the natives; but they have also medicinal properties. One or two species are in cultivation. [M. T. M.]

CANTUA. A genus of *Polemoniaceæ*, containing six or eight species, natives of Peru. They are trees or shrubs with alternate fleshy entire or sinuate-dentate leaves, and large showy flowers in corymbs at the termination of the branches, rarely solitary and axillary. The calyx is tubular and five-cleft; the corolla is funnel-shaped with the spreading limb split into five obovate lobes; the five stamens are inserted at the base of the tube, and are more or less exserted; the ovary is three-celled with numerous ovules, and bears a simple style with a trifid stigma; the capsule is coriaceous and three-valved; the seeds have their apex produced into a wing. This genus is nearly related by its capsule and seeds to *Cobæa*, though in habit and inflorescence some of its species approach *Polemonium*. [W. Q.]

CANUS. Grey-white or hoary. A term applied to hairy surfaces.

CAOUTCHOUC. The elastic gummy substance known as India-rubber, which is the inspissated juice of various plants growing in tropical climates in different parts of the world; e.g. *Pinus elastica* and other species of *Moraceæ* plants, *Cassia elastica* and other *Artocarpææ*, and other *Euphorbiaceæ* plants, *Urosela elastica* and other *Apocynaceæ* plants, &c. The name is also given by the Popayans to the milky juice of *Siphocampylus Caoutchouc*, an elastic gum, very different from the caoutchouc of commerce. [T. M.]

CAP. The convex part of an agaric or other similar fungal.

CAPANZA. A genus of *Gesneraceae* of the tribe *Beslerieae*, consisting of dwarf herbs with subshrubby stems, and opposite oval stalked hairy leaves, from the axils of which spring the flowers two or three together from a common peduncle. The calyx is free, nearly regular, and five-parted. The corolla is irregularly bell-shaped, scarcely curved, somewhat ventricose beneath, with a short limb. There are four didynamous stamens, the filaments of which carry heart-shaped anthers, which are firmly joined together, and form in the mouth of the tube a pale yellow star, with which the stigma is in contact. The ovary is free, surrounded by a disk of five obtuse fleshy lobes. The only species, *C. grandiflora*, a native of New Grenada, grows nearly a foot high, with moderate-sized oval-acuminate leaves, and large showy long-stalked flowers, seated in a tuft at the end of an axillary or terminal peduncle; these flowers are nodding gloxinia-like, with a limb of five broad spreading emarginate lobes, pubescent outside, white, elegantly painted on the inner face of the limb, or less frequently on the tube, with numerous crimson dots arranged in contiguous lines. Dr. Lindley writes the name of this genus *Campana* in *Paxton's Flower Garden*, i. 91. [T. M.]

CAPER-WEED. *Roccella tinctoria*, a dye Lichen, obtained from the Cape de Verd Islands.

CAPER. *Capparis spinosa*, the flower buds of which, and of some allied species or varieties, form the well-known condiment of this name, for which the flowers of *Zygophyllum Fabago* are sometimes substituted.

CAPERONNIER. (Fr.) *Fragaria elatior*.

CAPER SPURGE. *Euphorbia Lathyris*, sometimes called Capar-bush.

CAPER TREE, of New South Wales. *Busebeckia arborea*.

CAPILLACEOUS, CAPILLARY. Having the form of a thread.

CAPILLAIRE. A syrup prepared with *Adiantum Capillus-veneris*.

CAPILLAIRE. (Fr.) *Asplenium Trichomanes*. — **DE MONTPELLIER.** *Adiantum Capillus-veneris*. — **DU CANADA.** *Adiantum pedatum*. — **NOIR.** *Asplenium Adiantum-nigrum*.

CAPILLITIUM. Entangled filamentary matter in fungals, bearing sporidia.

CAPILLUS (adj. **CAPILLARIS**). The breadth of a hair; the twelfth part of a line.

CAPITÃO DO MATTO. A common Brazilian name for *Lantana pseudo-thea*.

CAPITATE. Pin-headed, as the stigma of a primrose, or as certain hairs. Also growing in heads, or terminal close clusters, as the flowers of composites, &c.

CAPITULUM. A close head of sessile flowers. Also a term vaguely applied among fungals to the receptacle, pileus, or peridium.

CAPNITES. A section of the genus *Corydalis*. De Candolle employs it in a sense synonymous with *Bulbocephalus*, but Endlicher used it to designate a part of De Candolle's section *Corynoides*, which includes the species of *Corydalis* without tuberous rootstocks. In this way it is equivalent to *Corydalis* of Bernhardt, and differs from *Capnoides*, as restricted by that author, by having the stem single and branched, and the style persistent. There is, however, no natural division, and it is better to consider all the species of *Corydalis* without tuberous rootstocks, with two separate cotyledons, and with a cup-shaped appendage at the base of the seed, as belonging to the section *Capnoides*. The only British species is the small Climbing Fumitory *Corydalis claviculata*, which has long branched trailing stems, and yellowish flowers in racemes. *C. hedei*, often cultivated, and naturalised in several localities, is easily known by its short stems and large bright yellow flowers. [J. T. S.]

CAPNODIUM. A curious genus of *Fungi* established by Dr. Montagne to receive a portion of the black smutty parasites which infect the leaves and twigs of shrubs in damp warm climates. It belongs to the division *Ascomycetes*, and is characterised by the abundant creeping black threads which run over the several parts of the plants which it attacks. Shoots from these threads either infect the fruit or are combined to form it. The fruit consists of irregular often elongated and branched cysts, which in the same species contain naked spores, and sporidia enclosed in sac. Two species belong to the British Flora: *C. Footii*, found on laurel leaves; and *C. elongatum*, in the extreme south-west, on pear trees. Others are the plague of coffee, lemons, olives, and other important plants. In a young state these plants are not distinguishable from *Antennaria*. The stomates of the plants they attack are completely smothered, and direct light almost excluded, so that the functions of the leaves are greatly impeded. No remedy is known when the parasite is once developed. If any is applied, it must be directed to the destruction of the different species of corrus on whose dung or excretions these *Fungi* seem mostly to be developed. Lemons frequently arrive in this country in an unsaleable condition, incrustated more or less completely with a jet black felt, in consequence of the growth either of an *Antennaria* or the spawn of *Capnodium Curi*, which seems to increase greatly after the fruit is packed up for the market. [M. J. B.]

CAPPARIDACEÆ. (*Capparidæ*.) A natural order of Thalamifloral Dicotyledons placed in Lindley's Clisal alliance. Herbs, shrubs, or trees with alternate leaves and solitary or clustered flowers; sepals four, imbricate

or valvate; petals four, arranged crosswise, sometimes eight; stamens usually numerous, and a multiple of four placed at the top of a stalk-like receptacle; disk much developed. Ovary usually supported on a stalk and one-celled, with parietal placentas. Fruit either pod-like and opening, or berried; seeds often kidney-shaped, without albumen. The order is divided into two suborders: 1. *Cleomeæ*, with dry dehiscent (splitting) fruit. 2. *Cappareæ*, fruit a berry. The plants are chiefly tropical. They abound in Africa and India. Some are found in Europe and in Canada. They have pungent and stimulant qualities, and have been recommended in scurvy. In their properties they resemble crucifers. The flower-buds of *Capparis spinosa* constitute capers. *C. aegyptiaca* is considered by some as the hyssop of Scripture. There are thirty-three known genera, and 355 species. Illustrative genera: *Cleome*, *Polanisia*, *Capparis*, *Oreocarya*. [J. H. B.]

CAPPARIS. The genus so called gives its name to the natural order *Capparidaceæ*. It consists of shrubs having simple leaves, frequently with two little spines at their base, and showy flowers with a four-parted calyx, four petals, and numerous stamens, succeeded by a berry elevated on a long slender stalk. The most generally known plant of this genus is the common Capar, *C. spinosa*, which grows on walls, etc., in the South of Europe and Mediterranean regions. In its mode of growth it resembles the common bramble. The flower-buds, and in some parts of Italy, the unripe fruits, are pickled in vinegar, and form what are commonly known as capers. They are chiefly imported from Sicily, though the plant is also largely cultivated in some parts of France. All the species



Capparis spinosa.

contain, in greater or less quantity, an acrid principle, so that the bark of the root of some of them acts as a blister when applied to the skin; and the fruits of some of the Brazilian species are reported

to be very poisonous. *C. Sodada* is described by Dr. Barth as forming one of the characteristic features in the vegetation of Africa from the desert to the Niger; the small berries have a pungent pepper-like taste, and when dried constitute an important article of food, whilst the roots, when burned, yield no small quantity of salt. Several species are in cultivation in this country, principally natives of warm and tropical climates. [M. T. M.]

CAPREOLUS. A tendril.

CAPRIER COMMUN. (Fr.) *Capparis spinosa*.

CAPRIFICATION. A fertilization of flowers by the aid of insects, as that of the garden fig by a small fly.

CAPRIFICUS. The Wild Fig. This, according to Theophrastus and Pliny, is a tree of a wild kind which never ripens its fruit, but has the power of conferring on other trees a virtue which it has not in itself. Since, in accordance with the laws of nature, life springs from putrefaction, from the abortive fruit of the Wild Fig are generated certain winged flies, which, failing to find food in the corruption which gave them birth, fly to a tree of an allied species, and penetrating the fruit of the true fig, make a way for the admission of the heat of the sun and genial air, consume the immature juices, and help the fruit to ripen. To promote this end, the *Caprificus* is planted among fertile fig trees, or cut branches of the one are tied to growing boughs of the other. Fig trees growing in a poor soil exposed to the winds, and especially dust, do not, they say, need this assistance, as the fruit under these circumstances dries up of itself sufficiently to ripen. See Pliny Nat. Hist., lib. xiv. cap. xix., and Theophrastus de plantis, end of lib. II. This last passage is curious as containing an early recognition of the presence of sexes in plants. [C. A. J.]

CAPRIFOLIACEÆ. (*Lonicæra*, *Caprifolia*, the Honeysuckle family.) A natural order of gamopetalous Calycifloral Dicotyledons belonging to Lindley's Cinchonall alliance. Shrubs or herbs, often twining, with opposite leaves which have no stipules; calyx adherent to the ovary, its limb four to five-cleft, usually with small leaves (bracts) at its base; corolla superior, regular or irregular; stamens four or five, alternate with the lobes of the corolla. Ovary usually three to five-celled; stigmas three or five. Fruit generally a berry, with one or more cavities, and crowned by the calyx-lobes; albumen fleshy. Natives of the northern parts of Europe, Asia, and America, found sparingly in Northern Africa, and unknown in the Southern hemisphere. Some of the plants are astringent; others have emetic and purgative qualities. Many have showy and fragrant flowers. The suckle or Woodbine (*Lonicera Periclymenum*), one of the plants of this order, twines round the branches of trees, and

often causes confusion in them. The Elder (*Sorbus nigra*), the Gueldres Rose (*Viburnum Opulus*), the Laurustinus (*Viburnum tinus*), the Snowberry (*Symphoricarpos rademosus*), as well as the *Linsaea borealis*, belong to the order. The black berries of the species of *Viburnum*, found on the Himalaya, are eatable and agreeable. There are sixteen genera and 230 species. Illustrative genera: *Linnaea*, *Lonicera*, *Viburnum*, *Sambucus*. [J. H. B.]

CAPRIFOLIUM. A genus of well-known twining shrubs giving name to the order *Caprifoliacea*. No British shrub claims our favourable notice so early in the season as the Honeysuckle (*O. Periclymenum*); for even before the frosts of January have attained their greatest intensity, we may discover in the sheltered wood or hedgebank its wiry stem throwing out tufts of tender green leaves from the extremity of every twig. Later in the season it engages our attention by its twisting stems clinging for support to some lustier neighbour till it has reached air and light, when it asserts its independence, loses a good deal of its twining character, and displays its numerous clusters of trumpet-shaped cream-coloured flowers, tinged with crimson, and shedding a perfume which in sweetness is surpassed by no other British plant. As the coils made by the honeysuckle in its effort to reach the summit of a tree never enlarge, but on the contrary, rather contract as the diameter of its stem increases, it is mischievous to any growing tree round which it twines; it should, therefore, be discouraged in young plantations; but trained against a wall or allowed to twine round a pole or the bole of a full-grown tree, it is harmless and always beautiful. The scarlet berries are clammy to the touch, glutinous and sweet to the taste, but mawkish. In October the woodbine endeavours to impart a grace to the fading year by producing a new crop of flowers, which, though not so luxuriant nor so numerous as the first, are quite as fragrant. Clusters of flowers and of ripe berries may then be found on the same twig, uniting autumn with summer as the early foliage united winter with spring. A variety with leaves sinuated like the oak is not of uncommon occurrence; and another variety, called Dutch Honeysuckle, is valued as a garden plant on account of its extreme fragrance (especially in the evening) and its early flowering.

The Perfoliate Honeysuckle (*C. italicum*, sometimes called *Lonicera Caprifolium*) resembles the last in habit. It is a native of the middle and South of Europe, and is said to be naturalised in some parts of England. It may be distinguished from the common kind by having its upper leaves united at the base so as to form a kind of cup, and it bears whorls of flowers in the axils of these leaves as well as at the extremity of the shoot.

Among the other cultivated species, *C. Ananum*, a native of America, has very fragrant yellow flowers, which as they fade become

orange-coloured. The Trumpet Honeysuckle (*C. sempervirens*) is an evergreen twining shrub, the upper leaves of which are united at the base (connate), and the flowers, which are scarlet outside, and yellow within, are arranged in several terminal whorls; this is also a native of America, but thrives well in Great Britain in a dry open situation, bearing a profusion of beautiful but scentless flowers from May till August. *C. etruscum* approaches *C. italicum* in habit, but the leaves are more obtuse and downy, and it flowers during a greater portion of the year. In France this species is more frequently cultivated than any other. [C. A. J.]

CAPSILLA. A common weed belonging to the cruciferous order, well marked by its heart-shaped pods, which when ripe separate into two boat-shaped valves, each enclosing numerous yellow seeds. There are six known species. *C. Bursa-pastoris*, Shepherd's Purse, is so called from the resemblance of the pods to some ancient form of purse. A native of Europe, it has accompanied Europeans in all their migrations, and established itself wherever they have settled to till the soil. It is a troublesome weed, not refusing to grow and leave seed even in the poorest soil, but luxuriating in the richest. Hence its utilitarian popular name, 'Pickpocket,' is more appropriate perhaps than the sentimental one 'Shepherd's Purse.' When not in flower, it may be distinguished by its radiating leaves, of which the outer lie close pressed to the ground. It is less arid than most of the cruciferous tribe, but was formerly used as a potherb, as is said to be still the custom in some parts of North America. French, *Bourras de Pasteur*; German, *Hirtentasche*. [C. A. J.]

CAPSICUM. One of the genera of *Solanaceae*, deriving its name from the Greek word signifying 'to bite,' in allusion to the hot purgent properties possessed by the fruits and seeds. The genus consists of annual or biennial plants, frequently with a somewhat woody and bushy stem; a wheel-shaped corolla; five stamens protruding from the corolla, their anthers converging at their points, and opening by longitudinal slits; and a two to four-celled ovary, becoming, when ripe, a membranous pod containing several seeds. The shape of the fruit varies very much in the different species of the genus.

C. annuum, a native originally of South America, but introduced into India and elsewhere, furnishes the fruits known as Chillies; these, as well as the fruits of *C. frutescens*, and several other species or varieties, are used to form Cayenne pepper. For this purpose the ripe fruits are dried in the sun or in an oven, and then ground to powder, which is mixed with a large quantity of wheat flour. The mixed powder is then made into cakes with leaven, these are baked till they are as hard as biscuit, and are then ground and sifted. The Cayenne pepper of the shops is, however, usually largely adulterated

with red lead and other less objectionable substances. The hot taste seems to be due to a peculiar acrid fluid called *capsicin*, which is so pungent that half a grain of it volatilised in a large room, causes all who respire the contained air to cough and sneeze. It is remarkable that the narcotic properties, which are possessed by most of the *Solanaceae* to a greater or less extent, are not present in *Capsicum*—though this is open to some doubt, as it is said that some of the American species have narcotic properties residing in the pulpy matter in which the seeds are imbedded, this pulp being absent in those kinds which are used for their pungent properties.

Capsicum fruits are used medicinally, in powder or as a tincture, as an external application, or as a gargle in certain cases of sore throat, particularly those of a malignant character, and internally as a stimulant in cases of impaired digestion, &c. Several kinds are cultivated in this country, as objects of curiosity, and for the sake of their fruits. [M. T. M.]

The species of *Capsicum* are chiefly natives of the East and West Indies, China, Brazil, and Egypt, where they are much esteemed for their pungent fruit and seeds, which, under the name of Cayenne Pepper, or Chillies, form an indispensable condiment, which Nature herself appears to have pointed out to persons resident within the tropics. According to Sir R. Schomburgk, the natives in Guiana eat the fruit of these plants in such abundance as would not be credited by a European unless he were to see it (*Jour. Hort. Soc. II.* 1853). In Jamaica the species most esteemed is the Bonnet Pepper (*C. tetragonum*), the fruits of which are very fleshy, and have a depressed form, like a Scotch bonnet. The shrubby *Capsicum*, or Spur Pepper (*C. frutescens*), is a native of the East Indies, and has been in our gardens since 1654. It forms a dwarf bushy shrub, with white flowers, and bears numerous small oblong obtuse pods, which are very pungent, and in their green and ripe state are used for pickling, as well as for making Chilli vinegar. This is done by merely putting a handful of pods into a bottle, and afterwards filling it with best vinegar, which in several weeks will be fit for use. But the chief purpose for which this species is cultivated is for making Cayenne pepper, which is often prepared by drying the pods on a hot plate, or in a slow oven, and then pounding them in a mortar, and passing them through a hand-mill until the whole is reduced to the finest possible state. After this has been done, the powder is to be sifted through a thin muslin sieve, and preserved in well-corked glass bottles for use. The common annual *Capsicum*, or Guinea Pepper (*C. annuum*), was introduced into Europe by the Spaniards. It was cultivated in England in 1544, and is sufficiently hardy to thrive in summer against a south wall in the open air, and mature its fruit. The colour, direction, and figure of the latter is very

variable—some being yellow, others red, and others black. In a green state they are used for pickling, and when ripe are mixed with tomatoes, &c., to form sauces. They are also dried and ground for use like Cayenne pepper. The Berry-bearing *Capsicum*, or Bird Pepper (*C. baccatum*), is indigenous to both the East and West Indies, and has been grown in this country since 1731. Its pods are erect, roundish, egg-shaped, very pungent, and when ripe are dried and used for the same purposes as those of other kinds of *Capsicum*. They also form one of the chief ingredients in the preparation known in the West Indies as *man-dram*, which is usually resorted to by those affected with loss of appetite or weak digestion, and consists of cucumbers sliced very thin, shallots or onions chopped very fine, a little lime juice and Madeira wine, to which is added a handful of the pods of this pepper, and the whole are then mashed together, and mixed with as much liquid as may be thought necessary. Besides the three species noticed as being the kinds most generally cultivated, there are many other species and varieties occasionally grown for the sake of their pods, all of which yield a warm acrid oil, which acts powerfully on the stomach, and is thought to correct flatulency, and assist digestion. [W. B. B.]

CAPSOMANIA. An unnatural development of plants, which may consist either of an excessive multiplication or of such a derangement as impedes their functions. In the first case the unusual demands for nutritive matter cannot be met, and the fruit becomes small and abortive; in the latter, as in green-centred roses, bladder plums, &c., the ovules being imperfect do not come to perfection. [M. J. B.]

CAPSULE. Any dry dehiscent seed-vessel. A spurious capsule is any dry seed-vessel that is not dehiscent. Also employed among fungals, to denote certain kinds of perithecia, or receptacles.

CAPUCHON. (Fr.) *Arisarum vulgare*.

CAPUCINE. (Fr.) *Tropaeolum*.

CAPUT. The peridium of certain fungals. — **RADICIS.** The crown of a root. The very short stem, or rather bud, which terminates the roots of herbaceous plants.

CAQUILLIER. (Fr.) *Cakile*.

CARABIN. (Fr.) *Fagopyrum esculentum*.

CARAOIHU. A Brazilian name for *Solanum nigrum*.

CARAGAN. (Fr.) *Caragana*
cena. — **ARGENTE.** *Halimic*
argenteum. — **DE LA CHINE.** *Caragana*
Chamlaga. — **DE SIBIRIE.** *Caragana*

CARAGANA. The Siberian Pea Tree. Trees or shrubs belonging to the Leguminous order, natives of Siberia and the East, with pinnate leaves of which the midrib terminates in a bristle or spine instead of a leaflet, and axillary flowers, either solitary

or crowded, always single on thin stalks, of a pale yellow colour, with the exception of one species, *C. jubata*, in which they are white tinged with red. They are all ornamental or curious. Some of them being natives of Siberia, vegetate like most other Siberian plants, early in the spring, and their delicate planate foliage, of a yellowish green, independently altogether of their flowers, makes a fine appearance about the middle of April, or, in mild seasons, as early as the middle of March. The flowers, which are of a bright yellow, appear about the end of April, in the earliest Siberian species, and those which flower latest, are also latest in coming into leaf. Thus in a group consisting of the different species of this genus, in the climate of London, some plants may be seen, in the month of May, covered with leaves and flowers, and others in which the buds have just begun to expand. The yellow colour prevails in every part of the plants of this genus, even to the roots; and were it not that this colour is so abundant in common productions of the vegetable kingdom, there can be no doubt that the Caragana would be used to afford a yellow dye. *C. arborescens* is a small tree with hard wood and a tough bark, which may be used as a substitute for ropes or cords, as the twigs are for withes. The seeds are good food for poultry, and the leaves are said to contain a blue colouring matter like indigo. *C. spinosa* is a thorny shrub plentiful in China about Pekin, where branches of it are stuck in clay upon the tops of the walls, in order that its spines may prevent people from getting over them. For other species see *Louden's Arboretum Britannicum*. [C. A. J.]

CARAGEEN or CARRAGEEN. A name given in Ireland to *Chondrus crispus*, and some other allied *Alga* when dried and bleached. Vast quantities are collected for sale and supply a useful article for feeding cattle or making jelly for invalids. Its unequivocal sea taste and sour are against its being a perfect substitute for isinglass. There is no doubt, however, that in the sick chamber it is a far better substitute than gelatine, as that has very small, if any, nutritive qualities, a fact perhaps not sufficiently known. [M. J. B.]

CARAIPA. A genus of *Ternstroemiaceae*, distinguished among the group having the petals contorted, and the capsule septically dehiscent, by its leaves being alternate, its stamens usually free, with the anthers glanduliferous at the apex, and fixed near the base, and by its having two or three pendulous ovules in each of the three cells of its ovary. The species, about eight in number, grow in Tropical America, and are trees bearing white sweet-scented flowers. The celebrated Balsam of Tamaracari is obtained from *C. fasciculata*, or a closely allied species. This substance, which is of the colour of old port wine, and the consistency of olive oil, is, according to Mr. Spruce (*Journ. Linn. Soc.* v. 63) of great use in the cure of the itch, a single appli-

cation curing the most inveterate cases in twenty-four hours. [T. M.]

CARAJURA. A red colouring matter obtained from *Bignonia Chica*.

CARALLINE. (Fr.) *Banunculus glacialis*.

CARALLUMA. A genus of *Asclepiadaceae*, containing a few species of fleshy leafless herbaceous plants, natives of India and Arabia. The stems are sparingly branched, erect and four-sided, with teeth at the angles; towards the summit the stem becomes rounded, and from the teeth rise the peduncles bearing at their summits one or more drooping flowers. The calyx is five-parted. The rotate corolla is deeply five-cleft. The gynostegium is slightly exserted, and the bi- or trifid leaves of the staminal corona alternate with the stamens. The roundish pollen masses are capped by a pellicid membrane. The follicles are long and slender, with comose seeds. [W. G.]

CARAMBOLA TREE. *Averrhoa Carambola*.

CARANA PALM. A South American name for *Mauritia Carana*.

CARANA RESIN. A gum resin produced by *Bursera acuminata*, or, according to others, by *Icica Carana* or *Cedrota longifolia*.

CARAPA. A small genus of trees with abruptly-pinnate leaves, belonging to the order of *Meliaceae* (*Meliaceae*), and native of Tropical America, the West Indies, and Guinea. Their flowers have a calyx of four or sometimes five distinct sepals, and a corolla of the same number of oblong egg-shaped spreading petals; their stamens are united into a tube, the apex of which is divided into eight or ten rounded teeth, bearing the anthers on the inside, between the teeth; and the ovary is four or five-celled, each cell containing four ovules in pairs. The fruit is large and contains numerous oily seeds, and eventually splits into five pieces. *C. guianensis* is a large tree, sixty or eighty feet high, growing plentifully in the forests of Guiana where it is called Carapa and Andiroba. Its leaves are composed of from eight to ten pairs of elliptical lance-shaped leathery shining leaflets; and its fruit is nearly round, and about four inches in diameter. The bark of this tree possesses febrifugal properties, and is also used for tanning. Its timber, called Crab-wood, is obtainable in sticks, fifty feet long by fifteen inches square, and is used in Demerara for making articles of furniture, for shingles, and for the masts and spars of vessels: it is light, having a specific gravity of 0.603, and takes a good polish. By pressure the seeds yield a liquid oil, called Carap oil or Crab oil, suitable for burning in lamps, and which the natives use for anointing their hair; but in this country it hardens into a solid fat. *C. guianensis* is a native of Senegal, and

scarcely differs from the last. Its seeds yield Tallicoonah or Coondil oil, which, besides being used for the same purposes as Crab oil, is employed as a purgative and anthelmintic. [A. S.]

CARAPIXO DA CALCADA. A Brazilian name for some species of *Triumfetta*.

CARATOE. A West Indian name for *Agave americana*.

CARAVELLA. An Indian name for the small black aromatic stimulant seeds of *Cleome pentaphylla*.

CARAUERU. A red pigment, so called by the Indians of Guiana, obtained from *Bignonia Chica*.

CARAWAY. *Carum Carui*, which yields the well-known carminative fruits called Caraway seeds.

CARBERRY. A local name for the Gooseberry, *Ribes Grossularia*.

CARCERULE. An indehiscent many-celled superior fruit, such as that of the Huden. Also employed among fungals to denote their spore-case.

CARCINODES. A term applied to what is commonly called Canker in trees, which may in general be characterised as a slow decay inducing deformity. The appearances are very different in different plants, and the causes different. The same plant, as the apple, may even exhibit three or four different kinds of Canker. One form arises from the attack of the woolly aphid; a second from the development of bundles of adventitious roots, whose tips decay and harbour moisture, and contaminate the subjacent tissues; a third exhibits itself without any apparent cause in the form of broad dark, or even black, patches, spreading in every direction; while a fourth shows pale depressed streaks which soon become confluent, and eventually kill, first the bark, and then, as a necessary consequence, the underlying wood. The only remedy is to cut out completely the affected parts, and that is not always efficacious. The Canker of the plum and apricot is brought on by gumming. In many cases Canker arises doubtless from the roots penetrating into some ungenial soil, which vitiates the juices and induces death to the weaker cells from which it spreads to surrounding tissue. The rugged appearance is generally due to a struggle between the vital powers of the plant and the diseased action. [M. J. B.]

CARCINOMA. A disease in trees when the bark separates, an acrid sap exuding and ulcerating the surrounding parts.

CARCITHIUM. The mycelium of certain fungals.

CAROTTES. The same as Mycelium.

CARDAMINE. An extensive genus of herbaceous Cruciferous plants, distinguished by the nerveless valves of the flat narrow pod, which, when the seeds are

ripe, curl up with an elastic spring from the base upwards, thus scattering the seed. The Cuckoo-flower or Lady's-smock (*C. pratensis*) is a common and very pretty meadow plant, with large lilac flowers. 'They come with the cuckoo,' says Sir J. E. Smith, whence one of their English as well as Latin names (*Flos Cuckoo*); and they cover the meadows as with linen bleaching, which is supposed to be the origin of the other. They are associated with pleasant ideas of spring, and join with the white saxifrage, the cowslip, primrose and harebell, to compose many a rustic nosegay. A double variety is sometimes found wild, which is remarkably prolific, the leaflets producing new plants where they come in contact with the ground, and the flowers, as they wither, sending up stalked flower-bud from their centres. This species is a native of the whole of Europe, Northern Asia, and Arctic America. The flowers and leaves are agreeably pungent, and may be eaten with other herbs in a salad.

C. hirsuta is a common weed everywhere, varying in size according to soil and situation, from six to eighteen inches in height. In dry localities it ripens its seeds in March and April, and withers away; but in damper places continues in flower all the summer. The leaves and flowers of this species also form an agreeable salad. This species, and it is said several others, produce young plants from the leaves. All that is necessary is to place them on a moist grassy or mossy surface. Two other British species are less common. The foreign kinds are less ornamental as garden plants than the double variety of *C. pratensis*. French, Cresson; German, *Gauchbium*. [C. A. J.]

CARDAMOM. The name applied to the aromatic tonic seeds of various Zingiberaceous plants, as *Elestaria Cardamomum*, and *Amomum Cardamomum*, which, besides their medicinal use, form ingredients in curries, sauces, &c. —, **BASTARD.** *Alpinia Cardamomum*.

CARDAMOMUM. The plants formerly so called are now included in *AMOMUM* and *ELETTARIA*; which see. [M. T. M.]

CARDE. (Fr.) *Cynara Cardunculus*.

CARDERE. (Fr.) *Dipsacus fullonum*.

CARDIANDRA. A genus of *Hydrangeaceae*, containing an under-shrub from Japan. It has alternate stalked leaves which are oblong-acute, serrated, and without stipules; and corymbose flowers, those at the margins of the corymb barren and radiant, with a large three-partite petaloid calyx. The fertile flowers have the calyx-tube adhering to the ovary, the limb five-toothed; petals five; stamens numerous, the anthers heart-shaped, from which the genus takes its name; styles three; capsule imperfectly three-celled, opening between the styles. [J. T. B.]

CARDIAQUE. (Fr.) *Leonurus Cardiaca*.

CARDINAL-FLOWER. *Lobelia cardinalis*; also *Cleome cardinalis*.

CARDIOCHLENA. A name proposed for a group of large-growing *Aspidium*-like Ferns, now referred to *Sagaria* [T. M.]

CARDIOMANES. An unnecessary name under which it has been proposed to separate *Trichomanes reniforme* from the rest of the genus. [T. M.]

CARDIONEMA. A genus of *Illecebraceae* containing a small perennial herb from Mexico, with numerous stems, opposite crowded linear leaves, and small sessile axillary greenish-white flowers, the calyx of which is five-parted, surrounded by an involucre of bracts, five of which are larger than the other, serrulate, terminating in conical points; the petals absent; the stamens five, two sterile, the anthers subrotund; the ovary one-celled with a single ovule, and two revolute styles; the fruit an oblong-ovate utricle. [J. T. S.]

CARDIOSPERMUM. A genus of the Soap-wort family (*Sapindaceae*), composed of a number of scandent or climbing shrubs, or herbs having tendrils like the vine. The leaves are twice ternate or very compound, and the leaflets vary much in form; and the flowers, generally small, white or green, and disposed in short axillary racemes, which are furnished below the flowers with two tendrils. The fruit is a three-celled bladder capsule, with few round seeds. The name of the genus is derived from the Greek, and signifies heart-seed, in allusion to the prominent white heart-shaped scars on the seed, which indicate its point of attachment. The common Heartseed (*C. Helleborium*), sometimes called also Winter Cherry, or Heart Pea, is a widely distributed plant, found in all tropical countries. Its leaves are twice ternate, the leaflets lanceolate and coarsely toothed. In the Moluccas they are cooked and eaten as a vegetable, and on the Malabar coast are used with castor-oil, and taken internally for lumbago, &c. The root is laxative, diuretic, and demulcent. It is mucilaginous, but has a slightly nauseous taste, and is used in rheumatism. There are upwards of a dozen species known, the greater portion of them natives of South America, but there is no tropical country in which some of the species are not found. [A. A. B.]

CARD-LEAF TREE. A West Indian name for *Clusia*.

CARDON or CARDONETTE. (Fr.) *Cynara Cardunculus*.

CARDOON. *Oynara Cardunculus*.

CARDOPATIUM. A genus of perennial thistle-like plants of the Composite family, natives of the Mediterranean region, and also very common in Algeria. They vary in height from six inches to one and a half foot. The leaves are pinnatifid with much divided and spinous segments, and have considerable resemblance to those of the common wayside Thistle (*Cirsium*). The flower-heads are small, and disposed in dense corymbs at

the ends of the branches; the outer scales of the involucre are pinnatifid and spinous, the inner entire and pointed; the florets are of a fine blue colour, all of them tubular, with a five-parted limb, and containing both stamens and pistil. The achenes are covered with villous hairs. According to Gilburt, the *C. corymbosum* is the true black Chameleon of the Ancients; its roots contain an acrid caustic juice, and resemble those of the white chameleon (*Carina gummifera*), but differ in their caustic properties. [A. A. B.]

CARDO SANTO. A Brazilian name for *Argemone mexicana*.

CARDUNCELLUS. A genus of the thistle group of the Composite family, and closely related to the saffron thistle (*Carthamus tinctorius*), but the achenes, instead of being naked, are crowned with a pappus consisting of numerous bearded hairs of unequal length united at the base into a ring. The stamens also have a tuft of hair on the middle of the filament. There are about nine known species distributed over the Mediterranean region. Some are stemless herbs, with toothed or pinnatifid spiny-pointed leaves lying close to the ground, and sitting in their midst is a large thistle-like flower-head, one to two inches across, containing numerous tubular florets of a blue colour, surrounded by an involucre of many scales, the outer row of which are often leafy, and have spinous teeth. Others have elongated simple or branched stems, one to two feet high, each branch terminating in a flower-head. Some of the species are cultivated in botanic gardens. [A. A. B.]

CARDUUS. A genus of compound or Composite flowers, distinguished among the thistle-like plants by having the perfectly smooth fruit crowned by a stalkless tuft of simple deciduous hair. *C. nutans*, a common English species, is distinguished by having the upper part of its stalk almost bare of leaves, and by its large solitary drooping rich purple flowers, which have a strong odour, thought by some to resemble that of the substance from which it derives its name, Must-Thistle. This is sometimes called, but incorrectly, the Scottish Thistle (see *ONOPORDUM*). The Holy Thistle (*C. Marianus*) is well marked by the white veins on its large shiny leaves, fabled to have been produced by a portion of the milk of the Virgin Mary having fallen on them. The other British species are uninteresting weeds. Of the hundred species which the genus comprises, some are cultivated, and are considered ornamental plants. Care, however, should be taken how they are introduced into small gardens, many of the perennial species being exceedingly difficult to eradicate when they have once taken possession of the soil, and all having great facilities of dissemination by means of their downy seeds. The seeds of the thistle tribe are the favourite food of many of the hard-billed small birds, especially the

goldfinch, which derives its name (*Carduelis elegans*) from the plant. The common statement that this bird lines its nest with thistle-down is scarcely accurate; the substance being, in most cases, the down of colt's foot (*Tussilago*), or the cotton from the willow, both of which are procurable at the building season, whereas thistle-down is at that time immature.

C. lanceolatus is the emblem of Scotland; the same plant, commonly called Spear Thistle, also forms the badge of the clan Stewart. [C. A. J.]

CAREILLADE. (Fr.) *Hyoscyamus albus*.

CAREYA. A genus of the Myrtle family, and belonging to that section called *Barringtonia*, a group which differs from the true myrtles in having alternate leaves without transparent dots. The plants of this genus are for the most part trees, and are found in India, one species also occurring in North Australia. The leaves are stalked, serrate, and obovate. The flowers are large, red or greenish-yellow, sessile, and forming a short head or spike, or stalked and somewhat corymbose; the calyx four-lobed; the petals, four; the stamens very numerous, their filaments united by their base into a ring; they generally fall in one piece when the flower withers, and have the appearance of a painter's brush. The fruit is a berry, crowned with the remaining calyx-lobes, and in *C. sphaerica* is of the size and form of an orange, yellowish green in colour, and contains few seeds, embedded in pulp. This species is a native of the Malayan peninsula, where it attains a large size. The bark is ash-like, fibrous, and fit for cordage. The wood of *C. arborea* is used for various purposes, as making boxes, hoops, &c. It is, however, not a valuable timber, as it is liable to split when exposed to the sun, and is not impervious to wet; formerly it was employed for making the drums of the Sepoy corps, being flexible; it takes a good polish, and the colour resembles that of mahogany. The bark is made into a rough cordage; and prepared in a peculiar way, is said to be used in some parts of India as a slow match for firelocks. The fleshy calyx leaves are said to be used for curing colds in Hind. The genus is named in honour of Dr. W. Carey, an Indian botanist, who edited one of the editions of *Roxburgh's Flora Indica*. [A. A. B.]

CARGILLIA. A genus of the Ebony family (*Moraceae*), peculiar to Eastern tropical Australia. The two known species are trees, with alternate leathery oblong obtuse entire leaves. The flowers are small and white, collected in dense clusters in the axils of the leaves, the males and females on the same tree, the former containing eight stamens, surrounded by four petals and a four-parted calyx, and the latter like the males, but having only a few abortive stamens, and a four-celled ovary, which, when ripe, is a roundish drupe containing few seeds. The genus

differs from its allies in the quaternary arrangement of parts of the flower. The Black Plum of Illawarra (*C. australis*) is a slender tree, from twenty to forty feet in height, and ten to fourteen inches in diameter, the wood of which is close-grained and useful; the fruits are the size of a large plum, and of a dark purple colour. The Grey Plum (*C. arborea*) grows to a height of fifty or a hundred feet, with a diameter of twelve to fourteen inches; its wood is tough and close-grained, but of no beauty. The fruits, which are produced in great abundance, are eaten by the aborigines. [A. A. B.]

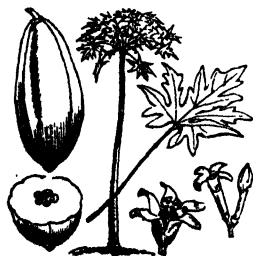
CARIACA. A small variety of *Matea*, much esteemed in British Guiana.

CARIBBEAN BARK. The bark of *Myrsine floribundum*.

CARICA. This genus is the type of the order of Papayads (*Papayaceae*). It contains about ten species, natives of tropical America, forming small trees generally without branches, and having large variously-lobed leaves, resembling those of some kinds of palm: all parts exuding an acrid milky juice when wounded. Their flowers are borne in racemes, proceeding from the bases of the leaf-stalks, the males and females being usually on different trees. The males have a funnel-shaped corolla, into the throat of which the ten stamens are inserted in two rows, one above the other; and the females a corolla of five distinct petals. The fruit is fleshy, and does not split open when ripe.

The most remarkable species is *C. Papaya*, called the Papaw-tree. This is now generally acknowledged to be a native of tropical South America, but it is commonly cultivated in most tropical countries, and was at one time supposed to be indigenous to the East Indies. It is a small tree, seldom exceeding twenty feet in height, with a stem about a foot in diameter, tapering gradually to about four or five inches at the summit, and composed of soft spongy wood, mostly hollow in the centre. The leaves are frequently as much as two feet in diameter, and deeply cut into seven broad lobes, terminating in sharp points, and having their margins irregularly waved or gashed; their foot-stalks are about two feet long, and diverge almost horizontally from the stem. The fruit, for which this tree is celebrated, is of a dingy orange-yellow colour, generally of an oblong form, about ten inches long by three or four broad, but shaped like a melon, with projecting angles; it has a thick fleshy rind, like that of a gourd, and contains black wrinkled seeds, arranged in five lines along the whole length of the central cavity. Throughout most of the West Indian Islands the juice of this tree, or an infusion of its fruit or leaves, is reputed to possess the remarkable property of causing a separation of the muscular fibre of animal flesh, and thus rendering the toughest meat tender. It is

Indeed, that merely hanging the meat amongst the leaves of the tree will produce the same effect; but in this case it is probable that the result is rather attributable to the high temperature, than to any specific influence exerted by the tree. It is also said that if old hogs or poultry be fed upon the fruits and leaves, their flesh will not fail to be tender. The ripe fruit is seldom eaten raw, although, with the addition of pepper and sugar, it is said to be agreeable. It is generally made into sauce, or preserved in sugar, in the West Indies, and the unripe fruit is either pickled, or boiled and eaten like turnips. Its juice is used by the ladies as a cosmetic, to remove freckles; it is also a powerful vermifuge. And, according to the analysis of Vauquelin, it contains *fibrine*, a substance at one time supposed to be confined to the animal kingdom, but now known to exist in several vegetables. The leaves are employed as a substitute for soap. *C. spinosa* is a branching tree, about twenty feet high, with a spiny stem and branches; native of Guiana and Brazil, where it is called *Chamburn*. Its leaves are deeply cut into seven lobes, like those of *C. Papaya*, but the lobes are quite entire. The juice of this tree is of an exceedingly acrid nature, causing blisters and itching



Carica Papaya.

if applied to the skin. The fruits are insipid and are eaten only by a species of ant, neither birds nor other animals touching them; and the flowers have a disgustingly fetid odour. The fruits of some other species, such as *C. citrifolia* and *C. pyrifolia*, are edible, but insipid. [A. B.]

CARIE. (Fr.) *Uredo Caries*.

CARIES. This word is used in vegetable pathology to denote decay of the walls of the cells and vessels, whether attended by a greater or less degree of moisture. Life is necessarily limited in all organic structure, and therefore the time must come when the oldest parts of trees must submit to decomposition; and as soon as this commences, it acts as a putrefactive ferment, and involves neighbouring sound tissues.

In plants of shorter duration, decay takes place from various causes, sometimes from mere constitutional peculiarities, sometimes from a cessation of vital functions, sometimes again from atmospheric or other outward agents, and sometimes from parasitic fungi. The rapidity with which the mischief spreads when once set up is exemplified by the potato murrain, and the black spot of orchids; a few days in either case being sometimes sufficient to induce complete decomposition. The decay of fruit, though not due, as is sometimes supposed, to minute fungi, is certainly promoted by their presence, the mere contact of the tissues and parasite being sufficient to set up putrefactive action. [M. J. B.]

CARILLON. (Fr.) *Campanula Medium*.

CARIM-GOLA. An Indian name for the root of *Monochoria vaginalis*.

CARINA (adj. **CARINATE**). A keel. The two anterior petals of a papilionaceous flower, the three anterior in a milkwort, or any such. Also the thin sharp back of certain parts, as that of a glume of *Phalaris*, &c.

CARINATO-Plicate. So plaited that each fold is like a keel, as in the peristome of some urn-mosses.

CARIOPSIS. A one-celled one-seeded superior fruit, whose pericarp is membranous and united to the seed, as in wheat, maize, and other kinds of corn.

CARISSA. A genus of Apocynaceae plants consisting of shrubs with milky juice, and having axillary flower-stalks, some of which bear no flowers, but are reduced to the condition of spines. The corolla is funnel or salver-shaped, sometimes provided with hairs at its throat. Fruit a two-celled berry with few seeds. The species are natives of Asia and tropical Australia.

C. Carandas, a common Indian shrub, is used for fence-making, for which its thorny character renders it well adapted. Its fruits are also eaten by the natives as a conserve, &c. Some of the species have medicinal properties, being as bitter as septian. The bark of *C. Xylopiicon*, a native of Mauritius and Bourbon, is used by the Creoles in diseases of the urinary organs, while its wood, there called *Bois amère*, has a like reputation. Small cups are made of it in which water or wine is allowed to stand till it acquires the flavour of the wood, as in the bitter cups now so frequently used in this country. [M. T. M.]

CARLEMANNIA. A name applied by Ben-
tham to a genus of Cinchonaceous plants, in honour of Dr. Charles Leman, whose herbarium is now in the possession of the University of Cambridge. The plant is a native of Khasia and the Himalaya, and has leaves with saw-toothed margins, and minute stipules, while the four-parted flower has only two stamens, a circumstance which distinguishes the genus from all its

[M. T. M.]

CARLINA. A genus of prickly herbaceous plants distinguished among the thistle-like group of Compound flowers by having the inner leaves of the calyx or involucre coloured, and of the texture usually called everlasting (scariose). The species, which closely resemble each other in habit are natives of most parts of Europe, growing on dry commons and sea cliffs. *C. vulgaris*, the only English species, is a common weed about a foot high, on dry heaths and soil which has been long undisturbed, less conspicuous from its dull purple disk than from the radiating straw-coloured involucre, which expands horizontally in dry weather, and becomes erect during rain. This portion of the flower is very durable, retaining its form long after the spiny leaves have been reduced to a skeleton. It preserves its hygrometric properties for a long period, and is sometimes gathered and suspended in the house to serve as a natural weather-gage. Olivier de Sevrès says that this plant received its name after the famous Charlemagne, whose army was cured of the plague by using it medicinally. Linnaeus ascribes the name to the Emperor Charles V., whose army was relieved in Barbary from the same disease by a similar remedy. Several of the species, especially *C. gummifera*, contain an acrid resin in which the medicinal virtue of the plant is supposed to reside. The tender roots of some species are said to be eatable, and of others the flowers furnish a substitute for artichokes. [French, *Carlina*; German, *Eberwurz*.] [O. A. J.]

CARLINE THISTLE. The common name for *Carlina*.

CARLUDOVICA. A small genus of Screw-pines (*Pandanus*) confined to tropical South America. Some of them have long climbing stems, sending out aerial roots which fasten upon the trunks of trees, or hang down like ropes, whilst others have no stems, and form dense thickets. They have large stiff plaited leaves, deeply cut into from two to five divisions. Their flowers are of separate sexes, and disposed in squares arranged very close together in a spiral manner, and forming cylindrical spikes, which, while young, are enclosed within four leafy bracts (spathes). Each square consists of a female flower surrounded by four males, giving the spikes a tessellated appearance. The males have a calyx cut into numerous lobes, and an indefinite number of stamens; and the females a calyx of four sepals, four barren stamens, and a square-sided ovary surmounted by a cross-like stigma, eventually producing a square-sided berry with numerous seeds.

C. palmata is a stemless species, common in shady places all over Panama and along the coasts of New Grenada and Ecuador. Its leaves are shaped and plaited like a fan, and are borne on three-cornered stalks from six to fourteen feet high: they are about four feet in diameter and deeply cut into four or five divisions, each of which

is again cut. The Panama hats commonly worn in America, and now becoming common in this country, are manufactured from these leaves. Those of the best quality are plaited from a single leaf without any joinings, and, as the process sometimes occupies two or three months, their price is very high, a single hat often costing 150 dollars, and cigar-cases of the same material 6l. each. The leaves are cut whilst young, and the stiff parallel veins removed, after which they are slit into shreds, but not separated at the stalk end, and immersed in boiling water for a short time, and then bleached in the sun. [A. B.]

CARMEL. The Arab name for *Zygophyllum simplex*.

CARMICHAELIA. A genus of New Zealand shrubs belonging to the pea-flowered group of the Leguminous family. The branches are sometimes round, but more commonly flattened and tape-like. The plants when in a seedling condition are furnished with unequally-pinnate leaves, but after they are a few weeks old no more leaves are produced. The flowers are small, very numerous, pink or lilac in colour, and disposed in short racemes. The pods are roundish, slightly turgid, about half an inch long, and contain two or four seeds. They are remarkable in the family because of their having a thin partition (replum) between the valves of the pod, which remains after the valves have fallen; to this partition the seeds are attached. The genus is named in honour of Captain Carmichael, who published an account of the plants of the island Tristan d'Acunha. [A. A. B.]

CARNATION. A garden variety of *Dianthus Caryophyllus*. —, SPANISH. *Poniciana pulcherrima*.

CARNATION TREE. A garden name for *Kleinia nerifolia*.

CARNÄUBA. A Brazilian Palm, *Corypha cerifera*, the leaves of which yield a wax, which is used for making candles.

CARNEUS. Flesh-colour; the pale red of roses.

CARNILLET. (Fr.) *Silene inflata*.

CARO. The fleshy part of fruit. The flesh or tissue of which fungals consist.

CAROB TREE. The Algaroba Bean, *Ceratonia Siliqua*.

CAROLINEA. The designation given to a genus of *Bombacæ* by the younger Linnaeus in honour of the Princess Sophia Caroline of Baden, a name which he says will always be cherished by botanists. The plants are familiar in our hothouses under this name; but the inexorable law of priority has led botanists generally to adopt that of *PACHIRA*: which see. [T. M.]

CARUBE A' SILIQUES OR CAROUGE. (Fr.) *Ceratonia Siliqua*. — A'-MIEL. *Gleditschia triacanthos*.

CARPADELUM. An inferior indehiscent two or more-celled fruit with solitary seeds, and carpels which, when ripe, separate from a common axis, as in umbellifers.

CARPANTHUS. A synonym of *Azolla*.

CARPEL (adj. **CARPELLARIS**). One of the rolled-up leaves of which the pistil is composed, whether they are combined or distinct.

CARPENTERIA. The name of a Californian shrub belonging to the order *Philadelphaceae*, and having cymes of large white flowers, with a five or six-parted calyx; five to six petals; numerous thread-shaped stamens; and five to seven styles consolidated into one, and terminated by five to seven linear stigmas; capsules attached by their base to the calyx, five to seven-celled, many-seeded. [M. T. M.]

CARPESUM. A genus of the Compositae family, remarkable for its distribution only, two of the species being found in South Europe and the Caucasus, and appearing again in the Himalayan Mountains, where the greater portion of the species are found. They are smooth or pubescent erect branching herbs, with ovate or lanceolate toothed leaves. In one section of the genus the flower-heads are small and either solitary or two or three together, in the axils of the leaves, while in the other section they are much larger, single at the ends of the branches, and the outer scales of the involucre are leaf-like and reflexed. The florets in all are dull yellow, tubular, the central ones having both stamens and pistil, and those of the circumference, pistil only. The achenes are beaked, have slender furrows, and are destitute of pappus. [A. A. B.]

CARPET-WEED. A common name for *Mollugo*.

CARPOCERAS. The name of a group of *Pedakaceae*, now included in *Rogeria*. The same title, given by De Candolle to a section of *Thlaspi*, has been adopted as a generic name by Boissier, the section being raised to the position of a genus, and distinguished from the true *Thlaspi* by the absence of a wing around the pod. [W. C.]

CARPOCHASTE. A genus of the Compositae family, comprising a few slender under-shrubs, all of them natives of New Mexico. Their leaves are opposite, sessile, entire, very narrow, and furnished with glandular dots. The flower-heads purple or white, in loose terminal corymbs; each head with from six to eight florets, all fertile and about an inch in length. The pappus is composed of five to fourteen linear-lanceolate toothed scales, and the achenes have ten slender furrows. Three species are known. [A. A. B.]

CARPOCOLONIUM. A free case or receptacle of spores found in certain algae.

CARPODETES. A small genus of *Amoebales* allied to *Coburgia*. It has

oblong bulbs, ensiform leaves ten inches long and half an inch wide, and a short flower-scape with a large purple spathe, and bearing from one to three flowers; these are purplish-yellow, drooping, with a slender cylindrical curved tube, a limb of six short regular segments, and a short cup-shaped coronet bearing the six stamens on its margin. The species, *C. recurvata*, is a native of Peru. [T. M.]

CARPODETUS. A genus of New Zealand shrubs belonging to the order *Escalloniaceae*. *C. serratus* has much the appearance of a *Rhamnus*, but in its fruit is more closely allied to *Escallonia*. The name of the genus is derived from two Greek words signifying fruit-bound, in allusion to the fruit being girt by the calyx. The principal characteristics are the presence of five petals, touching only by their margins, not overlapping as in allied genera; a viscid stigma; and a leathery succulent fruit, tightly girt with the margin of the calyx, and having four or five compartments containing several ovules. [M. T. M.]

CARPODINUS. Climbing shrubs with tendrils, natives of Sierra Leone, and belonging to the order *Apocynaceae*. They have a funnel-shaped downy corolla, with oblique lance-shaped reflexed segments; five sagittate anthers; a globular stigma; and an orange-shaped fruit containing several seeds embedded in pulp. [M. T. M.]

CARPODONTOS. A genus of the St. John's-wort family, now generally referred to *EUCHYPHIA*: which see. [A. A. B.]

CARPOLOBIA. A genus of the Milk-wort family (*Polygalaceae*). The two known species are natives of West Tropical Africa. They are shrubs or small trees, with alternate ovate acuminate leaves, and short axillary racemes of yellow or white flowers. The calyx is five-leaved; the petals five, one of them keeled and crested at the apex; the stamens eight in number, their filaments united at the base, five of them bearing anthers, the others sterile. The ovary is two-celled with one ovule in each cell, and becomes when ripe a small fleshy somewhat three-angled fruit, containing one seed, which is covered with long silky hairs. [A. A. B.]

CARPOLOGY. That part of Botany which treats of the structure of fruits and seeds.

CARPOLYZA. A genus of South African Amaryllids, the only species of which, *C. spiralis*, is a neat little plant, having ovate bulbs, short linear filiform leaves, which are twisted or recurved; a scape two to five inches high, singularly twisted in a spiral manner in the lower part, and bearing at the top an umbel of from one to four flowers. These flowers are white, the sepals reddish outside tipped with green; they have a short funnel-shaped tube, and a regular somewhat spreading limb; the filaments are adnate to the tube, the three outer ones shorter, and all bearing

oblong anthers affixed by the base; the style is thick furrowed, triangular, more slender upwards, terminated by a trifid recurved ambriated stigma. [T. M.]

CARPOMANIA. This affection, sometimes called Phytolithes, is scarcely a disease, for the grittiness of pears, medlars, quinces, &c. which the term has in view, is a condition which always exists, and the efforts of the gardener to reduce it as much as possible, are rather efforts to create a disease than to cure one. Grittiness depends upon the deposit of layer after layer of new matter within certain cells, till they become hard like stone. Cultivation has a tendency to make the fruit more juicy, but seldom if ever wholly prevents the formation of these stony cells. In the warm climate of Italy quinces are often so full of them as to become uneatable. A variety is said to exist in Chili completely free from grittiness, but this requires confirmation. [M. J. B.]

CARPOMORPHA. Those parts in cryptogamic plants which resemble true fruits without being such receive this name. The spores of lichens.

CARPOPHORUM. The stalk of the pistil above or beyond the stamens.

CARPOPHYLLUM. The same as Carpel.

CARPOPODIUM. A fruit-stalk.

CARPOPTOSIS. After the fruit is well-formed and impregnation has taken place, its progress is often suddenly arrested and after a short time it falls off. This frequently depends upon the fact that more fruit is set than the tree is equal to nourish, and the failure of the crop is in consequence either total or partial. If again the supply of nourishment is too great, from want of root-pruning or from any other cause, the demands of the young shoots are often such that the sap is diverted from the fruit, which consequently perishes. In Italy the rice crops are often somewhat similarly affected. In this case, however, the grain acquires a certain degree of maturity, though not its perfect condition, and is so slightly attached to the mother-plant that the slightest breeze shakes it off. It is not a mere case of over-ripeness, which, as in our own corn crops, may be avoided by early reaping. [M. J. B.]

CARPOSTOMIUM. The opening into the spore-case of algae.

CARRADORIA. A genus of *Globulariaceae* containing a single species, a native of the Italian mountains. It is a glabrous herbaceous plant, with small scattered leaves. The flowers grow in a terminal head; the calyx is subequal; the upper lip of the corolla is simple and linear, and shorter than the lower lip; there is no nectary; the stigma is simple and the scales and palces of the involucre are persistent. In other respects it resembles *Globularia*, from which it has been but recently separated. [W. G.]

CARRAGEEN. *Chondrus crispus*; also written Carrageen, under which name its properties are noticed.

CARRIA. The name sometimes given to a beautiful Ceylon tree, of the Tea family (*Ternstroemia*). It attains a height of forty to fifty feet, and has entire sessile leaves, which are smooth, of a leathery texture, and elliptical in form; they vary from three to four inches in length, and one to two and a half in breadth. The fine large blood-coloured flowers proceed from the axils of the upper leaves, and are a good deal like those of some single-flowered camellias. The plant is now generally known as *Gordonia speciosa*. [A. A. B.]

CARRION-FLOWER. A common garden name for *Stupelia*. Also an American name for *Smilax herbacea*.

CARROT. *Daucus Carota*, the garden form of which furnishes the well-known esculent root. — **CANDY** or **CRETAN.** *Aithamanta cretensis*. — **DEADLY.** A common name for *Thapsia*. — **NATIVE.** A name given in Tasmania to the tubers of *Geranium parviflorum*.

CARROT TREE. *Montsia edulis*.

CARTHAGINIAN APPLE. *Punica Granatum*.

CARTHAME MACULE. (Fr.) *Silybum Marianum*.

CARTHAMUS. A small genus of Compositae, containing two annual species whose flowers grow in heads at the ends of the branches, and are surrounded by numerous leafy bracts (involucre) in numerous rows, the outermost row being broad and spreading out flat, with their edges spiny, the middle ones more upright, of an oval form, and surmounted by an egg-shaped appendage with spiny edges, and the innermost much narrower, quite upright, with their edges entire, but terminated by a sharp spiny point. Each flower is perfect, and has an orange or yellow corolla longer than the involucre, their lower part being imbedded in a dense mass of fringed scales and hairs, but the chief characteristic consists in the absence of the bristles, technically termed pappus. The Safflower plant, or Bastard Saffron (*C. tinctorius*), the Kosumbha of India and Hoang-tchi of China, is extensively cultivated in India, China, and other parts of Asia, also in Egypt and Southern Europe; but its native country is unknown. It grows about two or three feet high, with a stiff upright whitish stem, branching near the top; and has oval, spiny, sharp-pointed leaves, scattered upon, and their bases half-clasping, the stem. Its fruits are about the size of barleycorns, somewhat four-sided, white and shining, like little shells. Under the name of Safflower, 11,334 cwts. of the flowers of this plant, made up into flat circular cakes about the size of half-crowns, were imported to this country, principally from India, and valued at 108,672l. Safflower contains two colouring

matters, yellow and red, the latter being that for which it is most valued. It is chiefly used for dyeing silk, affording various shades of pink, rose, crimson and scarlet. Mixed with finely-powdered talc it forms the well-known substance called rouge. Another common use of safflower is for adulterating saffron, a more expensive dye stuff. The seeds yield an oil much used in India for burning and for culinary purposes. [A. S.]

CARTILAGINOUS. Hard and tough, like the skin of an apple-seed, or a piece of parchment.

CARTONEMA. The generic name of one of the spiderworts, characterised by having the filaments of the stamens without any hairs, but somewhat rough; the style or appendage on the seed-vessel thread-like, and bearded at the end. The name is from the Greek, and indicates the bare or shorn stamens. The only known species is *C. spatulatum*, a native of New Holland, a plant covered with scattered hairs, the stem slightly branched, the leaves long and narrow, the flowers blue, arranged in spikes. [G. D.]

CARIUM. A genus of *Aplacæ* or *Umbellifera*, of some importance as producing the Caraway fruits, or seeds as they are improperly termed. The plants have finely cut leaves, and compound umbels, which in the true Caraway have but few bracts surrounding them, or sometimes none at all; petals broad, with a point bent forwards; fruit oval, curved, with five ribs, and one or more channels for volatile oil under each furrow. The Caraway, *C. Carui*, is cultivated in Essex and elsewhere, and may occasionally be found in a half wild condition. The fruits are used for flavouring as they contain an aromatic volatile oil. [M. T. M.]

CARUNCULA (adj. **CARUNCULATE**, **CARUNCULAR**). A wart or protuberance round or near the hilum of a seed.

CARUNCULARIA. A generic name given to a few plants from the Cape of Good Hope, separated by Haworth from *Stapelia*, but with characteristics scarcely sufficient to establish a new genus. It is consequently used to characterise that section of the genus *Stapelia* which is distinguished by having the staminal corona consisting of five spreading emarginate leaflets, with five blind fleshy clavate appendages in the interior. [W. C.]

CARUTO. The Lana dye, a permanent bluish-black obtained in British Guiana from the fruits of *Genipa americana*.

CARVA. *Billbergia variegata*.

CARVI. (Fr.) *Carum Carui*.

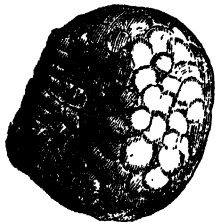
CARYA. The generic name of the Hickory trees of America, a genus belonging to the order *Juglandaceæ*, and at one time included with the walnuts under the name of *Juglans*, from which it is distinguished by having the male catkins

produced in threes from a single stalk, each flower having a three-parted calyx, and not more than six stamens; and by the female flowers being destitute of a corolla, and having their four-lobed stigmas sessile upon the ovary. The husk of the fruit, also, splits into four equal-sized pieces, instead of irregularly as in *Juglans*. There are about a dozen species, all of them natives of North America, forming large forest trees. Their timber is coarse-grained, of great strength and toughness, and very heavy; but as it does not bear exposure to the weather, and is extremely liable to the attacks of insects, it is not suitable for building or similar purposes. It is, however, much used where toughness and elasticity are required, such as for barrel-hoops, press-screws, axe-handles, handspikes, &c., and common descriptions of furniture are also made of it. The nuts of some species are eatable, and resemble but do not equal our walnuts.

The Shell-bark, Scaly-bark, or Shag-bark Hickory, *C. alba*, is so called in consequence of its rough shaggy bark peeling off in long narrow strips. It is common throughout the Alleghany mountains from Carolina to New Hampshire, forming a tree eighty or ninety feet in height, with a trunk about two feet in diameter. Its leaves are about twenty inches long, and are composed of five or seven oblong sharp-pointed leaflets, which are hairy beneath, and have sharply saw-toothed edges. The fruit is nearly round, and has an excessively thick rind, enclosing a small white hard-shelled nut, slightly flattened upon two sides, and marked by four elevated angular ridges. These nuts stand second in point of flavour among the hickories, and small quantities of them are sometimes sent to this country. The Bitter-nut or Swamp Hickory, *C. amara*, produces small and somewhat egg-shaped fruits, having a thin fleshy rind, which never becomes hard and woody like that of the others; the nut is nearly round, flat-topped, and tipped with a short sharp point; its kernel is extremely bitter, and is not eaten by any kind of animal. The Peccan or Illinois-nut Hickory, *C. oliviformis*, is a common tree on the banks of the Ohio and Mississippi, attaining a height of sixty or seventy feet; having leaves from a foot to eighteen inches in length, composed of six or seven pairs of leaflets with an odd one, each leaflet being about three inches long, egg-shaped and tapering to a point, and having its edge finely serrated. The nuts of this species are enclosed in a thin woody husk, and are of a light-brown colour, shaped like an olive, and indistinctly marked by four slightly raised longitudinal ridges. They are much superior in flavour to those of the rest of the genus, and are occasionally to be met with in English fruit-shops. A very palatable oil is obtained from them by pressure. The Pig or Hog-nut, or Broom Hickory, *C. porcina*, is a noble tree seventy or eighty feet high, with a trunk upwards of a yard in diameter. Its wood is considered superior to that of the other

species. The leaflets are seven in number, each about four inches long, lance-shaped, and tapering to a fine point, their edges being very regularly cut like the teeth of a saw. The fruit is pear-shaped, and has a thin husk which splits open only at the top end. The nut has a very thick hard shell, and is without the ridges common in other hickory-nuts; its kernel is small and sweet, and is eaten by pigs, squirrels, and other animals. [A. S.]

CARYOCAR. One of the two genera forming the order of Rhizophorals (*Rhizophoraceæ*), and distinguished by its flowers having free petals, and only four styles, and by its leaves being always opposite; the other genus, *Anthodiscus*, having cohering petals, numerous styles, and often alternate leaves. There are about eight species of *Caryocar*, all large hardwooded trees, growing in the tropical regions of South America. The most interesting is *C. nuciferum*, which produces the Sourari or Butter-nuts, occasionally met with in English fruit-shops. These nuts are shaped something like a kidney flattened upon two sides, having an exceedingly hard woody shell, of a rich reddish-brown colour, covered all over with round wart-like protuberances, and enclosing a large white kernel, which has a very pleasant nutty taste, and yields a bland oil by pressure. It is a lofty tree, frequently as much as 100 feet in height, inhabiting the forests of British Guiana, particularly the banks of the rivers Essequibo and Berbice, where its timber, which is very durable, is employed for ship-building. Its leaves are



Caryocar tomentosum.

composed of three broadly lance-shaped or elliptical taper-pointed leaflets, each about six inches long. Its flowers are of great size, and both calyx and corolla are of a deep purplish-brown colour. The fruit is nearly spherical, and about the size of a child's head, containing, when perfect, four of the above-mentioned nuts or seeds; but they are more frequently imperfect and contain only two or three.

Another species, *C. baryrosum*, also a native of Guiana, has white flowers, and leaves composed of five oval-pointed leaflets radiating from a central stalk. It is called Pekoa by the natives, and its

nuts resemble those of the last; its timber, also, is valuable for ship-building, mill-work, &c. [A. S.]

CARYODAPHNE. Under this name are included certain Javanese trees of the Laurel family, possessed of scaly leaf-buds, three-nerved leaves, a funnel-shaped six-cleft perianth, and twelve stamens in four rows, the nine outer ones fertile. Of these stamens the three innermost have a stalked gland on each side of their base, and all have anthers opening by two valves, inwardly in those of the first and second row, outwardly in those of the third row. The three innermost sterile stamens are stalked, with a long pointed head. The drupe is one-seeded, adherent to the persistent tube of the perianth. *C. densiflora* has a bitter-tasting bark; its leaves are aromatic, and used in spasms of the bowels, &c. [M. T. M.]

CARYOLOPHA. A section of the genus *Anchusa*, one of the *Boraginaceæ*, containing *A. sempervivens*, which has a salver-shaped corolla with a very short straight tube, and the ring at the base of the nuts prolonged on the inner side into an appendage, in which it differs from the other sections of the genus. [J. T. S.]

CARYOPHYLLACEÆ (*Sileneæ*, *Aisloneæ*, *Quercifloræ*, *Mimurarticeæ*, *Molluginæ*, *Stenodactylæ*, *Sileneidæ*, *Clove-corts*, the *Chickweed* family). A natural order of Thalamifloral Dicotyledons belonging to Lindley's Silenial alliance. Herbs with stems swollen at the joints, entire and opposite leaves, and a definite (cymose) inflorescence; sepals four to five, separate or cohering; petals four to five, with narrow claws, sometimes wanting; stamens usually as many or twice as many as the petals. Ovary often supported on a stalk (gynophore), usually one-celled, with a free central placenta; styles two to five, with papillæ on their inner surface. Fruit a capsule, opening by two to five valves, or by teeth at the apex, which are twice as many as the stigmas; seeds usually indefinite; embryo curved round mealy albumen. There are three suborders:

1. *Sileneæ*, the Pink tribe, with united sepals opposite the stamens, when the latter are of the same number. 2. *Aisloneæ*, the Chickweed tribe, with separate sepals, bearing the same relation to the stamens as in *Sileneæ*. 3. *Molluginæ*, the Carpet-weed tribe, in which the petals are wanting, and the stamens are alternate with the sepals when of the same number. Natives principally of temperate and cold regions. They inhabit mountains, hedges, rocks, and waste places. Humboldt says that clove-worts constitute $\frac{1}{4}$ of the flowering plants of France, $\frac{1}{4}$ of those of Germany, $\frac{1}{4}$ of Lapland, and $\frac{1}{4}$ of North America. The order has no very marked properties. Some say that the principle, called *saponine*, which is found in some of the plants, has poisonous qualities. There are some showy flowers in the order, such as Pinks and Carnations; but the greater number are mere weeds. The Clove Pink,

Caryophyllus, is the origin of all the cultivated varieties of carnations, as picotees, bizarres, and flakes. The common Chickweed (*Stellaria media*), and Spurrey (*Spergula arvensis*) used as fodder for sheep, are other examples. There are about sixty genera and 1,100 species. Illustrative genera: *Dianthus*, *Saponaria*, *Silene*, *Lychnis*, *Al-sine*, *Arenaria*, *Stellaria*, *Cerastium*, *Molugo*. [J. H. B.]

CARYOPHYLLACEOUS, CARYOPHYLL:
LATUS. A corolla whose petals have long distinct claws, as in the clove pink.

CARYOPHYLLATA. (Fr.) *Geum urbanum*.

CARYOPHYLLUS. One of the genera of *Myrtaceae*, characterised by a long cylindrical calyx, whose limb is four-cleft; four petals adherent at their points; stamens numerous in four parcels; berry oblong, one or two-celled, and as many seeded.

The tree producing the well-known spice called Cloves (*C. aromaticus*) is a handsome evergreen, rising to from fifteen to thirty feet, with large elliptic leaves and purplish flowers arranged in corymbs on short-jointed stalks. The Cloves of commerce



Caryophyllus aromaticus.

are the unexpanded flower-buds, and derive their name from the French word *clou*, a nail, in allusion to the shape of the bud with its long calyx tube, and the round knob or head of petals at the top. These buds are collected by hand, or by beating the tree with sticks, when the buds, from the jointed character of their stalks, readily fall, and are received on sheets spread for the purpose. The Cloves are then dried by the sun. For many years the Dutch exercised a strict monopoly in the growth of this spice, by restricting its cultivation to the island of Amboyna, and even there extirpating all but a limited number of the trees; but they are now extensively grown in the West Indies and elsewhere. All parts of the plant are aromatic, from the presence of a volatile oil, but especially the flower-buds, hence its use for culinary purposes. The oil is occa-

sionally used in toothache with the effect of lulling the pain, and as a carminative in medicine. [M. T. M.]

CARYOTA. A genus of very elegant lofty Palms (*Palmaceae*) with graceful bipinnate leaves, the leaflets of which differ very much from those of other plants of this order. In general the leaflets of pinnate-leaved palms are long, narrow, and tapering upwards to a point; but those of *Caryota*, on the contrary, are comparatively short, tapering to the base, very broad at their top end, where they are jagged as though gnawed by an animal. Nine species of this genus are known, all of them natives of India and the Indian Islands. They have flowers of separate sexes, borne upon the same spike, or sometimes on distinct spikes. The calyx is of three distinct sepals, and the corolla is three-parted; the male flowers have numerous stamens connected together at the base and forming a cup; and the females a one or two-celled ovary, with as many stigmas, and three barren stamens. The fruits are nearly round, somewhat fleshy, and generally of a purplish colour, containing one or two seeds.

C. urens is a beautiful tree with a trunk about a foot in diameter, growing to the height of fifty or sixty feet, and surmounted by an elegant crown of gracefully curved leaves. These leaves are eighteen or twenty feet long, and ten or twelve broad, and have a very strong central stalk, the base of which widens out so as to form a kind of sheath round the stem, and leaves a circular mark or scar when it falls away; they have, also, a curious black fibrous material at their base. The leaflets are shaped somewhat like a scalene triangle, one side being very sharply and irregularly jagged. The flower spikes are ten or twelve feet long, and issue from the trunk at the base of the leaves, hanging down like the tail of a horse; they are not produced until the tree has arrived at its full period of growth, and the manner in which the numerous spikes succeed each other is rather singular. The first spike issues from the top of the tree, and after it has done flowering another comes out below it, and so on, a flower-spike being produced from the angle of each leaf-stalk, or from the circular scar left by leaves that have fallen away from the trunk, until the process of flowering reaches the ground, when the tree is exhausted and dies. The fruits are reddish berries about the size of nutmegs, and have a thin, yellow, acrid rind. The tree is a native of Ceylon and many parts of India, particularly Malabar, Bengal and Assam; and it supplies the natives of those countries with several important articles. From its flower-spikes a large quantity of the juice called *Toddy*, or *Palm wine*, is obtained, and this, when bottled, yields very good Jaggery or *Palm sugar*, and also excellent sugar-candy. The whole of the sugar used in Ceylon is obtained from the present and two other palms (*Coos nucifera*

and *Borassus flabelliformis*), and a particular caste of natives are called *jaggeraros*, on account of their being solely employed in the preparation of this article. Another valuable substance supplied by this tree is



Caryota urens.

sago; it is prepared from the central or pithy part of the trunk, and is considered to be quite as good and nutritious as ordinary sago. When made into bread or gruel it forms a large part of the food of the natives. The fibre obtained from the leaf-stalks, called Kittul or Kitool fibre, possesses great strength, and is used for making ropes, brushes, brooms, baskets, &c.; and a woolly kind of scurf scraped off the leaf-stalks is used for caulking boats. The outside part of the stem furnishes a small quantity of hard wood. [A. S.]

CASCA D'ANTA. The Brazilian name for the aromatic bark of *Drimys granatensis*.

CASCA DE LARANJEIRA DA TERRA. The Brazilian name for a bark supposed to be that of *Esenbeckia febrifuga*.

CASCA PRECIOSA. The Portuguese name for *Mespilodaphne pretiosa*.

CASCARA DE LINGUE. A Mexican tree bark.

CASCARA DE PINGUE. An astrigent Mexican drug, supposed to be obtained from a species of *Curcuma*.

CASOARILLA. The aromatic bark of *Ocotea Elaeagnifolia*.

CASOARILLA. A name applied by Weddell and other botanists to a genus of *Ononidaceae*, closely allied to the genus *Onchocoma*, but distinguished from it by the fruit splitting into two halves from above downwards, instead of in the reverse manner, as in *Onchocoma*, and—which is of more practical importance—by its not containing any of those chemi-

cal render *Onchocoma* so valuable. The shrubs are natives of Peru and Brazil. See also **CROTON**. [M. T. M.]

CASEARIA. A large genus of *Samydaceae*, the species of which are found more or less abundant in all tropical countries, but principally in South America. They are small trees or shrubs, with alternate entire or serrated leaves, which in the greater number of the species are furnished with a mixture of round or linear pellucid dots, which can be seen with the aid of a lens, by holding the leaf between the eye and a good light, and serve to distinguish the plants of this genus from those of any other family with which they are likely to be confounded. The flowers are small, white, green, or rose-coloured, generally arranged in little umbels or corymbs, but sometimes sessile. The calyx is of four or five divisions; the petals wanting; the stamens are two, three, or four times as many as the calyx segments, and often the alternate ones are without anthers, and have commonly a tuft of hair in their place. The fruit is a one-celled fleshy capsule, containing few or many seeds.

C. nimifolia, a native of Brazil, is used in that country as a remedy against snake-bites. The Brazilians make a drink from the juice of the leaves, and apply the leaves themselves to the wounds. M. St. Hilaire asserts that this remedy has been employed with success against the bites of the most venomous serpents. *C. vesifera* has the young flowers enveloped in tears of a greenish resin, which, according to Spruce, is much used for killing cats and dogs; while another species, the *Pao de rato* of the Portuguese, is said to be poisonous to cattle. According to the same authority, *C. javiensis* is a constant constituent of all forests of recent growth, from the Amazon's mouth to the Orinoco; its habit is more or less corymbose, and the smooth glossy leaves in size and form somewhat like those of the Spanish chestnut.

C. cocculifera, a native of the Circar Mountains of India, has purgative roots, which are used by the hill people, who also eat the leaves in stews. The bark of *C. astringens* is used in Brazil for poultices in cases of imperfectly healed ulcers, and is said to be wonderfully efficacious as a cleanser and stimulant of the raw flesh. The leaves of *C. Lingua*, a Brazilian species, are used in decoction in cases of fever or internal inflammation, while those of *C. coccinea*, an Indian species, are used in medicated baths, and all the parts of the tree have a bitter taste. Nearly 100 species are enumerated. [A. A. B.]

CASHAW. *Prosopis juliflora*.

CASHEW NUT. The seed of *Anacardium occidentale*.

CASIMIROA. A Mexican genus belonging to the *Asteraceae*, in which it is remarkable for its grooved flowers, which are borne in common; and by its five distinct whose filaments are

dilated at the base. The fruit is of the size of a large apple. *C. edulis* is a tree, native of, and cultivated in, Mexico. Its fruit, when eaten, has an agreeable taste, but induces sleep, and is unwholesome. The seeds are poisonous. The bark of the tree is bitter, and it, as well as the leaves, and also the seeds, when burnt and reduced to powder, are used medicinally in Mexico. (Sonnemann.) [M. T. M.]

CASPARYA. A genus of Begoniads, consisting of scandent (climbing) plants growing in Peru. The staminate flowers have four, and the pistillate six, sepals; anthers oblong, obtuse, the filaments very short, not united; style deciduous, tripartite, its branches papillose not tortuous. Seed-vessel triangular, with three mucronate horns of a cartilaginous-corky consistence, attenuated at the apex into a short beak; placentas having two lamellae. There are three known species, viz., *C. hirta*, *C. columbiana*, and *C. coccinea*. These species were formerly included in *Begonia*. The genus is named after Dr. Caspary, an eminent botanist of Bonn. [J. H. B.]

CASSAREEP. The inspissated juice of the cassava, which is highly antiseptic, and forms the basis of the West Indian Pepper-pot.

CASSAVA. The purified fecula of the roots of the Mandioc plant, *Manihot Manihot* (also called *Manihot utilisima* and *Jatropha Manihot*), and *J. Lafflingii*. The Cassava juice, though at first poisonous, is rendered harmless by inspissation. In this

others, which open longitudinally; and the ovary is two-celled, with a single ovule in each cell, the style equalling in length the shorter stamens. The drupe has two stones, and is covered by the persistent calyx. This genus is separated from *Tamonea* by the fruit, which in the latter has a single four-celled stone. [W. C.]

CASSIA. This genus is of much importance in a medical point of view, from its producing the well-known drug called senna. It is a member of the Leguminous family (*Fabaceae*); and is known by its five unequal sepals, its five petals of a yellow colour, not papilionaceous, and its ten stamens, three of which are long, four short, and three sterile or abortive, the anthers opening by pores at the top. The species are very numerous, and consist of trees, shrubs, or herbs, with compound pinnated leaves.

The leaflets of several species constitute what are known in medicine as senna leaves. These are of various shapes, and derived from various sources. Alexandrian senna consists of the lance-shaped leaflets of *C. acutifolia*, and the obovate ones of *C. obovata*, united with the leaves of other plants, which latter are readily detected, as the true *Cassia* leaflets, whatever their form, are unequal at the base, from the larger size of one side of the base of the leaflet as compared with the other. The pods of the two species of *Cassia* are also mixed with the leaves, and possess similar properties. East Indian or Tinivelly senna is a very fine kind, and consists of

CASSE DU LEVANT. (Fr.) *Acacia Farnesiana*.

CASSE-LUNETTE. (Fr.) *Centaurea Cyanus*; and also *Euphrasia officinalis*.

CASSE-PIERRE. (Fr.) *Saxifraga granulata*.

CASSEBEERA. A genus of polypodiaceous Ferns, belonging to the *Cheilanthes*, and distinguished by having the sori slightly within the margin, though terminal on the veins, and generally combined in pairs or three together on the emarginate lobes, and covered by one indusium. The veins are free but not readily seen. The fronds are coriaceous, three parted, pinnate, or bi-pinnate. There are three or four species, found in Brazil and Buenos Ayres. [T. M.]

CASSELIA. A limited genus of small shrubs or herbs from Brazil, belonging to the order *Verbenaceae*. They have membranaceous opposite entire or serrated leaves, and small flowers in lax few-flowered axillary racemes. The calyx is tubular; the corolla funnel-shaped, with a short cylindrical tube, and a five-cleft limb; there are four didynamous stamens hidden in the lower part of the tube, and having very short filaments and two-celled an-

thers. There are other kinds of senna native to and grown in India, Northern Africa, the West Indies, &c. &c., but they are of less importance and value than those above mentioned. The leaves of a North American species, *C. marylandica*, possess similar properties. The heavy nauseous taste and smell of senna are due to a volatile oil, while the purgative effects seem to be due to a chemical substance known as *cathartin*.

The bark and roots of several of the Indian species are used as applications to ulcers and various skin diseases, as well as internally in diabetes and other disorders; they are likewise used for similar purposes in the Mauritius and the West Indies. The seeds of *C. Absus*, a native of Egypt and of India, are bitter, aromatic, and slightly mucilaginous. They are used in Egypt as a remedy for ophthalmia, as are the seeds of *C. auriculata* in India, where also the bark of this shrub is employed by the natives in tanning leather. *C. occidentalis*, a native of both the Indies, is now naturalised in the Mauritius, where the natives use the roasted seeds as a substitute for coffee, and with good effect in certain cases of asthma. It is related that Dr. Livingstone brought the seeds of a plant, which he found cultivated in the

interior of Africa, to the Botanic Garden at the Mauritius, without knowing what the plant was from which they were derived, but stating that the natives prepared and used them as coffee. On investigation the



Cassia lanceolata.

turned out to be those of this species used for a like purpose in the Mauritius. *C. fistula*, called the Pudding Pipe Tree from its peculiar pods, is a very handsome tree, with the foliage of the ash, and the inflorescence of the laburnum. It is a native of India, but has been introduced into the West Indies, Northern Africa, &c., whence its pods, called Cassia-pods, are imported. These pods are very unlike those of the other species, being cylindrical, black, woody, one to two feet long, not splitting, but marked by three long furrows, divided in the interior into a number of compartments by means of transverse partitions, which project from the placentae. Each compartment of the fruit contains a single seed, imbedded in pulp. From this peculiarity of the fruit the plant is occasionally placed in a separate genus *Cathartocarpus*. The pulp surrounding the seeds is used as a mild laxative.

Several kinds of this extensive genus are in cultivation, most of them having handsome foliage and conspicuous yellow flowers. [M. T. M.]

CASSIA BUDS. A commercial name for the flower-buds of *Onnammom aromaticum*.

CASSIA, CLOVE. The bark of *Dicypellum caryophyllatum*. —, POEB. *Oeyris*. — **FURSING.** *Cassia* or *Cathartocarpus Ficus*.

CASSIA-PODS. The black cylindrical woody pods of *Cassia* or *Cathartocarpus Ficus*.

CASSIDEOUS. Having the form of a helmet; as the upper sepal in the flower of an aconite.

CASSINE. A genus of South African plants belonging to the Spindle-tree family, *Celastraceae*. They are smooth, erect or climbing shrubs, with four-angled twigs, and opposite leathery entire or toothed leaves. The flowers are small and white, disposed in cymes; the calyx four or five-parted; the petals and stamens of a like number. The fruit is a fleshy drupe containing one or two seeds enclosed in a stony shell (putamen) and destitute of an aril. The Lapelhout or Ladlewood of the Cape, *C. Colpoen*, furnishes a useful and handsome wood for cabinet-work and other fancy purposes; it is hard and tough, and when polished, the veining has an exceedingly beautiful appearance; it grows to a height of ten feet, with a diameter of eight to twelve inches. The Hottentot Cherry, *C. Macrocentia*, is a bush of like dimensions. The wood takes a good polish, and is particularly adapted for the manufacture of musical instruments. It is sometimes placed in a separate genus called *Macrocentia*. Seven species of *Cassine* are enumerated. [A. A. B.]

CASSINIA. A genus of the Composite family comprising a number of elegant evergreen shrubs, natives of New Holland, Tasmania, New Zealand, and the Auckland Islands. The leaves are small, mostly linear, with the margins rolled backwards. The flower-heads are very numerous and small, white, pink, or yellow in colour, and disposed in terminal corymbs or panicles; the florets all tubular, having both stamens and pistil, or with a few slender female ones near the circumference. The receptacle is furnished with linear scales, like the inner ones of the involucre, and the presence of these scales serves to distinguish the genus (which is named in honour of M. Henri Cassini, an eminent French botanist) from *Oxothamnus*, to which it is nearly allied. *C. aurea*, a species with golden yellow flowers and linear leaves, is in cultivation. One species (*C. aculeata*) is found in Tasmania; and three in New Zealand, one of them (*C. Vauvillierii*) occurring also in the Auckland Islands. The remainder are chiefly natives of the eastern portion of Australia. There are about thirteen species known. [A. A. B.]

CASSIOBERRY BUSH. *Viburnum ligatum*.

CASSIOPE. A genus of *Ericaceae*, consisting of small Arctic or Alpine evergreen plants, resembling lycopods or heaths, with solitary flowers nodding on slender erect peduncles of a white or rose colour. The calyx consists of four or five nearly distinct ovate sepals, and is without bracts; the corolla is campanulate and deeply four to five-cleft; and there are eight to ten stamens, the anthers of which are fixed by their apex, and have ovoid cells, each opening by a large terminal pore, and

bearing a long recurved awn behind. The ovoid capsule has four to five cells and as many valves, with a four to five-lobed placenta pendulous from the summit of the columella, and contains many smooth wingless seeds. [W. C.]

CASSIPOUREA. A genus belonging to that section of the Mangrove family called *Legnotideæ*, containing three species, natives of the West Indies, Central America, Venezuela and Guiana. They are trees with opposite entire or serrated leaves, ovate or elliptical in form, and smooth and leathery in texture. The flowers are small, in axillary clusters, and sessile or shortly-stalked; the calyx four or five-lobed; the petals four or five, clawed and fringed like those of a Pink. The fruit is ovoid, about the size of a pea, somewhat fleshy, and containing few seeds. [A. A. B.]

CASSIS. (Fr.) *Ribes nigrum*.

CASSOLETTE. (Fr.) *Heperia matronalis*.

CASSOUMBA. A pigment made by the Amboynians of the burnt capsules of *Sterculia Balanphas*.

CASSUVIUM. The plants formerly so-called are now considered to belong to *ANACARDIUM*: which see. [M. T. M.]

CASSYTHA. A curious genus of semi-parasitical leafless thread-like plants, usually considered as a section of the *Lauraceæ*. They grow sometimes in, and receive their entire nourishment from, the soil; but when they come in contact with other plants, they twine round them with their wire-like branches, and, at the place of contact, emit root-like tubercles, by which they derive their future nourishment from the plant to which they are fixed, the roots in the soil dying away. The flowers are small and white, disposed in short spikes which arise from the axils of small scales. The calyx is six-parted. The stamens are petal-like, twelve in number, arranged in four rows; the two external rows perfect, the anthers opening inwards with two recurved lids, the next row smaller and having a pair of glands at the base of each stamen, the anthers opening outwards, while the fourth row is scale-like and abortive. The fruit is about the size of a pea, enclosed in a berried calyx, and contains one seed. The plants of this genus are much like dodders in appearance, and are often called Dodder-laurels. They are distinguished from the latter by the absence of leaves and the berried calyx. Some of the Australian species are called *Scrubvines*; they grow so thickly in some places as to be almost impenetrable. The white drupes of *C. cuneatiformis*, a N. Australian species, are eatable. *C. Alfordii*, a common Indian species, is said to be reduced to a paste, mixed with sesamum oil, and used as a head-wash for strengthening the hair; it is also used by the Brahmans of S. India for anointing their butter-milk; and in medicine as a remedy for cleansing in-

veterate ulcers, for which it is prepared by mixing the powdered plant with ginger and butter. The juice mixed with sugar is considered a specific in inflamed eyes. The species are found, more or less, in all tropical countries. [A. A. B.]

CASSYTHACEÆ. The genus *Cassytha*, consisting of leafless parasitical twiners, resembling the dodders in habit, is so very different in this respect from the trees or shrubs which constitute the *Lauraceæ*, that it has been proposed to establish it as a distinct family under the name of *Cassythaceæ*. The structure of the flower and fruit presents, however, no difference whatever: the number of parts, and the peculiar anthers are precisely the same, and *Cassytha* is more generally retained as an anomalous genus or tribe of *Lauraceæ*. There are five or six species, natives of the tropical regions both of the New and Old World, where their thread-like or wiry stems attach themselves to herbs or shrubs precisely like our dodders, only on a somewhat larger scale.

CASTANEA. The Chestnut. This, the most magnificent tree which reaches perfection in Europe, belongs to the *Corylaceæ*, and is so well known that any statement of its distinctive characters is superfluous. Up to a recent period, it appears to have been an almost generally received opinion that the Chestnut was an indigenous tree in Great Britain. This belief was founded mainly on the supposed fact that Chestnut timber existed in large quantities in old buildings. Evelyn says, 'It hath formerly built a good part of our ancient houses in the city of London, as does yet appear: I had once a very large barn near the city, framed entirely of this timber; and certainly the trees grew not far off, probably in some woods near the town, for in that description of London written by Fitz-Stephen, in the reign of Henry II., he speaks of a very noble and large forest, which grew in the boreal part of it, &c. Other writers, equally deserving of credit, make mention of Chestnut timber being found in old buildings; and, among them, Hasted went so far as to broach a theory that a traffic was anciently carried on between Normandy and England, the latter supplying Chestnut timber in exchange for stone.

That this wood should be found in ancient buildings in very large quantities would carry great weight; but it has recently been discovered that the timber supposed to be Chestnut is in reality a kind of Oak, *Quercus coccifera* or *Denmark Oak*, differing from common oak timber in those very characters which had been fixed on as distinctive of Chestnut. Besides this, Chestnut timber of large dimensions is neither in Great Britain nor the South of Europe found to possess the qualities, strength and durability, which were supposed to have recommended it to the notice of ancient builders. Evelyn's quotation from Fitz-Stephen is a very unhappy one, and the citation of the same passage from

Evelyn, by subsequent writers, is still more unfortunate, for the tree in question is neither described nor even mentioned by name. Evelyn honestly cited the passage as evidence that there formerly existed a great forest near London, in which he thought it probable that Chestnut timber, among other kinds, might grow; and the authors who followed him, perhaps not taking the pains to refer to the original work, and mistaking the drift of his remarks, took it for granted that the tree was mentioned, and considered the evidence conclusive, as well they might. Arguments founded on the facts that trees are individually mentioned as being in existence at periods more or less remote, and that there are in England several places which have long borne a name taken from these trees, e.g. Chesteney, Cheshunt, Cheston, Shesterhunte, Chasteners, &c., and consequently that the trees must have grown there in considerable abundance before such names were given—are far from conclusive; for when it is recollected that the Sycamore was, in the time of Gerard, a 'rare exotic,' and 250 years afterwards as common a hedge tree as the elm, we cannot deny that there was abundance of time between the Roman period and the earliest notice of Chestnut trees in our histories, for those trees to have propagated themselves to any extent. On the whole, then, rather than set aside the positive statement of ancient authors that the Chestnut was first introduced from Asia into Europe by the Greeks, and transported thence into Italy by the Romans, it may with reason be concluded that this tree, though long naturalized in England, is not an aboriginal native, but was introduced by the Romans at a very early period, and in process of time propagated itself so widely as to have raised a doubt whether it was not a really native tree.

Its history may be briefly told as follows:—It was first introduced into Europe from Sardinia in Asia Minor, whence it was called the Sardinian Nut, and at a later period Jupiter's Nut, and Husked Nut, from its being enclosed in a husk or rind instead of a shell. Several modern authorities, misquoting a passage in Pliny, attribute its introduction into Italy to Tiberius Caesar, a palpable error, for it is evident from the writings of Virgil that Chestnuts were abundant in Italy long before the time of that emperor. By the Romans it was called *Castanea* from *Castanum*, a town of Magnesia in Thessaly, where it grew in great abundance, and from which it is said that they first brought it. From Italy and Greece it appears to have spread itself over the greater part of temperate Europe, ripening its fruit and sowing itself wherever the vine flourishes. In France, Italy, and Spain it attains a great size. On the Alps and Pyrenees it flourishes at an elevation of between 2,500 and 3,000 feet, the nuts having, perhaps, been carried to those lofty situations by the animals which lay up stores of winter food. It is still more

abundant in Asia Minor, Armenia, and the Caucasus; and it is also found in America as far north as latitude 44°. It ripens its fruit in the warmer parts of Scotland, but rarely, if at all, in Ireland.

The Chestnut blossoms in July, and soon the upper part of the spike bearing the barren flowers withers and drops off, leaving the lower part of the spike still supporting the fertile flowers, with the embryo of the future nuts attached. Towards the end of September the latter begin to ripen, and in October fall to the ground, where they open with valves and expose the ripe nuts. Each case contains from two to five nuts, two or more of which are often mere empty rinds; but all, whether solid or otherwise, have the remains of the flower, in the shape of a few dry bristles, on their points. The Chestnut tree retains its leaves until late in the autumn, when they become of a rich golden hue. Owing to the tufted, and consequently weighty, character of the foliage, and the brittleness of the timber, the tree is liable to be injured by autumnal storms; but the leaves are rarely attacked by insects. The timber of young trees is applied to many useful purposes, but when matured is of little value, being brittle and apt to crack and fly into splinters. In the hop countries the growth of chestnut coppice is much encouraged, poles from this tree and the oak being preferred to all others. French, *Chataigner*; German, *Kastanienbaum*. [C. A. J.]

Theophrastus called it the Eubœan nut, from Eubœa, now Negropont, where it was very abundant; and that being the case, the fruit may have been thence imported into Italy, although the tree, in a wild state, may have previously existed there. Professor Targioni observes that not only have the extensive woods in the Apennines, and other parts of the Apennines, every appearance of being really indigenous, but further evidence that woods of this tree existed in Tuscany from very remote times may be found in the number of places which have derived their names from them, such as Castagna, Castagneta, &c. He therefore concludes that we may safely give, as the native country of the wild Chestnut, the South of Europe, from Spain to the Caucasus. Some have even asserted that the tree is a native of Britain; but from the fact of its never being found here in such quantities as to form natural forests, whilst its seed only ripens in warm seasons or favourable localities, this seems very unlikely. It was probably introduced into this country by the Romans for the sake of its fruit. Gregor, in *Morton's Cyclopædia*, says the oldest Chestnut tree in England is supposed to be that at Tortworth, the seat of Earl Duclie, in Gloucestershire. states it to have been remarkable magnitude in the reign of King (1125). It was then called 'the great nut of Tortworth,' from which it may reasonably be presumed to have existed before the Conquest. It bore fruit abundantly.

dantly in 1788. In 1820 its measurement, five feet from the ground, was fifty-two feet in circumference, so that the diameter, twelve feet, is equal to the width of a moderate-sized room. But these dimensions are small compared with the great Chestnut tree on Mount Etna, which measured 204 feet in circumference. When visited by M. Houel it was undergoing treatment by no means favourable to its prolonged existence. A house was formed in the interior, in which some country people were living; and they had an oven, in which, according to the custom of the country, they dried chestnuts, filberts, and other fruits which they wished to preserve for winter use, using for fuel, when they could find no other, pieces cut with a hatchet from the interior of the tree.

It has been said that the timber in the roof of Westminster Abbey is Spanish Chestnut; but Dr. Lindley has decided that such is not the case, and that Oak, *Quercus sessiliflora*, has been mistaken for it, in this and other old buildings. The timber employed in the construction of the old Louvre at Paris was also supposed to be Chestnut, but on examination by M. Daubenton it was found to be Oak. In this country, where it is certain that very fine oak trees abounded in natural forests, it is not likely that the Spanish Chestnut, requiring to be reared artificially, would be much employed for building purposes. The tree, doubtless, had been originally introduced and grown for the sake of its fruit. It is now, however, cultivated for posts, hop-poles, and hoops.

The fruit is enclosed in a round spiny husk, the inside of which is lined with soft silky pubescence; there are generally three chestnuts in each husk, occasionally more, but sometimes only one. There are many varieties. Some of a very large size are grown in Madeira, but they are not suited for the climate of England. The same remark applies to many of the French varieties, with the exception of the *Marron d'Arras*. The Dorsetshire, Prolific, and Downton are amongst the best adapted for ripening in this climate. The Downton is remarkable for its short-spined husk. Chestnuts, after having been well-dried in the sun, may be kept amongst dry sand in casks. [R. T.]

CASTANEA DO JOBATA. *Antiosperma Passiflora*.

CASTANOSPERMUM. A genus of plants so named in consequence of the supposed resemblance of the seeds to the sweet chestnuts of Europe. It belongs to the papilionaceous section of Leguminous plants, and contains only one species, remarkable for its large woody long-stalked pods. This plant, *C. australe*, is a native of Moreton Bay, in Queensland, Australia, where it seems a tree forty or fifty feet in height. Its leaves are about a foot in length, pinnate, with an odd leaflet, the leaflets being smooth and of an elliptical form. Its pea-like flowers are produced in racemes, and are of a bright yellow colour:

they have a two-lipped, short-tubed calyx, the upper lip having two, and the lower one three, divisions, and ten free stamens. The fruit is a pendulous cylindrical pod, of a bright brown colour, six or eight inches long, and tapering to both ends: it generally contains four seeds, which are rather larger than chestnuts, and of a roundish shape, but flattened on one side. The continent of Australia is remarkable for the paucity and inferior quality of its indigenous fruits or other esculents, the so-called apples and pears of the colonists being hard, woody, uneatable productions; and the seeds of this tree, called Moreton Bay Chestnuts, are no exception to the rule, for, although they have been extolled, and placed upon an equality with our chestnuts, they are in reality not much superior to acorns, and have an astringent taste: they are improved by roasting, and no doubt proved acceptable to the travellers who first visited Moreton Bay. [A. B.]

CASTELA. A genus of tropical shrubs, belonging to the *Simarubaceae*, having foliage like that of the olive, and small unisexual flowers arranged in axillary tufts. The male flowers have eight stamens, inserted beneath the margin of a fleshy eight-lobed disc, those opposite the petals shorter than the rest: the filaments adherent at their base internally to small hairy scales. The female flowers have four ovaries, on a short stalk; the four styles are detached at their origin, but are joined together in the middle for a short distance, and then again detached and recurved. The fruit consists of four fleshy bitter drupes. [M. T. M.]

CASTELNAVIA. One of several genera of most curious Brazilian plants, looking like mosses or *Hepaticae*, belonging to the order *Podostemaceae*, and which have been described with the greatest care and ability by M. Tulane. The present genus consists of plants growing in the rapids, possessing no true leaves but a leaf-like stem or frond, dividing into forked lobes, and cut up at the margins into fringe-like segments. The flowers are either immersed in the substance of the frond, or placed on its margins. Some kinds have linear creeping branched stems, bearing a few linear leaves. The flowers have no calyx or corolla, but a tubular spathe or involucre divided at its margins into several thick thread-like segments; the stamens are two, slightly united one to the other; the fruit consists of a one-celled capsule, with two very unequal valves, surmounted by very long stigmas. [M. T. M.]

CASTILLEJA. A genus of *Scrophulariaceae*, natives of America and Asia, containing about forty species of herbaceous plants, with alternate entire or cut-lobed leaves. The pale yellow or purplish flowers are in terminal spikes, with large coloured bracts usually more showy than the flowers. The calyx is tubular, flattened, cleft on the anterior side, and usually on the posterior also; the divisions are entire or

two-lobed. The corolla-tube is included in the calyx; the upper lip is long and narrow, arched, keeled and flattened laterally, and incloses the stamens; the lower lip is short and three-lobed. There are four stamens with oblong-linear unequal anther-cells, the outer attached by the middle, the inner pendulous. The pod contains numerous seeds. [W. C.]

CASTILLIER. (Fr.) *Eibes rubrum*.

CASTILLOA. A Mexican tree belonging to the *Aricarpacae*, and having male and female flowers alternating one with the other, on the same branch. The male flowers have several stamens, inserted into a hemispherical perianth, consisting of several united scales. The female flowers consist of numerous ovaries in a similar cup. The tree contains a milky juice, yielding caoutchouc. [M. T. M.]

CASTOR-OIL PLANT. *Ricinus com-*

CASTRATUS. When an important part is missing, as in the case of filaments which have no anthers.

CASUARINACEÆ. A group of about a score of species of jointed leafless trees or shrubs, which, in their striated internodes and toothed-ribbed sheaths, have some resemblance to *Equisetum*, whilst in other respects they are allied in some measure to *Ephedra* and the *Coniferae*, under which they were formerly classed, and still more with *Myricaceae* and other amenaceous groups, near to which they are now placed as a small distinct family. Their flowers are unisexual, the males in distinct whorls forming a cylindrical spike; each stamen is enclosed in four scale-like leaflets, the two outer ones considered as bracts, persistent at the base of the stamen, while the two inner ones or sepals, firmly cohering at the tips, are carried upwards by the anthers as the filament is produced. The female flowers are in dense axillary heads without any perianth. The ovaries, sessile within the bracts of the head, are one-celled, with a single ascending ovule, and bear two styles united at the base; the winged nuts are collected in a cone hidden under the thickened bracts. The *Casuarinas* are natives of Australia, of New Caledonia, or of the Indian Archipelago. They are too tender for this climate, but one species is occasionally planted in Southern Europe for its elegant drooping habit.

CASUARINA. A group of curious trees constituting of themselves a distinct family, *Casuarinaceae*. They have very much the appearance of gigantic horse-tails (*Equisetaceae*), being trees with thread-like jointed furrowed pendent branches, without leaves, but with small toothed sheaths at the joints. The male flowers are in spikes with two bracts, and two sepals, which adhere at their points and are carried up like a hood by the anther of the single stamen. The female flowers are

on the same plant, and are collected in dense heads; they have no calyx, but; one-celled ovary with one ascending ovule, and two styles: this ripens into a cone of woody bracts enclosing the seed-vessels, which are winged; the seeds are coated densely with spiral vessels.

These singular plants are met with most abundantly in tropical Australia, less frequently in the Indian Islands, New Caledonia, &c. In Australia they are said by Dr. Bennett to be called Oaka. Their sombre appearance causes them to be planted in cemeteries, where 'their branches give out a mournful sighing sound, as the breeze passes over them, waving at the same time their gloomy horse-like plumes.' The wood is used for fires, as it burns readily, and the ashes retain the heat for a long time. It is much valued for steam-engines, ovens, &c. The timber that is furnished by these trees is valuable for its extreme hardness. From its red colour, it is called in the colonies Beef-wood. The wood of *C. suberosa* is made use of for shingles to cover houses, and for other purposes where lightness, toughness, and durability are required. For further particulars of the Australian species, see Bennett's *Gatherings of a Naturalist in Australia*.

C. muricata is a native of Southern India, where it is valued for its showy wood, whose weight, however, forms an objection to its use. The bark furnishes a brown dye. The young branches of some of the species have a grateful acid flavour, much relished by cattle. *C. equisetifolia* is found in the South Sea Islands, the Indian Archipelago, and India. Its bark is astringent, and was formerly used by the South Sea Islanders to dye their cloth. The ashes of the tree yield a quantity of alkali, which is now used in the manufacture of a coarse soap. The wood furnished by it is called iron-wood, from its colour, hardness, and durability. The natives avail themselves of these properties to make clubs, &c., of it. In Australia this species is called the Swamp Oak, though all the species thrive best in damp localities. Dr. Berthold Seemann mentions in a letter to the *Athenæum*, that the Fiji Islanders, or rather those among them that are cannibals, eat human flesh with forks made of the hard wood of a *Casuarina*, while they eat every other kind of food with their fingers. 'Every one of these forks is known by its particular often obscene name, and they are handed down as heirlooms from generation to generation.' So highly were they valued that it was difficult to obtain one. Several species of *Casuarina* are grown in greenhouses for the sake of their singular appearance. [M. T. M.]

CASSUMUNAR. The roots of

CAT. (Fr.) *Celastrus*

CATARROSA. A genus of Grasses belonging to the tribe *Pecticeae*. The genus scarcely differs from *Glyceria*, except in

the circumstance that there are only two florets in each spikelet. The British species, *C. aquatica*, is a handsome grass, but not of much agricultural importance. It is not uncommon in shallow ditches and the furrows of wet fields. [D. M.]

CATACLESIMUM. A one-celled, one-seeded fruit, inclosed within a hardened calyx, as in *Mirabilis*.

CATALEPTIQUE. (Fr.) *Physostegia*.

CATALPA. A genus of *Bignoniaceae* containing four or five species of trees, natives of the West Indies, North America, Japan, and China. They have large simple petiolate and opposite or tero-verticillate leaves, and flowers in terminal panicles. The calyx is deeply two-lipped; the corolla is bell-shaped, with a swollen tube and an undulate five-lobed spreading limb, irregular, and two-lipped. There are two or sometimes four fertile stamens, the one to three others being sterile and rudimentary; the anthers consist of two vertically diverging cells. The ovary is free, bearing a long slender style with a two-lipped stigma. The capsule is very long and slender, nearly cylindrical and two-celled, with the partition contrary to the valves. The seeds are numerous, broadly winged on each side, the wings being cut at their extremities into a fringe. On account of the beautiful and showy panicles of this genus, the species are cultivated in the various countries where they are found, as ornamental trees. They thrive in France and Germany, and when planted in protected situations do well in the south of England, though they are very liable to be cut off by frosts or north-east winds. In London and its neighbourhood they do well. They grow rapidly. The wood is remarkably light of a grayish-white colour, and fine in texture, capable of receiving a brilliant polish, and when properly seasoned is very durable. The bark is said to be tonic, stimulant, and antiseptic; and the honey from its flowers poisonous. [W. C.]

CATANANCHE. A genus belonging to the *Chloraceae* tribe of Compound flowers distinguished by its scarious involucre and the awned chaffy scales which crown its fruit. *C. carulea* is a perennial herbaceous plant with slender stalks, long narrow leaves which are somewhat toothed at the base, and large heads of sky-blue flowers the scaly involucre of which is silvery-white tipped with reddish-brown. It is a native of the south of Europe, and as a border plant flourishes best in a light dry soil in a sheltered situation. Varieties are also cultivated with white or double flowers. *C. hutes* is an annual species with yellow flowers, a native of Candia. French, *Cupido*; German, *Rasselbume*. [C. A. J.]

CATAPETALOUS. Having the petals slightly united by their inner edge near the base, as in the mallow. A form of *polypetalous*.

CATAPODIUM. A genus of Grasses belonging to the tribe *Festuceae*. The

species which were included in this genus are described by Steudel under *Festuca*, in the *Synopsis Graminearum*.

CATAPUCE. (Fr.) *Euphorbia Lathyris*.

CATASETUM. A numerous genus of fleshy-stemmed terrestrial Orchids from the tropical parts of the New World, where they form masses of considerable extent on decayed leaves, twigs, or other fragments of vegetation. The leaves are plaited and membranous. The flowers, always more or less green, spring in erect or drooping racemes from the base of great oblong fleshy stems, marked by circular scars, showing the places whence leaves have dropped away. The sepals and petals are of a firm leathery texture, sometimes converging into the form of a hood, sometimes spreading backwards. The lip is a fleshy body, not at all jointed with the column; sometimes it assumes the form of a casque, in other cases it is flat, lobed, and broken up into fleshy fringes: the first being characteristic of the original *Catasetum*, the second of what has been called *Myanthus*. The column is an erect fleshy body, terminating in a horn, and bearing about its middle a pair of long deflexed feelers or tendrils, except in a few instances, when the species without feelers have been called *Monachanthus*. In all cases the two fleshy pollen masses are ejected with considerable force by the sudden contraction of a glutinous gland, by which they adhere to surrounding objects. Among the most singular circumstances connected with this genus is the manner in which, upon the same spike, flowers of extremely



Catasetum Nasc (flower).

different structure are produced. This was first noticed in Demerara by Sir R. Schomburgk, who published in the *Linn. Soc. Transactions* (xvii. 551) an account of the production of the three supposed genera, *Monachanthus*, *Myanthus*, and *Catasetum*, upon the same spike; and he expressed his opinion that the *Catasetum* was the female of these, because he found it producing seeds abundantly, while *Monachanthus* was uniformly sterile. Afterwards a

similar specimen made its appearance in the garden of his Grace the Duke of Devonshire at Chatsworth. Mr. Darwin confirms that opinion. It has been well observed that 'such cases shake to the foundation all our ideas of the stability of genera and species, and prepare the mind for more startling discoveries than could have been otherwise anticipated.' For, according to the principles employed in botanical classification, no one could have doubted the distinctions between *Monechanthus*, *Myanthus*, and *Catasetum* being real, until the appearance of all their forms upon the same plant effectually dispelled the illusion.

CATAYA. A Brazilian name for a recent species of *Polygonum*.

CATBRIER. An American name for *Smilax*.

CATCHOP. *Mossbryanthemum felinum*.

CATCHFLY. The common name for *Silene*.

CATCHWEED. The Cleavers, *Galium aparina*.

CATECHU. The inspissated juice of the *Areca* palm (*Areca Catechu*), and of *Acacia Catechu*.

CATENULATE. Formed of parts united end to end like the links of a chain.

CATERPILLAR. A garden name for *Scorpiurus*.

CATERPILLAR FUNGUS. See *CORDONERS*. [M. J. B.]

CATESBÆA. A genus of West Indian shrubs of the order *Onchomaceæ*, with small spines above the leaves, and large trumpet-shaped whitish flowers, which are dilated in the throat, and have a four-parted limb; the stamens are four, with their anthers projecting from the corolla; the berry is of the size of a small egg. *C. spinosa* is a dwarf shrub with handsome flowers. Its fruit is yellow, pulpy, and of an agreeable taste. [M. T. M.]

CATHA. A genus belonging to the order *Celastraceæ*, separated from *Celastrus* on account of some not very well-marked technical characters. Its limits and the number of its species are not strictly defined. They are mostly natives of Africa, forming small shrubs, sometimes with spiny branches, and having simple leaves, from the bases of which small branching heads of flowers are produced. These flowers have a flat five-lobed calyx, five stalkless petals (those of *Celastrus* having short stalks), five stamens, a three-celled ovary half buried in the large disk which fills the bottom of the flower, and a very short style crowned by three pointed stigmas. The fruit or capsule is three-sided and three-celled, each cell containing a single seed, and splitting open when the fruit is ripe.

C. edulis, formerly *Celastrus edulis*, is a native of Arabia, and is by far the most

interesting species of the genus, its leaves being used by the Arabs in the preparation of a beverage possessing properties analogous to those of tea or coffee. It is a shrub without spines, growing about ten feet in height, and is cultivated by the Arabs in the same ground as coffee. Its leaves are opposite on some branches, and alternate on others, smooth, and about two inches or more in length by an inch in width, of an elliptical form, and having their margins cut into blunt saw-like teeth. The flowers are very small and white. Under the name of *Kât* or *Qafta*, the leaves of this shrub, or, rather, twigs of it with the leaves attached, form a considerable article of commerce amongst the Arabs, large quantities of them being annually brought to Aden from the interior of Arabia, where the plant is cultivated. For the purposes of commerce they are made up into neat closely-pressed bundles of different sizes, according to quality, the best kind being in bundles a foot or fifteen inches long by three inches wide, and consisting of about forty slender twigs, tied together with strips of fibrous bark; each bundle selling at Aden for about two annas (or threepence sterling). The effects produced by a decoction of these leaves are described as resembling those of strong green tea, only more pleasing and agreeable. They are also chewed, either in a green state or when dried, and are said to have the effect of inducing great hilarity of spirits, and an agreeable state of wakefulness, so much so, indeed, that the Arabs who chew them are able to stand sentry all night long without feeling drowsy. The use of *Kât* in Arabia is said to be of great antiquity, and to have preceded that of coffee. Its stimulating effects induced some Arabs to class it with intoxicating substances, the use of which is forbidden by the Koran, but a synod of learned Mussulmans decreed, that, as it did not impair the health or impede the observance of religious duties, but only increased hilarity and good humour, it was lawful to use it. In addition to its powers as a stimulant, the Arabs have a superstitious idea that a twig of it worn in the bosom protects a person from the danger of infection; and that the shrub itself is a preventive against the plague. [A. B.]

CATHARANTHUS. A name sometimes met with in gardens, and given to certain shrubby plants belonging to *Vicææ*. [T. M.]

CATHARTOCARPUS. The name under which certain species of *Cassia* are sometimes known. [T. M.]

CATHOARTIA. Dr. Hooker detected this beautiful plant of the Poppy family in the eastern part of the Himalayan mountains, and named it in honour of Mr. Cathcart, an Indian judge who investigated the botany of the Sikkim Himalayas. It is a herb covered with soft yellow hairs, having lobed leaves, and golden drooping flowers, with a hemispherical sessile fruit.

cylindrical capsule, bursting from above downwards into five valves. [M. T. M.]

CATHEDRA. A genus of Brazilian trees belonging to *Clacaceæ*, having alternate shortly-stalked elliptical leathery leaves, and small axillary clusters of nearly sessile flowers, with the floral coverings fleshy and green; calyx cup-shaped, petals six, stamens six, disk conspicuous. [J. T. S.]

CATINGA. A genus doubtfully referred by its author to the Myrtle family. The two known species are described as trees of French Guiana; their leaves opposite or alternate, stalked, entire, ovate-oblong, with long points, and pellucid dots. The flowers are not known. The fruits are borne in axillary racemes; that of *C. moschata* resembling an orange in size, colour, and form; it is crowned with the four remaining calyx-lobes, and contains one seed, while the outer fleshy part of the fruit is covered with little bladders, containing an essential aromatic oil of a musky odour. *C. fragrans* has a fruit, in size and form like a citron, and has an odour like that of basil. [A. A. B.]

CATJANG. The native name of *Cajanus indicus*, a wholesome and much-used kind of pulse.

CATKIN. A deciduous spike, consisting of unisexual apetalous flowers. An amentum.

CATMINT. The common name for *Nepeta*; especially applied to *N. Cataria*. — **MALABAR.** *Antismelis malabarica*.

CATNEP, or CATNEP. *Nepeta Cataria*.

CATOBLASTUS. Two species of Palms, formerly included in the genus *Iriarteia*, have recently been separated under this name. They are both natives of New Grenada, where they grow together in masses, having trunks from thirty to fifty feet high, distantly marked with circular scars, supported a short distance above the level of the ground upon a tuft of aerial roots, and bearing a crown of pinnate leaves. They differ from *Iriarteia* in the male and female flowers being borne on separate spikes, the males having a small rudimentary ovary in addition to the nine to fifteen stamens, whilst the females have scarcely any rudimentary stamens. The seed, also, has markings like a nutmeg (ruminate), and its embryo is placed upright at the base. [A. S.]

CATOOOMA. A genus of scandent or climbing shrubs, natives of the tropical parts of S. America, and belonging to the Milkwort family. The leaves are alternate, entire, ovate or oblong, and leathery in texture. The flowers are numerous, disposed in terminal panicles, yellow or greenish white, often with a purple spot on the keel; the calyx five-leaved, the three exterior leaves small; the petals five, one of them large keeled and three-lobed, the two lateral ones small and scale-like, the other two oblong; the stamens eight

in number, united into a tube which cleft above; the anthers one-celled, opening by a terminal pore. The fruit is compressed, wedge-shaped, fleshy, and two-celled, each cell with one seed, which is furnished with long silky hairs. *C. floribunda* is an extensive Brazilian climber, scrambling over the tops of the highest trees, and covering them with a crown of yellowish flowers. Its roots are used against snake-bites. Upwards of a dozen species have been enumerated, but the characters of many of them are very slight indeed. [A. A. B.]

CATOSTEMMA. A genus of the Myrtle family (*Myrtaceæ*), and found in British Guiana. The only species known, *C. fragrans*, is a tree fifty feet high. The leaves are alternate, entire, obovate in form, with a little recurved point at the apex, two to four inches long, and one to two broad. The flowers are numerous and fragrant, disposed in fascicles in the axils of the upper leaves, about half an inch across; the calyx cup-shaped, with a two-lobed limb. The plant may be recognised from any other in the family by this character. The petals are five in number, inserted into the upper portion of the calyx tube, and falling away with it after withering; the stamens very numerous, in five parcels. The fruit not known. [A. A. B.]

CATS-CLAW. *Dolichos filiformis*. Also *Inga unguis-Cati*.

CATS-EAR. The common name for *Hypochaeris*, especially *H. radicata*; applied also to *Gnaphalium dioicum*.

CATS-MILE. *Euphorbia helioscopia*.

CATS-TAIL. The common name for *Typha*. — **GRASS.** The common name for *Phleum*.

CATSUP or KETCHUP. A sauce prepared from mushrooms, walnuts, and other vegetable productions.

CATTEMUNDOO. A gum-elastic yielded by *Euphorbia antiquorum*. Sometimes called *Callemundo*.

CATTERIDGE TREE. *Cornus sanguinea*.

CAT-THYME. *Teucrium Marum*.

CATTLEYA. An extensive genus of Orchids inhabiting Central America and Brazil, where they are found on the bark of trees, and on rocks. The species all form pseudo-bulbs bearing one, or at the most two, fleshy leaves, from the axil of which rise two or more flowers for the most part rose-coloured, but occasionally yellow, or some tint of that colour. These flowers are often among the largest in the orchidaceous order, some being as much as seven inches across from tip to tip of the petals. The finest of all these grand species is *C. Warszewiczii* from the Amazon, whose flowers grow seven together on a raceme eighteen inches long. Next to it stand *C. Mossii*, *lobata*, *crispata*, and *Skinneri*. The species called *C. Schilleriana*

puttata, and *granulosa* have thick leathery flowers with crimson spots on a yellowish-green ground. *C. luteola* and *citrina* are wholly yellow. Many of the so-called species in gardens are mere varieties of others. The genus differs from *Lasia* in having four pollen masses instead of eight.

CATULUS. A catkin, or amentum, such as is borne by the hazel.

CATURUS. The name formerly given to a nettle-like plant of the Spurgewort family, with long cat's-tail-like spikes of small green flowers, which are said to be used in the East Indian Islands either in a conserve or decoction, as a remedy for diarrhoea. The plant is now placed in the genus *ACALYPHA*: which see. [A. A. B.]

CAUCALIS. A genus of Umbelliferous plants distinguished by its oblong fruit, ribbed with four rows of hooked prickles, with rough interstices. All the species are herbaceous, natives of Europe and the temperate parts of Asia and Africa. The Bur Parsley, *C. daucoideus*, is a British plant, growing in corn-fields in a chalky soil, and is neither attractive in appearance, nor otherwise interesting. *C. latifolia* was formerly abundant in Cambridgeshire, but is now extinct. The leaves are broader and less divided than is generally the case with the umbelliferous tribe; the flowers are large and rose-coloured. The foreign species are equally unattractive. French, *Caucalide*: German, *Hafeldolde*. [C. A. J.]

CAUDA (adj. **CAUDATE**). Any long soft narrow terminal appendage, as that of the corolline lobes of *Strophanthus*, or the lateral sepals of *Cypripedium caudatum*.

CAUDEX. The axis of a plant, consisting of stem and root. — **REPENS.** A creeping stem; what is now called a rhizome. — **DESCENDENS.** The root.

CAUDICULA. The cartilaginous strap which connects certain kinds of pollen masses to the stigma, as in *Macularia*.

CAULERPA. A very beautiful genus of green-seeded *Algae*, abounding in species, and assuming very different forms. The species are almost exclusively natives of warm climates, and occur on sand, on shaded rocks, or in deep water. All have a more or less decided green herbaceous hue, and however complicated may be their growth, or whatever size they may attain, they are formed of a single cell without any transverse divisions, branched and anastomosing in every part of the plant, amidst which a green chlorophyll is produced which ultimately gives rise to minute zoospores. The species are greedily eaten by turtles, of which they form the principal food. The nearest approach which is made to the genus on our coasts, is seen in *Codium*. [M. J. B.]

CAULET. (Fr.) A kind of cabbage.

CAULICLE. A portion of the axis intermediate in structure and position between

the true root and stem, and called the hypocotyledonary axis, as the trunk of *Wohlschlaia*; the space between the radicle and cotyledons.

CAULIFLOWER. A garden variety of *Brassica oleracea*, in which the inflorescence while young is condensed into a depressed fleshy esculent head.

CAULIGENOUS. Arising from a stem.

CAULINE. Of or belonging to the stem. — **STIPULES.** Such as adhere to the stem as much as to the petiole or leaf.

CAULINIA. A section of the genus *Najas*, sometimes considered as distinct on account of the anther being elliptical, one-celled, and without valves; while in *Najas* it is four-sided, four-celled, and opening by four valves, rolling inwards. The only British species of *Najas* (*N. flexilis*, found in lakes in Galway) belongs to *Caulinia*. [J. T. S.]

CAULIS. The stem or ascending axis; a name only given to the part in its customary state, growing in the air. —

DELIQUESCENT. A stem which at a distance above the earth breaks into irregular ramifications, as in the oak. —

EXCURRENS. A stem which shoots straight from the ground to the summit, having branches on the sides, as in *Abies*.

CAULOCARPOUS. A stem which lives many years, repeatedly bearing flowers and fruit; as a shrub or tree.

CAULOMA. The stem of a palm-tree. The stem-like portion of the thallus of such algae as some *Fuci*.

CAULON. In Greek compounds = stem.

CAULOPHYLLUM. A perennial herbaceous plant with tuberous roots, belonging to the order *Berberidaceae*, remarkable for bearing only one leaf on each stem, directly under the cluster of flowers, and terminating the stem, which, consequently, has the appearance of being no more than a leaf-stalk. The true leaf-stalk is divided to the base into three parts, each part having three ovate deeply-cut leaflets. The foliage bears a resemblance to that of *Thalictrum* (hence the specific name *thalictroides*) or *Aquilegia*. The stems are about a foot high; the flowers small, yellowish-green, with six sepals and as many petals and stamens, and are succeeded by deep-blue globose berries, contracted below so as to approach pear-shaped. These berries are called by the Indians *Cohosh*, and the plant is esteemed medicinal. [This, which is the only species, occurs in North America, in deep rich woods, and also in Japan and Manchuria. It is also called *Pappoose Root*.] [C. A. J.]

CAUSTIC. Biting in taste, like Cayenne pepper.

CAVA or KAWA. An intoxicating beverage prepared from *Macropiper methy-*

CAVERN FERN. A name given in some books to *Antrophyum*.

CAVERNULI. The pores of certain fungi.

CAVITAS. The perithecium of certain fungi.

CAVUS. The peridium of certain fungi. — **SUPERUS.** The hymenium of certain fungi.

CAXAPORA DO GENTIO. A Brazilian name for *Terminolia argentea*.

CAYENNE PEPPER. The dried powdered fruits of various species of *Capsicum*. Miller calls it *Cayan Pepper*.

CEANOTHUS. Red root. A genus of shrubby plants belonging to the order *Rhamnaceae*, allied to *Eunonymus*, with which it agrees in having a three-celled three-seeded pericarp, but the seeds are not enclosed in a membrane (arillus). *C. americanus*, the species most commonly cultivated in English gardens, is a native of N. America, a shrub from two to four feet high, with downy leaves and stems, and small white flowers, which, being produced in great numbers, are very ornamental. They appear in June and July, and are succeeded by bluntly triangular seed-vessels. In America it is commonly known by the name of New Jersey tea, the leaves having been formerly used for the same purpose as those of the Chinese tea-plant, and for which it formed a general substitute during the War of Independence. In Canada it is used for dyeing wool of a nankin or cinnamon colour. Many other species are cultivated, and some of remarkable beauty, which have been introduced of late years, are amongst the finest of half-hardy shrubs. The English name has reference to their large red roots. [C. A. J.]

CEBADILLA, CEVADILLA. The seeds of *Asagra officinalis*, from which *veratria* is obtained.

CECROPIA. A genus of large-leaved soft-wooded milky trees, native of tropical South America, and belonging to the order of *Artocarpales*. The flowers are extremely minute, and are arranged upon short cylindrical spikes, several of which (sometimes as many as sixty) are enclosed within a large bract, which, however, soon falls away; their calyx is tubular, and rather thicker in the females than the males, the males containing two stamens, and the females a free ovary and short style terminated by a brush-like stigma. The latter are succeeded by short spikes of small fleshy one-seeded fruits. Upwards of twenty-five species are described.

C. peltata, the Trumpet-tree of the West Indies and tropical South America, so called because its hollow branches are used for musical instruments, is a very rapid growing tree, having a whitish trunk about a foot in diameter, and attaining a height of upwards of fifty feet, its branches growing out at right-angles, so as to form

a large spreading head, the trunk itself being marked at regular distances by circular scars which indicate the places where leaves once grew, and the hollow inside having transverse partitions corresponding in number and position with them. The leaves are nearly circular, often more than a foot in diameter, and attached to their stalk from a point near the centre, their margins being deeply cut into nine oblong lobes, each of which is tipped with a short point; they are very rough upon the upper side, and thickly covered on the under side with snowy white down. The spikes of fruit are in clusters of from five to fifteen.

The Uaupé Indians, who inhabit the Rio Uaupé, a tributary of the Rio Negro, convert the hollow stems of this tree into a very curious kind of musical instrument, a species of drum, called by them *Amboobas*. They select a trunk four or five inches in diameter, and cut off a piece about four feet long, removing the partitions and rendering the inside smooth by means of fire; they then close up the lower end with leaves beaten down into a hard mass with a pestle, and cut two holes towards the top end, so as to form a handle. These rude instruments are commonly used in the native dances, the performer, holding by the handle, beats the lower end upon the ground, and moves his feet in unison with the sounds thus produced.

The inner bark of the young branches yields a very tough fibre, which is twisted into coarse ropes; and the old bark is employed medicinally as an astringent. The young buds are moreover eaten as a potherb, while the leaves are the common food of the sloth, and the milky juice hardens into caoutchouc. The wood is very light, and is commonly used in the West Indies for making floats for fishing nets; razor-strops are likewise made of it, and when dry the Indians use it for producing fire by means of friction. [A. S.]

CEDAR. The common name of various trees, but more especially applied to the Cedar of Lebanon, mentioned below. — **BARBADOS.** *Juniperus barbadensis*. — **BASTARD BARBADOS.** *Ocotelea odorata*; also called the Sweet-scented Barbados Cedar. — **BASTARD Guazuma** *umbellata*; also a common name for *Ocotelea*. — **BELMUDA.** *Juniperus bermudiana*. — **GUINANA.** *Ilex aleutica*. — **HONDURAS.** *Ocotelea odorata*. — **INDIAN.** *Abies* (or *Cedrus*) *Deodara*. — **JAPAN.** *Cryptomeria japonica*. — **MOUNT ATLAS.** *Abies atlantica*. — **OF GOA.** *Cupressus indicana*. — **OF LEBANON.** *Abies Cedrus*, often called *Cedrus Libani*. — **OF N. S. WALES.** *Cedrus australis*. — **PRICKLY.** *Cyathodes Cupressus*. — **RED.** *Juniperus virginiana*. — **RED, of Australia.** *Cedrus australis*. — **SEMP.** *Juniperus Cupressus*. — **STINKING.** *Torreya taxifolia*. — **VIRGINIAN.** *Juniperus virginiana*. — **WHITE.** *Cupressus thyoides*. — **WHITE, of Australia.** *Melia australis*. — **WHITE, of B. Guiana.** *Ilex*. — **WHITE, of Dominica.** *Syzygium*

CEDAR-APPLES. The Pennsylvanian name of the curious excrescences on *Juniperus virginiana*, caused by the fungus called *Podisma macrospora*. [M. J. B.]

CEDRAT. A variety of the Citron, *Citrus medica*.

CEDRE BLANC. (Fr.) *Cupressus thyoides*. — **DES BERMUDEES.** *Juniperus bermudiana*. — **D'ESPAGNE.** *Juniperus thurifera*. — **DE VIRGINIE OR ROUGE.** *Juniperus virginiana*. — **PIQUANT.** *Juniperus Oxycedrus*.

CEDRELACEÆ. (*Cedrela*, the *Mahogany* family.) A natural order of Thalamifloral Dicotyledons, belonging to Lindley's Rutal alliance. Trees with alternate pinnate leaves, without stipules. Flowers in panicles; calyx four to five-cleft; petals four to five; stamens eight to ten, inserted on a disk. Ovary three to five-celled. Fruit a capsule opening by valves, which separate from a thick axis; seeds numerous, flat, winged, and anatropal, i. e., with the opening near the hilum, and the chalazæ at the opposite end. There are two suborders: 1. *Swietenia*: filaments of stamens united. 2. *Cedrela*: filaments not united. Natives of the tropics of America and India, very rare in Africa. The plants of this order are generally fragrant, aromatic, and tonic. Many supply compact beautifully-veined timber, such as the Mahogany of tropical America (*Swietenia Mahagoni*), Satin-wood of India (*Chlorozylon Swietenia*), Yellow-wood of New South Wales (*Ocotea canthozyla*), Red-wood of Coromandel (*Soymdia febrifuga*), and the Toor of India or Simal-Kun of the Lephææ (*Cedrela Toona*). A kind of oil is procured from satin-wood; and the barks of *Cedrela febrifuga*, the mahogany tree and others, are used as remedies in intermittent fevers, as well as in dyspeptic complaints. There are nine known genera, and twenty-five species. *Swietenia*, *Soymdia*, *Flindersia*, and *Cedrela*, serve as illustrations of the group. [J. H. B.]

CEDRELA. A genus of large trees, giving its name to the order *Cedrelaceæ*. They bear compound leaves, regular flowers, five fertile stamens adherent to the stalk which supports the five-celled ovary, and five sterile stamens, which are very small, or altogether absent. The fruit is a capsule bursting by five pieces to liberate the seeds, which are winged. The trees are natives of the tropical parts of Asia and America, and are remarkable for their fine timber, sometimes called Cedar-wood. The trunk of *C. odorata*, a West Indian tree, is sufficiently large to be hollowed out into canoes; this, which is of a brown colour, and has a fragrant odour, is imported under the name of Jamaica or Honduras Cedar. *C. Toona*, a native of Bengal and other parts of India, furnishes timber much like mahogany in appearance but lighter. It is in great request, and is said to be one of the woods known as Chittasong-wood. The bark is very astringent,

and has been found valuable in fevers, dysentery, &c. The flowers are used in some parts of India for producing a red dye. The Red Cedar of Australia, *C. australis*, is now becoming scarce in that colony, the trees having been cut down for the sake of their timber, which was commonly used in the construction of houses. [M. T. M.]

CEDRINO. The small Italian Citron.

CEDRONELLA. A small genus of *Labiata*, natives of North America, and the Canary Isles. They are sweet-scented perennial herbs, or rarely shrubs, with pale purplish flowers, in spikes or terminal racemes, and having the floral leaves bract-like, and the bracts themselves small and setaceous. The calyx is rather obliquely five-toothed, and many-nerved. The corolla is very large, much expanded at the throat, and two-lipped, with the upper lip flattish or concave, and two-lobed, and the lower three-cleft, spreading, the middle lobe being largest. There are four ascending stamens, the lower pair are shorter than the others; the anthers have two parallel cells. The apex of the style is subequally bifid, with subulate lobes. The nucule is smooth. [W. C.]

CEDRUS. The name under which the Cedar of Lebanon, the Deodar or the Indian Cedar, and the Mt. Atlas Cedar, are sometimes separated from other coniferous trees. The characters mainly relied on to distinguish the genus are the evergreen leaves disposed many together in bundles or fascicles, and the erect cones with their carpels separating from the axis. The cedars are now generally included in *Abies*. [T. M.]

CEINBRA. (Fr.) *Pinus Cembra*.

CELANDINE. The common name for *Chelidonium*. — **LESSER.** *Picaria ranunculoides*. — **TREE.** *Bocconia frutescens*.

CELASTRACEÆ. (*Celastrineæ*; *Spindletrees*.) A natural order of Calycifloral polypetalous Dicotyledons belonging to Lindley's Rhamnal alliance. Shrubs or small trees with alternate rarely opposite simple leaves, having stipules which fall off. Flowers in axillary cymes, small, green white or purple; sepals and petals four to five, imbricate, the petals sometimes wanting; stamens four to five, inserted on a large disk, which surrounds the ovary and encloses it. Fruit two to five-celled, capsular or drupaceous (cherry-like); seeds usually with an aril, albuminous, with a large straight embryo. Natives of the warmer parts of Europe, North America, and Asia, far more abundant beyond the tropics than within them. Many inhabit the Cape of Good Hope, some occur in South America, and a few in New Holland. There are two suborders: 1. *Euglymæ*: fruit dry and capsular. 2. *Elæodendree*: fruit drupaceous or cherry-like. The plants of the order are more or less acid in their properties. Some yield oils. The Spindle-trees have a beautiful scarlet aril, which is derived from the sides of the opening in the seed. The

species of *Euonymus* in America, from their crimson capsules and arils, are called Burning-bush. *Celastrus scandens* from its aspect is denominated Wax-work in North America. The stimulating substance called by the Arabs Khât is procured from *Catha edulis*. The wood of the European spindle-tree is used for cannon gunpowder in France. There are thirty-five known genera, and 280 species. Illustrative genera: *Euonymus*, *Celastrus*, *Eleodendron*. [J. H. B.]

CELASTRUS. A genus which gives its name to the family to which it belongs. It is on the one hand allied to *Euonymus*, from which it differs in its alternate leaves, and on the other to *Catha*, which embraces spiny shrubs, whose seeds are furnished with a small aril; whilst *Celastrus* is composed of small unarmed scandent shrubs or trees, having a large aril to their seeds. Their leaves are alternate, entire or serrated with minute stipules. The flowers are small, green or white, and disposed in terminal racemes or panicles. The name of the genus is derived from the Greek, signifying the latter season. The ancients considered the holly, the genista, and the celastrus, the trees which ripened their fruit latest in the season. The *Celastrus* of the ancients is, however, supposed to have been a kind of *Euonymus*. *C. scandens* is a climbing North American shrub, popularly known as Bitter-sweet or Wax-work. The capsules are orange-coloured when mature, and the seeds reddish-brown, coated with a bright orange or scarlet aril. It is sometimes planted as an ornamental climber because of its showy fruit. The seeds are said to possess narcotic and stimulating qualities, while the bark is purgative and emetic. The scarlet-coated seeds of *C. paniculatus*, a common Brazilian species, yield an oil which is sometimes used for burning in lamps, and is in repute among native doctors. The seeds have a hot biting taste owing to a resinous matter contained in them. The plants comprised in this genus, commonly called Staff-trees, are found in the temperate regions of tropical countries, and appear in greatest number in the Himalayas. [A. A. B.]

CELERIAC. A turnip-rooted variety of the garden Celery.

CELERY. *Aptium graveolens*.

CELLA. A name sometimes given to a form of the perithecium among fungals.

CELLS, CELLULES. Cavities in the interior of a plant. The cells of tissue are those which form the interior of the elementary vesicles. Cells of the stem, air-cells, &c., are spaces organically formed by a peculiar building up of tissue, for various vital purposes.

CELLULAR SYSTEM. That part of the plant which consists of cells or elementary vesicles.

CELLULARES. A name given to Cryptogams, from a notion that they consist

entirely of cells. A more accurate acquaintance, however, with their anatomy has shown that vascular tissue exists in many of the higher forms, and that even in *Fungi* there are genera which possess true spiral vessels, while in one or two higher *Algae* the stem contains vascular threads, while the contents of the cells or endochrome are sometimes disposed in one or more spiral bands. In both, the cell-walls themselves have occasionally a spiral structure. *Podaxom* amongst *Fungi*, and *Conferva Melagontum* amongst *Algae*, afford excellent examples. [M. J. B.]

CELLULOSE. The primitive membrane, free from all deposits of sedimentary or other matter. Its composition, according to the latest analysis, is O 34 H 20 O 10.

CELOSIA. A genus of *Amaranthada*, consisting, with a few exceptions, of tropical annual plants, closely allied in their structure to *Amaranthus*, with which they agree in having the flowers three-bracted, a perianth of five-coloured scarious pieces, two-celled anthers, and a utricular seed-vessel splitting horizontally round when ripe; but differ in their five stamens being united at the base into a cup, in having a more or less elongated style, and in the utricle containing several seeds, instead of but one only. It is important to remark that the form of the *C. cristata* or Cockscorn usually found in cultivation, conveys a very incorrect idea of the inflorescence of this genus, the broad flattened stem with its terminal crest being a monstrosity, resulting from the lateral adhesion of the stems and branches by a process termed by botanists fasciation. In its normal phase the *C. cristata* is of erect habit, growing one to two feet high, with roundish striated stems pyramidally branched nearly to the base, alternate leaves of a lanceolate or ovate-lanceolate form, and flowers in either loose pyramidal panicles or compact spikes. In the beautiful, but now little known *C. aurea* of gardens, which is regarded by botanists as but a form of *cristata*, only a few of the flowers at the base of the panicle are perfect, those of the summit being abortive, and putting on the appearance of glossy yellow spirally-twisted scales, which gives the inflorescence a tassel-like form. There is a red-flowered variety of taller growth, with the blossoms in compact conical spikes. There are several other species agreeing with these in habit, but they are less ornamental, and possess little general interest. The flowers of the Cockscorn are reputed to be astringent, and are employed in India in diarrhoea and other maladies. [W. T.]

CELSIA. A small genus of *Linariads* distinguished by a wheel-shaped five-lobed corolla, and didynamous bearded stamens. It is closely allied to *Verbascum*, which differs from it chiefly in having five perfect stamens. The species are annual or biennial plants, in the latter case sometimes of shrubby habit, with entire or

pinnatifid foliage, and spikes of bright yellow mullein-like flowers. The biennial, *C. cretica*, found both in Candia and Northern Africa, is at the same time the best known and by far the showiest of the species. As cultivated in gardens, it attains a height of four or five feet, having the root-leaves of a lyrate form and the upper ones oblong, with a long terminal spike of large yellow blossoms, each of which arises from the axil of a small leaf or bract. The corollas have two brownish spots on the upper side near the centre, the two shortest stamens have their filaments bearded, and the segments of the calyx are sharply serrated. This plant affords a good example of what is termed by botanists a declinate style, this organ, as well as the two longer stamens, being very much bent upwards. *C. Arcturus*, a dwarf half-shrubby species, is sometimes met with in cottage-windows, and has, like the preceding, spikes of yellow flowers, but the calyx segments are all entire, and the filaments all bearded. [W. T.]

CELTIS. Nettle-tree. Handsome much-branched deciduous trees belonging to the *Ulmaceae*, distinguished at once from the true elms by their bearing instead of a membranous fruit a hard fleshy drupe, which is edible, and, though small, is remarkably sweet and said to be very wholesome. Several species have been introduced into Great Britain. The European Nettle-tree, *C. australis*, is a tree from thirty to forty feet in height, with a straight trunk and a branched head. The branches are long, slender and flexible, with a grey bark spotted with white, and covered with a slight down at the extremities. The bark of the trunk is rich brown. The leaves are dark green, marked strongly with the nerves on the lower side, and, when young, covered with a yellowish down. They are oval-lanceolate, terminating in a point at the summit, and at the base having one side prolonged down the petiole. The flowers are small greenish and inconspicuous, and are produced at the same time as the leaves. The fruit, which, when ripe, is blackish and resembles a very small withered wild cherry, is said not to become edible until the first frosts, and it hangs on until the following spring. It is remarkably sweet, and is supposed to have been the Lotus of the ancients, the food of the Lotophagi, which Herodotus, Dioscorides, and Theophrastus describe as sweet, pleasant, and wholesome, and which Homer says was so delicious as to make those who ate it forget their native country. The berries are still eaten in Spain, and Dr. Walsh says that the modern Greeks are very fond of them. According to Dr. Sibthorpe, they are called in modern Greece Honey-berries. The tree grows rapidly, more especially when once established and afterwards cut down, sometimes producing shoots in the climate of London, six feet or eight feet in length. *C. australis* is found on both the shores of the Mediterranean, throughout the whole of the south

of France, Italy, and Spain. It is peculiarly abundant in Provence; and there is a celebrated tree at Aix, under which it is said that the ancient sovereigns of Prussia delivered their edicts to the people. It is much used in the south of Italy and the south of France for planting squares and public walks, when it is frequently found from forty to fifty feet high, with a trunk from one and a half to three feet in circumference. The wood is extremely compact, ranking between that of the live-oak and box for hardness and density. The wood of the branches is elastic and supple. Its compactness renders it susceptible of a high polish, and when it is cut obliquely across the fibres it very much resembles satin wood. It is used for furniture and carving, and the branches are extensively employed in making hay-forks, coach-whips, ramrods, and walking-sticks (London). The North American Nettle-tree, *C. occidentalis*, differs from the European species in having longer leaves, which are of a lighter green, and in having the wood of a lighter colour in winter. The American Hackberry, *C. crassifolia*, is a very distinct species, and one of the finest trees which compose the dusky forests of the Ohio. The leaves are larger, more acuminate, of a thick texture with a rough surface. The fruit is round, and about the size of a pea. The Hackberry is found in the greatest abundance in the western states of America. The timber is of little value. *C. orientalis* and *C. aculeata* are low-spreading trees of inferior interest. French, *Micocoulier*: German, *Lotusbaum*. [C. A. J.]

CENARRHENES. A genus of *Proteaceae*, found in Tasmania. Its flowers, which are apetalous, have four sepals with the points attenuated; four stamens with free filaments, inserted at the base of the sepals; and a filiform style with a simple stigma. These flowers are borne on spikes, rather shorter than the leaves. The fruit is a single-seeded berry. *C. nitida*, the only species, is a small tree about twenty-five feet in height, with shining coriaceous spatulate leaves, attenuated at the base, and remotely dentate, with a grooved petiole; they are from four to six inches in length and about one inch in width. [R. H.]

CENCHRUS. A genus of Grasses belonging to the tribe *Panicæe*, and scarcely differing from *Pennisetum*, except in the involucreal scales being more hardened, broader, and more or less connate at the base. Steudel describes thirty species, which are chiefly inhabitants of rather warm and dry countries, consequently they require the protection of a conservatory when cultivated in Britain. [D. M.]

CENLIA. A genus of the Composite order, having the flowers at the circumference of the heads either strap-shaped or with two lips; those in the centre tubular and four-toothed; the receptacle or part supporting the flowers inflated or hollow; and the fruit two-ribbed, without any crown-like appendage. The name of the genus is from the

Greek word signifying hollow or void, in allusion to the hollow receptacle. The species are natives of the Cape of Good Hope, and have alternate leaves, which are twice pinnate, the divisions being long and narrow. *C. turbinate* has been long known, having been introduced about the beginning of the last century. [G. D.]

CENOBIUM. — **CENOBIONAR**, **CENOBIONEUS**. — Fruits as those of labiates, borageworts, &c., which consist of several distinct lobes, not terminated by a style or stigma.

CENOLOPHIUM. A genus of *Umbelliferae*, nearly related to *Cnidium*, but differing in the structure seeds being enclosed in a loose pericarp, as well as in the ribs of the carpels being hollowed interiorly. *C. Flackeri*, the only species, is a tall smooth perennial weed, common throughout Russia, and sometimes cultivated in botanic gardens. It has many times ternate leaves, the segments narrow, lance-shaped, and nearly an inch in length; small white hemlock-like flowers, disposed in many-rayed umbels, with a general involucre of one bract, and numerous narrow bracts to the partial involucre; ovate-oblong nearly cylindrical fruits, each carpel having five sharp ribs, with an oil tube in each furrow, and two on the inner face. [A.A.B.]

CENTAUREA. An extensive and varied genus of Compositae, comprising both annual and perennial herbaceous or half-shrubby plants, some of them common weeds, e.g., *C. nigra*, the Knapweed of our pastures, while a certain number are esteemed border flowers. They are distinguished by a globose or ovate involucre of many imbricated scales or leaflets which are either fringed at the tip or furnished with appendages varying in form and character; by a bristly receptacle; by the florets being all tubular, the outer row usually much the larger, spreading and sterile; and by a compressed fruit, with or without pappus of simple bristles, and a lateral depression or hilum near the base. The species present great diversity of habit and foliage, some being of prostrate growth, others quite erect; while the foliage varies from entire to pinnatifid or bipinnatifid, and the flowers from white to blue, yellow, and purple.

Of the perennial species, one of the most common in gardens is *C. montana*, which grows one and a half foot high, and bears entire lanceolate downy leaves, and large capitules, the outer florets of which are pale violet blue, and the central ones deep purple. *C. macrocephala*, an erect growing species, of stiff habit, with entire leaves, stalked at the root but decurrent on the stem, has large solitary flower-heads of a fine yellow colour. In *C. dealbata*, with reddish purple flowers, the twice-pinnatifid foliage is whitened on the under side, a circumstance to which the name is due. *C. candidissima*, a native of the Levant, has the lyrate pinnatifid leaves clothed on both surfaces with a white silky tomentum,

which gives it a striking aspect; and *C. Ragusina*, a Dalmatian species, has similar foliage: both these latter have yellow flower-heads.

Of the annual species one of the most remarkable is *C. americanus* or *Plectrocephalus americanus* of some authors, which has a stout erect stem four to five feet or more high, oblong lance-shaped leaves, and very large capitules of a lilac-purple tint. *C. depressa* is a pretty dwarf plant from the Caucasus, of somewhat procumbent habit, with entire lanceolate leaves, and flowers of a fine blue. Better known than any of the preceding is the common Corn Blue-bottle, *C. Cyanus*, an indigenous species of tall slender growth, the foliage greyish, and the flowers, in their wild state mostly of a light blue colour, but in gardens found varying from white to every shade of blue and purple. [W. T.]

CENTAURE DU NIL. (Fr.) *Centaurea Crocodilium*. — **ODORANTE**. *Ambrosia odorata*. — **PETITE**. *Erythraea Centaureium*.

CENTAURELLA. A North American genus of herbaceous plants, belonging to the *Gentianaceae*, and also called *Bartonia*. It has thread like stems, little awl-shaped greenish scales in place of leaves, and smaller terminal four-parted funnel-shaped flowers, and a one-celled ovary, surmounted by a two-lobed stigma. [M. T. M.]

CENTAURIDIUM. A genus of *Compositae*. The only species, *C. Drummondii*, a Texan plant, has great resemblance to some of the knapweeds, but belongs to a different section of the family. The plant is biennial, a foot and a half high, much branched, with linear smooth jointed leaves, and single terminal yellow flower-heads. The ray-florets are strap-shaped and female; those of the disc tubular and perfect. [A. A. B.]

CENTAURY. *Erythraea Centaureium*. — **AMERICAN**. *Sabbatia*.

CENTENILE. (Fr.) *Centunculus*.

CENTINODE. (Fr.) *Polygonum aviculare*.

CENTRADENIA. A genus of *Melastomads*, containing under shrubs from Mexico and Central America, with four-sided branches, and opposite leaves (generally unequal in size and unequal-sided), which are ovate or lanceolate, entire, membranous, and three-nerved. The racemes are few-flowered, axillary; the flowers pink or white. Calyx tube four-sided, its limb four-parted; petals four; stamens eight; the two larger anthers spurred, the others with a glandular appendage to the connective; ovary free, four-celled, with a ring of hairs at the top. [J. T. S.]

CENTRANTHERA. A small genus of *Scrophulariaceae*, natives of tropical Asia and Australia. They are scabrous herbaceous plants, with generally opposite leaves, and almost sessile axillary flowers. The calyx is compressed, and split down the inner margin, entire or two to five-

toothed. The corolla tube is curved and dilated upwards; its limb has five broad lobes, the two upper being innermost in the bud. There are two pairs of included stamens, having transverse two-celled anthers, with mucronate cells. The capsule is obtuse. [W. C.]

CENTRANTHUS. A small genus of Valerian-worts, consisting of smooth annual or perennial European plants, with mostly entire opposite leaves, and small red or white flowers in terminal corymbose panicles, the flowers arranged unilaterally along the branches of the panicle. A slender tubular spurred corolla with a five-lobed limb, one of the lobes standing apart from the rest; a single stamen; a superior calyx of feathery pappus-like appendages rolled inwards before the corolla falls, and only expanded as the fruit matures; and a one-celled, one-seeded fruit are the principal features of this genus. It differs from *Valeriana*, in having a spurred corolla and but one stamen. The pappose calyx is a pretty object under a lens. The Red Valerian, *C. ruber*, formerly known as *Valeriana rubra*, offers a good example of the genus. It is said to be eaten as a salad in Southern Italy, and its sweet-scented roots probably partake in some degree of the antispasmodic and tonic properties occurring in the true valerians. *C. macrostemon* is a very pretty annual species from Spain, with smooth hollow stem, broadly ovate sessile leaves, entire, or pinnatifid, and very large corymbs of rose-coloured flowers. [W. T.]

CENTRIFUGAL. A term applied to those kinds of inflorescence which, like the cyme, flower first at the point or centre, and last at the base or circumference.

CENTRIPETAL. A term applied to those kinds of inflorescence which, like the spike or capitulum, flower first at the base or circumference, and last at the point or centre.

CENTROCARPHEA. A group of the Composite family, differing in no way from *Rudbeckia*. The species referred to it are N. American perennial herbs very frequently met with in gardens. Their leaves are alternate, entire or lobed, and generally scabrous. The flower-heads are large and yellow, terminating the stem or branches. In *C. grandiflora* (otherwise *Rudbeckia grandiflora*), the flower-heads are sometimes more than six inches in diameter, and much like those of the sunflower, but smaller. [A. A. B.]

CENTROCOLINIUM. A genus of the Composite family, belonging to that section of the order which has two-lipped corollas. The four known species are herbs or small shrubs found in the Peruvian Andes at an elevation of 6,000 to 8,000 feet. Their leaves are alternate, stalked, toothed or entire, and covered beneath, as well as the stems, with a white tomentum. The purple flower-heads are axillary and single, on long stalks, and about an inch in diam-

eter; the ray-florets few and female, those of the disc numerous, and containing both stamens and pistil. The achenes are five-angled, crowned with a pappus of numerous unequal rough hairs, and seated on a flat receptacle furnished with short bristles. *C. adpressum* and *C. reflexum* have been in cultivation, but their rose-coloured flowers, which smell of Hawthorn, are very sparingly produced. [A. A. B.]

CENTROLEPIS. A genus of *Desvauxiaceae*, containing a few small tufted sedge-like herbs from Australia and Tasmania. Leaves setaceous, all radical; scapes short, terminated by a simple spike contained in a spathe formed by two slightly unequal bracts (glumes of some authors); glumes (pales of those who consider the spathe-bracts as glumes) two, membranous, stamens one; ovaries two to twelve, becoming utricles in fruit. [J. T. S.]

CENTROLOBIUM. A genus of Leguminous trees found in Brazil, Guiana, and Venezuela. Their leaves are a foot or more in length, and unequally pinnate, the leaflets three to four inches in length, and, as well as all the young parts, clad with a rusty pubescence. The flowers are disposed in terminal panicles. The pod is the most remarkable part of the plant; it is like the fruit of the common Maple (*Acer*) in form, and about nine inches in length, the lower or seed-bearing portion globular, and clad with long straight prickles, the upper or winged portion thin, papery in texture, about two and a half inches in breadth, and bearing on its back near the base a long straight spurred spine, which is the hardened style. *C. parviflora* furnishes one of the most esteemed timbers of the Orinoco; its colour is bright orange when fresh, but it fades to a brown after exposure; it is very strong, dense and durable. The name of the genus is derived from the spur-like hardened style which remains on the pod. [A. A. B.]

CENTRON, or CENTRUM. In Greek compounds = calcar, a spur.

CENTROPAPPUS. A genus of the Composite family, found in Tasmania, nearly allied to *Senecio*, and differing chiefly in habit. The only known species, *C. Brunonis*, is found about the upper limits of the forest on Mount Wellington, at an elevation of 3,000 to 4,000 feet. It is a smooth shrub, seven to ten feet high. The leaves are sessile, gathered together towards the ends of the branches, three to four inches long, and one-quarter of an inch broad. The flower-heads are in terminal corymbs, and in form and appearance bear great resemblance to those of the common yellow ragwort. [A. A. B.]

CENTROPETALUM distichum and *C. Waresburgii* are two small epiphytal Orchids from the mountains of tropical America, with fleshy distichous leaves, and brownish solitary flowers, with a broad lip adherent to a hooded column. The pollen-masses are four, free, attached in pairs to two

filiform curved caudicles which adhere to a common gland.

CENTROPOGON. A genus of *Lobeliaceae*, consisting of undershrubs with irregular flowers on long axillary stalks. The five stamens are united into a tube, and spring from between the corolla, and a ring-like fleshy five-lobed disc, surrounding the inferior two-celled ovary. The two lower anthers are terminated by an ovate triangular cartilaginous point. The plants are natives of tropical America. [M. T. M.]

CENTROSEMA. A genus of prostrate or twining perennial plants belonging to the *Leguminosae*, and distinguished from its nearest allies by its having on the back and near the base of the standard a short spur, from which circumstance the genus receives its name. The species are almost entirely American, and the greater number are found in Brazil. The leaves are made up of three leaflets, rarely of five or seven, the leaflets opposite and the terminal one rather distant; in two species they are digitately arranged and from three to five in number, while in a few others but one leaflet is present. The large and elegant pea-like flowers are single or in axillary racemes, and white violet rose or blue in colour. The pods are very narrow, compressed, thickened at both sides, and terminating in a long point; in some of the species they are eight inches long. The leaves of *C. macrocarpum* are eaten in Guiana. *C. virginianum* is found in Brazil and West Africa, as well as in the United States. Upwards of twenty species are known. [A. A. B.]

CENTROSIS. *Corymbis.*

CENTROSOLENIA. A genus of *Gesneraceae* from British Guiana, founded on a single plant, which has a short creeping stem, subcordate petiolate leaves, and solitary axillary peduncles, sometimes bearing many pedicels. The calyx is five-parted with serrate segments; the tube of the corolla has a spur at its base, and the limb is slightly expanded into five small broad lobes. The four included didynamous stamens, with the rudimentary fifth, are inserted in the base of the tube. The ovary is oblong-conical and hairy. This genus is a dentally allied to *Nematanthus*, but the spur of the flower, coupled with the habit and the toothed segments of the calyx, distinguish it. [W. C.]

CENTROSPERMUM. The name sometimes given to an annual cornfield weed of Spain and Algeria, very near to the genus *Chrysanthemum*, and very like our own corn-marigold, *Chrysanthemum segetum*. The schemes in the last-named plant are naked at top, but in this, *C. chrysanthemum* (C. viscosum), those of the ray-florets have a pappus of three, and those of the disc of one awn, while the stems are smooth and not alamy. [A. A. B.]

CENTROSTEMMA. A genus of *Asclepias*, containing five species, natives of

the Indian Archipelago, the Moluccas, and the Philippine Islands. They are twining shrubs, with opposite coriaceous leaves, and umbels on interpetiolar and terminal peduncles, composed of many large yellowish flowers. The calyx is five-parted. The limb of the corolla is deeply five-cleft and reflexed; a hairy ring exists in the throat of the corolla around the base of the gynostegium, which is exerted. The staminal corona consists of five fleshy leaves inserted on the summit of the gynostegium and surpassing the stigma. The anthers are surrounded by a spreading membrane which attaches them to the stigma; the pollen masses being oblong, with a pellucid interior margin, and attached by short processes. The pentagonal stigma is lengthened out into a cone. The follicles are solitary, long and cylindrical, and contain numerous comose seeds. The hairy ring in the throat of the corolla separates this genus from *Hoya*, to which otherwise it is very nearly related. *C. multiflorum* is a well-known handsome hothouse shrub, often called *Cyrtoceras reflexum*. [W. C.]

CENTUNCULUS. Bastard Pimpernel. A minute herbaceous plant belonging to the *Primulaceae*, and closely allied to *Anagallis*, from which it may at once be distinguished by its four-parted flowers and four stamens, which are glabrous. The whole plant consists of a small fibrous root; a simple or slightly-branched stem, which rarely exceeds an inch and a half in height; from a dozen to twenty, or less, ovate-pointed sessile leaves; and a few solitary sessile flowers of a pinkish hue and of very short duration. The seed-vessels resemble those of pimpernel, for a starved specimen of which the plant might be mistaken. It grows in many parts of Great Britain in sandy or gravelly places, especially where water has stood during the winter, and not unfrequently in company with another minute plant, *Radiola hillebrana*. French, *Centenille bassette*; German, *Centunkel*. [O. A. J.]

CEPHAELIS. The plant producing the true Ipecacuanha belongs to this genus of *Cinchonaceae*, which is characterised by its flowers being collected together in heads surrounded by a leafy involucre; the limb of the calyx very small and five-toothed; the corolla funnel-shaped with five small lobes; the anthers inclosed within the corolla; and the fruit succulent with two compartments, each containing a single seed, striated on the outer side. The Ipecacuanha plant is a native of Brazil. Its root, the part used in medicine, is flexuose but little branched, and the rind is marked by a number of circular projecting knots or rings which are very characteristic. The stem is creeping and herbaceous, with oblong obovate leaves and drooping heads of flowers. The emetic properties of the root are due to a chemical principle called *emetin*.

Ipecacuanha is largely employed in medicine as a safe emetic, and in smaller

quantities it acts on the skin, but especially on the bronchial passages. Some persons are so susceptible to the influence of this drug that they cannot remain in a room where there is *Ipecacuanha* without severe suffering. It is likewise highly esteemed in dysentery, though not so much so now as formerly. Louis XIV. paid 1000 Louis d'or to a physician named Helvetius for the purchase of a remedy for dysentery, under which the Dauphin was then suffering. This remedy was *Ipecacuanha*. Helvetius derived his knowledge of it from a merchant, who from gratitude for attention paid him during illness, by Helvetius, gave the latter some of the root as a remedy for dysentery. [M. T. M.]

CEPHALANDRA. A diocious climbing Cucurbitaceous plant, native of the Cape of Good Hope, with thickened branches, simple tendrils, and large orange-yellow flowers with a five-toothed calyx. The five stamens grow in three parcels, inserted into the base of the corolla, and are adherent at the top into a globose head bearing the anthers—hence the name of the genus. The fruit is of the size of a pigeon's egg, and of a purple colour. [M. T. M.]

CEPHALANTHERA. A genus of Orchids cut off by Richard from *Epipactis*, which the species entirely resemble in their tough fibrous roots and broad ribbed leaves not only clothing the whole stem, but passing gradually into bracts. It differs from *Epipactis* in its anthers being terminal, as in *Arethusa*, not dorsal. The species have nearly regular white or red half-closed flowers with a saccate hypochil, and do not occur in the New World or the southern hemisphere. In the Old they are found from Western Europe to the extremest East of Asia, in the Japanese Archipelago. *C. pallens*, *ensifolia*, and *rubra* are wild in woods in this country.

CEPHALANTHIUM. The capitulum or flower-head of composites.

CEPHALANTHUS. A name expressive of the aggregation of the flowers into heads, and applied to a genus of Cinchonaceous plants called in North America Button-wood. The calyx is tubular with an angular four-toothed limb; the corolla tubular, with a four-toothed limb; the stamens four in number, scarcely protruding from the corolla; the style protruded for a considerable distance from the throat of the corolla; and the stigma capitate. The fruit is inversely pyramidal in shape, crowned by the limb of the calyx, two to four-celled, each cell or compartment containing one seed, or sometimes two of the seeds are absent. The seeds are terminated by a small thickened knob at one end. *C. occidentalis* is a bushy shrub with leaves opposite, or sometimes three in a whorl, and yellowish white flowers in round heads of the size of a marble. [M. T. M.]

CEPHALARIA. A genus belonging to the Teaselworts, characterised by having

the leaves, which surround the heads of flowers, shorter than the appendages which are attached to the surface supporting the flowers. The covering, technically called involucre, which surrounds each flower, is four-sided, with eight grooves, and four to eight teeth at the margin. The name of the genus is derived from the Greek word signifying a 'head,' indicating the form assumed by the groups of flowers. There are about twenty species known, some of which are natives of Middle Europe, others occur in N. Asia and at the Cape; they are mostly perennial herbs, a few being annual, with opposite leaves, which are either toothed or deeply divided; the flowers white, yellow, or lilac. [G. D.]

CEPHALELYNA. A section of *Evelyna*.

CEPHALIUM. A peculiar woolly enlargement of the apex of the stem of *Melocactus*, among whose hairs the flowers appear.

CEPHALODIUM. A knob-like shield, such as occurs in the genus *Scyphophorus*. Also the capitulum of composites.

CEPHALOMANES. A name under which it has been proposed to separate a few species of *Trichomanes*, typified by *T. javanicum*. It is not generally adopted.

CEPHALOPHORUM. A term employed among fungals, sometimes to denote their receptacle, sometimes their stipe.

CEPHALOTACEÆ. The Australian Pitcher-plant, *Cephalotus follicularis*, a curious herb, with radical leaves mingled with pitchers, is a plant of very doubtful affinity. It has been considered provisionally as a distinct family, bearing the name of *Cephalotaceæ*. It has been compared with *Rosaceæ*, *Crassulaceæ*, and *Ranunculaceæ*; but according to the latest authorities (Bentham and Hooker) it is now classed with the *Saxifragaceæ*.

CEPHALOTAXUS. A genus of *Conifera* of the tribe or family of *Taxaceæ*, nearly allied to the yew (*Taxus*) in general habit, foliage, and essential characters; but the male flowers are in small heads, consisting of several closely-clustered catkins, and the fleshy disk, instead of forming an open cup round the base of the seed, completely closes over it into an entire pericarp, two or three of these fruits being collected into a drupe-like head. There are four or five species known, all from Japan or North China, one of which, *C. Fortunei*, is now frequently planted in our collections of conifers.

CEPHALOTUS. A genus of very singular dwarf Pitcher-plants. *C. follicularis*, the only species, is a native of swampy places in King George's Sound, and may frequently be met with in our green-houses. It has a short or contracted stem, with spoon-shaped stalked leaves, among which are mingled small pitcher-like bodies, placed on short stout stalks, and closed at the top with lids like the true pitcher-plants (*Nepenthes*). These pitchers are of a green

colour, spotted with purple or brown, and provided with hairs; the mouth furnished with a thickened and regularly notched rim. The flowers are borne on a long spike, and have a coloured six-parted calyx, without a corolla; twelve stamens, six longer than the rest, inserted into a disc, the anthers provided with a large connective. There are six distinct carpels, each bearing a single seed. Dr. Hooker in a valuable paper on *Nepenthes* in the *Transactions of the Linnæan Society*, says



Cephalotus follicularis.

that there are no intermediate stages between the ordinary leaves and the pitchers of *Cephalotus*, but that the transition from one to the other is as sudden and abrupt as from the cotyledons to the pitchers in the seedling *Nepenthes* described by him. The writer of this notice, however, has on more than one occasion observed intermediate stages between the leaves and pitchers of this Australian Pitcher-plant, in the shape of leafstalks dilated and hollowed out at the point in the form of a horn, or of the mouth of a trumpet. [M. T. M.]

CEPHALOXYS. A section of the Rush genus (*Juncus*) containing such species as have the capsule perfectly three-celled, the valves breaking away from the partitions, which remain attached to the central columella. The *J. repens* of the southern states of North America is the type of this section. [J. T. S.]

CEPHALUM. In Greek compounds = the head, or terminal mass, or thickened end of anything.

CERA DE PALMA. The Peruvian name for the waxy resinous matter secreted by the wax-palm, *Ceroxylon andicola*.

CERACEUS, CERREUS. Having the consistence or appearance of wax.

CERADIA. A genus of the Composite family found on the south-west coast of Africa. The only known species, *C. ferocata*, is a shrub with fleshy horned and forking stems, bearing on their apex a number of bright green succulent veinless leaves,

which are entire and spatulate in form. From the axils of these the flower-heads proceed; they are solitary, of a pale yellow colour, and placed on stalks hardly as long as the leaves. The name *Ceradia* has allusion to the horned appearance of the branches. From the wounded stems of the plant exude small tears of a gum resin, which in burning has a smell resembling that of myrrh, and has been called African Bdellium. [A. A. B.]

CERAISTE COMMUNE. (Fr.) Any wild *Cerastium*.

CERAMIACEÆ. A division of rose-spored *Algae* distinguished amongst those which have their spores collected without order within a hyaline sac (*Gongylospereæ*), by the capsular fruit being either naked or surrounded by a whorl of threads. The external walls of the capsule vary in character, and are sometimes membranous (favella), as if formed of a transformed mother cell. The frond is either compound or simple and filamentous. [M. J. B.]

CERAMIDIA. A name given to the globose ovate or conical capsules of rose-spored *Algae*, mostly opening by a terminal pore, and quite distinct from the frond. They are, however, sometimes difficult to distinguish from coccidia. Examples are afforded by *Laurencia*. [M. J. B.]

CERAMIUM. A genus of articulated rose-spored *Algae* known at once by its central thread being covered at intervals with a layer of cells which give it a knotted appearance. Sometimes the sepals project so as to give the frond somewhat the appearance of the stem of *Equisetum*. The tetraspores are sunk in the frond. Capsular fruit, consisting of a hyaline cell containing many angular spores. Several species occur on the coast, one or two of which are amongst the most ordinary parasites, upon larger sea-weeds. *C. rubrum* is one of the sea-weeds most commonly collected by summer visitors to our coasts, abounding in company with the more delicate *C. pallidum* in almost every little pool amongst the rocks. [M. J. B.]

The name is also a synonym of *Didymochlora*, a peculiar genus of South American Ferns. [T. M.]

CERANAIBA. The Brazilian name of Palm called *Copernicia cerifera*.

CERASTIUM. A rather extensive genus of *Caryophyllaceæ*, containing small white-flowered plants, generally called Mouse-ear Chickweeds. Many of them are annuals, and are more or less hairy or glandular. They are distinguished from other genera of *Alsineæ*, by their cylindrical capsule opening by twice as many teeth as there are styles, the latter being usually five. The petals are generally bid. The number of sepals, petals, and stamens varies; it is generally five in the two former, and ten in the staminal whorl. Several species occur in Britain. *C. trigynum* is an Alpine decumbent plant with only three styles, while in

all the other British species there are five. *C. alpinum* and *C. latifolium* are Alpine plants with erect flowering stems, and petals much longer than the calyx; the former has soft, the latter short rigid pubescence. *C. arvensis* is a common English plant, somewhat resembling the last two, but with much narrower hairs, and the bracts and sepals membranous at the edges. The other species have the petals scarcely exceeding the calyx, and often shorter than it. [J. T. S.]

CERASUS. A genus of *Drupaceæ*, frequently combined with *Prunus*, but distinguishable by having the following characters. The young leaves are folded in halves; the flowers are arranged in umbel-like tufts, appearing before the leaves or in terminal racemes which are produced with the leaves; the fruit is nearly globular in shape, destitute of the mealy bloom of the plum, or the down of the apricot, and having a roundish smooth stone. There are many species of this genus distributed over the temperate regions of both hemispheres; but as they are very subject to variations in habit and appearance, their discrimination is a matter of great difficulty. *C. Avium*, the Wild-cherry or Gean, is a native of Britain; it is a tree producing no suckers, its flower-buds are destitute of leafy scales, and the flesh of the fruit adheres to the stone, so as not to be readily separated from it. *C. vulgaris* is also a native of Britain; it is a shrubby plant, throwing up numerous suckers from its roots, the flower-buds have leafy scales, and the flesh of the fruit is readily separable from the stone. The wood of these trees is in great request in France, where mahogany is less common than with us; it is employed by cabinet-makers and musical-instrument makers. The bark also affords a yellow dye, while the leaves are said to be used to mix with tea. The fruits of *C. Avium* are employed in Switzerland and various parts of Germany in the distillation of a cheap spirit known as *Kirschwasser*. *Maraschino*, *ratafia* and other liqueurs are made in part from the fruits of this tree or some of its varieties. The stalks of the fruits are said to be employed in France as a diuretic. A kind of gum, analogous to tragacanth, exudes in great abundance from these and also from other species of this genus. It is employed by hat-makers and others. A double-flowered variety of *C. vulgaris* is in cultivation; its flowers are very showy and interesting botanically from the fact that the pistil is replaced by two small green leaves. *C. Padus*, the Bird-cherry, is also a native of the British Isles; in Scotland it is known as the Hagberry. It differs from the foregoing in the flowers being arranged in terminal clusters or racemes. The fruit is small, black, and nauseous to the taste. In the north of Europe it enters into the formation of a palatable liqueur; the juice is also expressed and drunk with milk, while the residue of the fruit is kneaded up into

cakes. *C. Mahaleb*, a native of the middle and south of Europe, is remarkable for the fragrance of its flowers, which, as well as the leaves are used by perfumers. A decoction of the leaves is also used in the manufacture of tobacco in France. The wood is prized by cabinet-makers, and in Austria the small branches are used for pipe-stems. *C. virginiana*, an American tree, frequently cultivated in this country, affords valuable wood for cabinet makers. Its bark is astringent and is esteemed for its febrifugal properties. From the fruits a liqueur is made, and when dried they are mixed with pemmican. *C. Capotlim*, a native of Mexico, has also febrifugal properties. The rind of the root is used in cases of dysentery, and by tanners. The leaves and kernels of this, and indeed of most of the species, contain a greater or less proportion of prussic acid; thus the leaves of *C. virginiana* are dangerous on this account. *C. Copricida* derives its specific name from its fatal effects when eaten by goats in Nepal. It is this generally minute quantity of hydrocyanic or prussic acid that renders so many of these fruits useful for flavouring liqueurs; among others the kernels of *C. occidentalis* are used for flavouring noyeau.

The species heretofore mentioned have all deciduous leaves, but there are two well-known species, that have evergreen leaves. One is *C. lusitanica*, commonly called the Portugal laurel (though it has no botanical affinity with the true laurels: see *Laurus*), which is one of the commonest of evergreen shrubs, very hardy and very ornamental, especially when in flower. The leaves are dark green with reddish stalks; the flowers white, in clusters; and the fruits small, dark purple. These latter are much relished by birds. One of the largest bushes of this species is in the Duke of Marlborough's park at Blenheim. The other common evergreen species is *C. Laurocerasus*, the Cherry-laurel, or Common laurel as it is usually called. This has widely lance-shaped remotely serrate leaves of a bright shining green colour above, dull on the lower surface. The leaves, bark, and fruit, as well as the oil obtained from them, are more or less poisonous. The vapour of the bruised leaves is sufficient to destroy small insects. Cherry-laurel water is a watery solution of the volatile oil of this plant; it contains prussic acid, and its effects, medicinal and poisonous, are similar to those of that acid. Sweetmeats, custards, &c., flavoured with the leaves of this plant have occasionally proved fatal; hence it is better to discard the use of these leaves altogether for these purposes, and to employ the leaves of the Sweet Bay, *Laurus nobilis*, instead, as these are equally agreeable in flavour, and harmless. The Cherry-laurel was introduced into this country from the Levant in the sixteenth century. [M.T.M.]

The numerous varieties of cultivated cherries have in all probability originated from *C. Avium* and *C. vulgaris*. Those belonging to *C. Avium*, of which the Bigar-

reau and the Black Heart may be instanced as typical of the better kinds, have generally large pendent leaves, waved on the margin, with sharp prominent veins beneath, coarsely serrated, of thinner texture, and of a more yellowish-green colour than those of the *C. vulgaris*; buds pointed; flowers large, proceeding from wood of not less than two years old; petals loosely set; stamens slender, irregular in length, some being longer and others shorter than the style. From *C. vulgaris* are derived such varieties as the May Duke, Kentish, and Morello. The leaves are generally smaller than those of the preceding species, and have their margins plain, with the veins beneath as they approach the margin scarcely at all prominent, the parenchyma or fleshy substance of the leaves being much thicker than in the former; their colour is deep green; petioles comparatively short and thick, supporting the leaves nearly erect; petals roundish, forming a regular cup-shaped flower, with strong stamens, generally shorter than the style. Fruit round, roundish heart-shaped, or oblate, with aqueous flesh; colour red, dark red, or nearly black, none being white, nor white and red.

Both these species appear to be natives of Europe, although Pliny states that there were no Cherries in Italy before the victory obtained over Mithridates by Lucullus, who was, according to the above author, the first who brought them to Rome, about sixty-eight years before the Christian era. It is also stated by the same authority that, 'in less than 130 years after, other lands had Cherries, even as far as Britain beyond the ocean.' Pliny's statements, Professor Taglioni observes, gave rise to the tale, so generally received as a fact, that Cherries came originally from Cerasonte, now Zefano, and were therefore called Cerasus by the Latins. It may be here observed that nearly all the names of the Cherry in the south of Europe and Germanic languages are derived from the *Képaos* of the Greeks. Now, De Candolle says that the Cherry tree is decidedly wild in Europe, and especially in Greece, where it had existed from a very early period, for it is mentioned by Theophrastus B.C. 300, more than two centuries before its reputed first introduction to Rome by Lucullus from Cerasonte. Some authors are therefore of opinion that the name of that city had been derived from the tree, previously known as *Cerasus* in the south of Europe, and not that of the tree in question from the city. In the gardens of the latter, and in the surrounding country, Cherry-trees may have been so remarkably abundant as to occasion its being distinguished by their name.

When the Rev. Dr. Walsh visited Turkey in 1824, amongst other plants of which he gave an account (*Trans. Hort. Soc.* vi. 32), he mentions the abundance of Cherry-trees as follows: '*Prunus Cerasus*, two varieties. The first of these varieties is a Cherry of enormous size, that grows along the northern coast of Asia Minor, from

whence the original Cherry was brought to Europe. It is cultivated in gardens always as a standard, and by a graft. The gardens consist wholly of Cherry-trees, and each garden occupies several acres of ground. You are permitted to enter these, and eat as much fruit as you please, without payment; but if you wish to take any with you, you pay about a halfpenny per pound. The second variety is an amber-coloured transparent Cherry of a delicious flavour. It grows in the woods in the interior of Asia Minor, particularly on the banks of the Sakari, the ancient Sangarius. The trees attain a gigantic size; they are ascended by perpendicular ladders suspended from the lowest branches. The trunk of one which I measured was five feet in circumference; and the height where the first branches issued forty feet; from the summit of the highest branch was from ninety to 100 feet; and this immense tree was loaded with fruit.'

From a country naturally so favourable to the growth of the Cherry, it is probable that Lucullus may have brought some varieties different from any known at Rome; but, being indigenous to Italy, Cherries must have been familiarly recognized by a name common to them in the south of Europe long before the Romans extended their conquests as far as Asia Minor. In consequence of Pliny's statement, the existence of the Cherry as a native of Britain has been questioned; but Mr. Knight was of opinion that Pliny 'must have meant a cultivated variety of the Cherry, of which the Romans had many in his time; for the small black Cherry which abounds in our woods has much too permanent habits to have been derived from any cultivated variety.' The species to which Mr. Knight alludes is the *C. Avium* or *C. sylvestris*, commonly to be met with in the woods of this and other countries of Europe. Some of its varieties are occasionally found almost equal in size and quality to the cultivated sorts. Among these may be mentioned the Couronne Cherry, so called from its being as black as a crow, which reproduces itself from seed, and is very abundant in several parts of England, and particularly in Hertfordshire. *C. vulgaris* does not appear to be in general so plentiful as *C. Avium*; yet there is a variety of it which grows wild, abundantly, by the sides of the Como Lake in Italy, and which proves to be a sort of Morello, but smaller and more round than the common. Varieties resembling it, and evidently belonging to the same species, have also been found wild in Britain.

With regard to the present race of cultivated Cherries, doubtless many of them were introduced from Holland and Belgium. Evelyn says, 'It was owing to the plain industry of one Richard Haines, a printer to King Henry VIII., that the fields and environs of about thirty towns, in Kent only, were planted with fruit trees from Flanders, to the unusual benefit and general improvement of that county to this day.' The Kentish, sometimes called

the Flemish, had probably been introduced at the above period, and likewise the Bigarreau; the former is the *Cerise de Montmorency*, and had most likely been obtained by the Dutch from France; but it would appear from Knoop that the Bigarreau tribe of Cherries had been introduced to the Continent from Spain; for, he says, in Germany and the Netherlands these are called Spanish Cherries (*Spoones Kersen*).

The cultivated varieties are now very numerous in this country. The following rank among the best: May Duke, Knight's Early Black, Elton, Bigarreau, Florence, Kentish and Morello. The last two are not properly dessert kinds, but are otherwise very useful. The Kentish is chiefly used for pies; its stalk is so strongly attached to the stone that the latter may be withdrawn from the fruit by it, so as to leave the cherry apparently whole, and in this state the fruit is laid on hair sieves and exposed to the sun, where it dries like a sultana raisin, becomes a delicious sweet-meat, and will keep thus for twelve months. The Morello is the sort chiefly employed for preserving in brandy.

Several highly-esteemed liqueurs are prepared from Cherries. The German Kirschwasser is made by distilling the fermented juice of the pulp with which the stones and kernels are ground and mixed. Maraschino, the most celebrated liqueur of Italy, is also obtained by the distillation of a small black Cherry, with which, while fermenting, honey, some cherry leaves, and the kernels of the fruit, are mixed. The celebrated Ratafia of Grenoble is prepared from pounded Cherries, to which brandy, sugar, and spices are added, the mixture being then placed in the sun or near a fire. The gum of the Cherry tree closely resembles gum Arabic in its nature and properties. The wood is hard and tough, and is used by the cabinet-makers. It has been occasionally employed for rifle stocks instead of walnut.

[R. T.]

CERATANDRA. Under this name are collected several species of terrestrial Orchids, inhabiting the Cape of Good Hope. They have grassy leaves, covering the scape, and closely packed green or yellow flowers, turning black in drying. The anther is a great inverted horseshoe-shaped body; the lip, which is heart-shaped or angular, and bears some kind of process in its middle, is attached to the face of the column by a narrow unguit. The species grow in sand, into which they introduce long succulent hairy fibres; they seem to be uncultivable.

CERATIOLA. A small heath-like evergreen shrub, belonging to the *Empetraceae*, among which it is distinguished by its two-leaved membranaceous calyx, with four scales at the base, two petals, and two stamens. *C. ericoides*, the only species, is an upright much-branched shrub, greatly resembling a heath, and varying from two to eight feet high; the branches are erect, somewhat whorled, and marked with the

in whorls of four, very narrow and spreading. Flowers brownish, and very small, solitary in the axils of the upper leaves. A native of South Carolina, on the Edisto River, where it covers a space 300 or 400 yards in width, and two or three miles long. [C. A. J.]

CERATITIS. A name applied by Link to the long ragged species of *Aspidium* which grow on the leaves of the mountain ash and whitethorn, sometimes attacking the fruit of the latter and distorting it. They are now placed in the genus *Ranetia*, to which we shall have occasion to refer hereafter. [M. J. B.]

CERATIUM. A long slender horn-like one-celled superior fruit, which is usually called a capsula siliquiformis, as in *Hypocnemis*.

This is also the generic name of a genus of Isarioid Fungi, consisting of short branched hollow threads which easily collapse, and bear abundant spores on spicules seated on the surface. *C. hydroidum* is not uncommon in this country, and occurs abundantly in Ceylon and elsewhere. [M. J. B.]

CERATOCALYX. A genus of *Orobanchaceae*, containing a single species, parasitic upon the roots of other plants, a native of mountains in Spain. It has a simple scaly stem, and solitary sessile flowers in the axils of the bracts, like *Orobancha*, from which it scarcely differs, except in the structure of the calyx, which is gamosepalous, with a campanulate tube lengthened out laterally into two acute narrow lobes, truncate before and behind, and exhibiting no traces of the union of the sepals. [W. C.]

CERATOCAPNOS. A genus of *Fumariaceae*, the four petals of which are spurred at the base and two-lobed at the apex; stamens six, united into two bundles; style simple, deciduous. Fruit either a one-seeded nut, marked with five ribs, and terminated by a long beak, or a lance-shaped pointed capsule, two-valved and two-seeded, the valves marked with five ribs. The plants are scrambling shrubs, natives of Syria and Algeria. [M. T. M.]

CERATOCERPHALUS. A small genus of *Ranunculaceae*, natives of Central and Southern Europe. They are small annuals covered with cottony hairs, having many-cleft radical leaves, and numerous short one-flowered scapes; calyx with five sepals; petals five, small, yellow; stamens five to fifteen; ovaries numerous. Achenes in an oblong spike on the receptacle; they have two protuberances and two empty cells at the base, and terminate in sword-shaped beaks, about half an inch long when mature. This beak which characterises the genus, is curved upwards in the commonest species, *C. falcatus*, but is nearly straight in *C. orthoceras*. [J. T. B.]

CERATOCHILUS. Under this name stand three very little known diminutive Orchids with simple stems, fleshy distichous leaves and minute solitary

live among mosses which partly conceal them. The supposed genus *Omaea* is one of the species. The *Ceratoclitus* of Lodiges' *Botanical Cabinet* is *Stanhopea*.

CERATOPHYLLUM. A genus of Grasses belonging to the *Poaceae*; only one species has been described, namely, *C. pendula*, which is *Bromus Schraderi*, a native of Carolina. [D. M.]

CERATODACTYLIS. A synonym of *Llavea cordifolia*, a beautiful Mexican Fern, with alliquiform fertile pinnales. [T. M.]

CERATOGONUM. A genus of *Polygonaceae* founded on a plant cultivated in the Calcutta Botanic Garden. The leaves are stalked, ovate-triangular or hastate, with ochreate stipules, ciliated at the apex, and extra-axillary lax filiform flower-spikes. The flowers are moniceously polygamous, the males with a five-parted coloured calyx, while that of the perfect flowers consists of six segments in two rows, the three inner ones petaloid, the three outer leathery, inserted into a tube; stamens eight; nut adhering to the tube of perianth. [J. T. S.]

CERATONIA. A genus of Leguminous plants remarkable on account of its flowers being destitute of a corolla, having only a small five-parted calyx, five stamens, and a pistil with a sessile stigma. The male and female organs are occasionally produced in distinct flowers on different trees.

C. Siliqua, the only species, is a native of the European, African, and Asiatic countries bordering on the Mediterranean, where it forms a small branching tree about thirty feet in height, having wood of a pretty pinkish hue. Its pinnate leaves are composed of two or three pairs of oval blunt-topped leaflets, of a leathery texture, and a shining dark-green colour. The flowers are in small red racemes; and are succeeded by flat pods, from six inches to a foot in length, an inch or rather more in width, and scarcely a quarter of an inch in thickness, of a shining dark purplish-brown colour; they do not split open like many other pods, and contain numerous small seeds arranged in a line along the centre of the pod, each seed being contained in a separate cell formed by the fleshy pulp of the pod. The tree is extensively cultivated in many of the above-mentioned countries, especially in such as suffer from periodical drought, its long roots penetrating to a great depth in search of water. It is called *Algaroba* by the Spaniards, and *Kharoub* by the Arabs, whence comes our English name Carob or Caroub, the pods being called carob-pods, or carob-beans, or sometimes sugar pods. These pods contain a large quantity of agreeably flavoured mucilaginous and saccharine matter, and are commonly employed in the south of Europe for feeding horses, mules, pigs, &c., and occasionally, in times of scarcity, for human food. During the last few years considerable quantities of them have been imported into this country and used for feeding

cattle; but although they form an agreeable article of food, they do not possess much real nutritive property, the saccharine matter belonging to the class of foods termed carbonaceous or heat-givers, the seeds alone possessing nitrogenous or flesh-forming materials, and these are so small and hard that they are apt to escape mastication. They form one of the ingredients in the much-vaunted cattle-foods at present so extensively advertised, the green tint of these foods arising from this admixture. Some years ago they were sold by chemists at a high price, and were used by singers who imagined that they softened and cleared the voice. By fermentation and distillation they yield a spirit which retains the agreeable flavour of the pod.

Besides the name of Carob-beans, these pods are also commonly called Locust-pods, or St. John's Bread, in consequence of its having once been supposed that they formed the food of St. John in the wilderness, but it is now more generally admitted that the locusts of St. John were the animals so called, and which are at the present day used as food in Eastern countries. There is more reason, however, for entertaining the belief that these pods were the husks mentioned in the parable of the prodigal son. The small seeds are said to have been the original carat weight used by jewellers. [A. S.]

CERATOPETALUM. A genus of Australian shrubs or small trees, belonging to *Crotoniaceae*. The leaves are opposite, ternate, with the leaflets coriaceous, serrated, the stipules somewhat leaf-like, caducous. The flowers are small yellow in terminal panicles; the calyx tube is adherent to the ovary, and the limb is five-parted; petals five, cut into a fringe of linear segments; stamens ten, the anthers beaked; capsule one-seeded, gaping at the apex, and crowned by the calyx limb. They have a gummy secretion. [J. T. S.]

CERATOPHYLLUM, CERATOPHYLLACEÆ. An aquatic floating herb, with numerous verticillate linear-filiform leaves several times forked; and minute sessile unisexual flowers of the most simple construction. There is no real perianth, but each flower is surrounded by a whorl of minute bracts; the males consist of twelve to twenty oblong sessile anthers; the females of a small ovary with a simple style, and containing a single pendulous ovule. The fruit is a small nut, smooth or more or less armed with prickly appendages, the seed has no albumen, and the embryo is remarkable for a highly developed placenta. The plant has some general resemblance to the aquatic *Halimolobos* or the *Callitriche*, but there is nothing in its nature to indicate any immediate affinity with the various families to which it has been appended, and it stands at present as an isolated genus or family. *C. demersum*, the only species known, is common in pools or slow streams over a great part of the world.

It varies much in the shape and excrecences of the fruit, and has been accordingly divided by some botanists into six or more supposed species, more generally considered as varieties.

CERATOPSIS. *Epipogon*.

CERATOPTERIDINEÆ. One of the primary subdivisions or tribes of the polypodiaceous Ferns, distinguished by the broad incomplete or rudimentary condition of the ring of the sessile globose spore-cases, the latter containing few large spores, concentrically striated on their three faces. [T. M.]

CERATOPTERIS. A peculiar genus of tropical aquatic Ferns, constituting the group *Ceratopteridines*, or the *Parkeræ* of some authors. They have sometimes been associated with the *Pteridæ*, or even the *Polypodiæ*, but seem to be more correctly regarded as a distinct group, characterised by having the ring of the spore-cases very broad, incomplete, or merely rudimentary and obliquely vertical, the spore-cases being sessile, or nearly so, and the spores few, comparatively large, obtusely trigonal, each of the faces being beautifully marked with concentric lines. The only species, *C. thalictroides*, is found scattered through the tropical and sub-tropical regions of Asia, Africa, America, and Australasia, either floating or attached to the soil in shallow still or slightly moving waters. The fronds are much divided, membranaceous, and succulent in the fresh state: the sterile ones more foliaceous and less divided, with evident reticulated veins; the fertile ones taller and more erect, and divided into linear somewhat siliquose segments, everywhere scrofuliferous beneath the recurved indusium-like margin, and with the veins distinctly anastomosing. Both forms of frond, especially the sterile ones, are proliferous, often freely so. The succulent foliage of this fern is boiled and eaten as a vegetable by the poorer classes in the Indian Archipelago. [T. M.]

CERATOSTACHYS. A genus now united with *Nyssa* (*Cornaceæ*), containing a tree from Japan, with oblong entire smooth leaves, glaucous beneath, and axillary solitary spikes of flowers, forming dense heads. [J. T. B.]

CERATOSTEMMA. A genus of Yucciniaceous plants, consisting of Peruvian shrubs, with superior five-toothed calyx; a tubular corolla with a five-toothed limb; ten stamens included within the corolla, the filaments united below into a cup, and the anthers opening by pores; and a five-lobed ovary with several seeds, ripening into a kind of berry surmounted by the limb of the calyx. [M. T. M.]

CERATOSTYLIS. A small and unimportant genus of terrestrial Orchids inhabiting tropical Asia. It contains two sections, one made up of species with long terete one-leaved simple stems with a dense cluster of minute flowers in

the axil; the other with a branched stem like that of caulescent *Maxillarias*. These last constitute the spurious genus *Trigonanthus*.

CERATOTHECA. A genus of *Scamææ*, containing a single species from tropical Africa. It is a herbaceous plant, with an erect tetragonous stem, opposite petiolate and dentate leaves, and single flowers on short axillary peduncles, with two glanduliferous bracteoles at their base. The persistent calyx is deeply divided into five acuminate lobes; the corolla tube is short and campanulate, and the limb bilabiate and five-cleft. There are four didynamous stamens, and no trace whatever of the fifth. The style is simple and deciduous, with a bilamellate stigma. The membranaceous truncate capsule has the corners of the apex produced into two or generally four horns. The free central placenta bears many flat obovate seeds. [W. C.]

CERATOZAMIA. The name of this genus of *Cycadeæ* refers to its most prominent distinguishing feature: the presence of two horns on the scales of its xamia-like fruit. The stem is short and globular, giving off numerous pinnate leaves. The flowers are dioecious; the males in cones, whose scales are provided with two little teeth at the point, and with numerous anthers on their under surface; the females consisting of numerous scales with a thickened hexagonal disc-like top provided with two diverging horns, each scale concealing two seeds. The plants are natives of Mexico. [M. T. M.]

CERBERA. This name is intended to imply that the plants to which it belongs, are as dangerous as Cerberus; and some of them indeed are poisonous. Botanically, it is applied to a genus of *Apocynaceæ*, consisting of trees, natives of tropical Asia, with terminal flowers disposed in corymba. The corolla is funnel-shaped, with the limb divided into five oblique lobes, and the throat provided with five teeth. The stamens are five, included within the corolla, their anthers tipped with a distinct spine. The ovary is two-lobed, with two compartments, having two to four seeds in each. The stigma is discoid, with a wavy margin. The fruit consists of two separate drupes, one of which is usually abortive. The inner shell of the drupe is fibrous, partly divided, when ripe, into two divisions, and, when seen in the dried state, much resembling a ball of string. These plants possess a milky juice of a poisonous character, though some of the species are said to be destitute of the venomous qualities possessed by the rest. The seeds of *C. Asotari* are very poisonous, and the wood of this tree has an abominable odour. The seeds of *C. Manghas* are emetic and poisonous. *C. Odollam*, a Malabar tree, is cited by Lindley, as being innocuous, but this character applies probably to the fleshy drupe, the nut in the interior being narcotic and even poisonous. The bark is purgative: the unripe fruit, more-

over, is dangerous, and is said to be used by the natives of Travancore to destroy dogs; the teeth of the unfortunate animals being, as is reported, loosened so as to fall out after masticating it. See Plate 6, fig. c. [M. T. M.]

CEROIDIUM. The mycelium or spawn of certain fungi.

CEROIFIX. (Fr.) *Tragopogon porrifolius*.

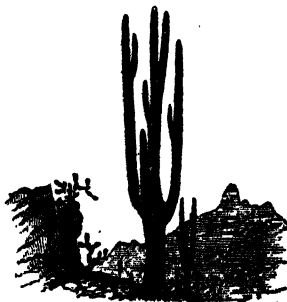
CEROTIS. Judas Tree. This tree divides with the Elder the ignominy of being that on which the arch-traitor hanged himself, neither legend being worth the trouble of sifting. It is a native of the south of Europe and several countries of Asia from Syria to Japan, and is a handsome low tree with a spreading head, easily distinguished among the Leguminous order by its simple glabrous kidney-shaped leaves, and by its purple flowers, which are produced abundantly in May before the leaves, not only from the young twigs, but from the matured branches, and even the main trunk. The flowers are succeeded by flat thin brown pods, nearly six inches in length, which remain on the tree all the year. These are not generally produced in this country, unless the tree be planted against a wall, but in a warmer climate they perfect themselves in abundance, and afford a ready means of propagation. The leaves are remarkable for their unusual shape, for the pale bluish green of their upper surface, and for their sea-green hue beneath. The flowers have an agreeable acid taste, and are sometimes mixed with salads or made into fritters with batter, and the flower buds are pickled in vinegar. This species is known as *C. Siliquastrum*, from the conspicuous appearance of its seed-pods.

C. canadensis (French *Bouton Rouge*), bears a general resemblance to the preceding, but is smaller and more slender. It may at once be distinguished by its leaves being heart-shaped and pointed. It is a native of North America, from Canada to Virginia, along the banks of rivers. The flowers are less numerous and of a paler rose colour; these are used by the French Canadians in salads and pickles, and the young branches to-dye wool of a nankeen colour. The wood of both species is hard and variously marked with black, green, and yellow, on a grey ground. A new species, *C. chinensis*, which has been recently introduced from China, has sessile flowers, of which the standard is striped. French, *Cérotier*, *Arbre de Judée*; German, *Judasbaum*. [C. A. J.]

CEREUS. An extensive genus of *Cactaceæ*, the species of which are remarkable for their singularity of form, and for the beauty of their flowers. Their stems are fleshy while young, but many of them harden and even become woody in course of time; they vary very much in form, some species having cylindrical and ribbed or fluted stems, whilst others have them nearly square or angular; some grow erect, others creep along the ground or up trees, and send out roots from their sides;

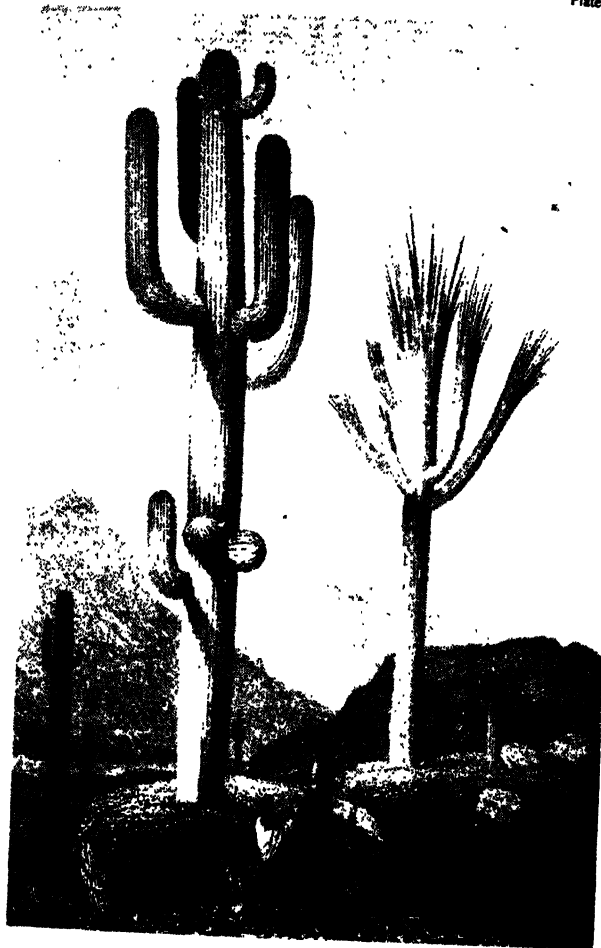
many are unbranched, while others have numerous branches, and some are jointed. The majority are armed with spines, which radiate from little cushion-like tufts, placed at regular intervals along the ridges or angles of the stems. Their flowers are distinguished by the tube being somewhat funnel-shaped and generally armed with small spines, by the numerous stamens being united only at the base, and nearly as long as the petals, and by the slender thread-like style scarcely exceeding the stamens in length.

C. giganteus, the Suwarrow or Saguaro of the Mexicans, is the largest and most striking species of the genus. It is a native of the hot, arid, and almost desert regions of New Mexico, extending from Souora, in lat. 30° N., to Williams river, in lat. 35° N., and found growing in rocky valleys and upon mountain sides, often springing out from mere crevices in the hard rock, and imparting a singular aspect to the scenery of the country, its tall stems with upright branches looking like telegraphic posts for signalling from point to point of the rocky mountains. While young the stems are of a globular form, gradually becoming club-shaped, and ultimately almost cylindrical, and from fifty



Cereus giganteus.

to sixty feet in height, with a diameter of about two feet at middle height, and gradually tapering both upwards and downwards to about one foot. They are most frequently unbranched, but some of the older ones have branches, which issue at right angles from the stem and then curve upwards and grow parallel with it. The stems are regularly ribbed or fluted, the ribs varying in number from twelve to twenty, and have, at intervals of about an inch, thick yellow cushions bearing five or six large and many smaller spines. The flowers are produced near the summit of the stems and branches, and are about four or five inches long by three or four in diameter, having light cream-coloured petals. The fruits are about two or three



CACTUS VEGETATION OF NEW MEXICO
(After Mollhausen)

A *Cereus gi*

inches long, of a green colour and oval form, having a broad scar at the top caused by the flowers falling away; when ripe they burst into three or four pieces, which curve back so as to resemble a flower. Inside they contain numerous little black seeds imbedded in a crimson-coloured pulp which the Pinos and Papagos Indians make into an excellent preserve; and they also eat the ripe fruit as an article of food, gathering it by means of a forked stick tied to the end of a long pole.

C. MacDonaldia is one of the night-flowering kinds, and is of great beauty, its flowers when fully expanded being as much as fourteen inches in diameter, having numerous radiating red and bright orange sepals and delicately white petals. The stems are cylindrical, creeping, and branched, not much thicker than the little finger, and having here and there small swellings with a spine in the centre. It is a native of Honduras. The most common night-flowering kind is the *C. grandiflora*, a native of the West Indies. [A. S.]

CERFEUIL. (Fr.) *Scandix Cerefolium*. — **A' AIGUILLETES.** *Scandix Pecten-Veneris*. — **CULTIVE.** *Anthriscus Cerefolium*. — **DES FOUS.** *Anthriscus vulgaris*. — **MUSQUE.** *Myrrhis odorata*.

CERINTHE. A small genus of Borageworts, consisting, with one exception, of annual plants, with oval glaucous stem-clasping leaves, and tubular flowers in one-sided drooping leafy racemes. The species are mostly European, and are more remarkable for their singularly glaucous aspect than for beauty. Two species, *C. major* and *C. minor*, have been long cultivated in gardens under the name of Honeywort, an appellation due to the abundance of honey secreted by their blossoms, which are much resorted to by bees. *C. major* grows about a foot high, with a branched stem, oval stem-clasping leaves, minutely toothed at the margin, set with rough white dots, and covered with a bluish-white bloom. The crook-like racemes of flowers have on each side a row of imbricated oval leaves, the purplish corolla being about an inch long, contracted at the mouth, with a narrow five-toothed spreading margin, and a fruit of two conical black nuts. *C. minor* has smaller yellow flowers, the segments of which are connivent and not reflexed. In *C. retorta* the tube of the corolla is curved, and the leaves are blotched with silvery-white. [W. T.]

CERINUS. The colour of yellow wax.

CERIOPS. Trees distinguished from the neighbouring genus *Rhizophora*, by their small five-parted flowers, the petals of which are hairy at the points. The ten stamens are placed in pairs before the petals. The lower part of the ovary has three compartments and six ovules, while the upper part is solid, and ends in a style which is longer than the stamens. Like the rest of the Mangrove family the seed has the curious habit of germinating and

protruding from the fruit while still attached to the bough. The trees are natives of the shores of tropical Asia and Australia. [M. T. M.]

CERISSETTE. (Fr.) *Solanum pseudo-Capricum*.

CERISIER À BOUQUETS. (Fr.) *Cerasus vulgaris*. — **D'AMOUR.** *Solanum pseudo-Capricum*. — **DE LA TOUSSAINT.** *Cerasus semperflorens*. — **NAIN.** *Lonicera tatarica*, and also *Cerasus Chamaecerasus*. — **PETIT DES HOTTENTOTS.** *Celastrus lucidus*.

CERIUM, CERIO. Same as *Caryopsis*.

CERNUE. (Fr.) *Agrostis stolonifera*.

CERNUOUS. Inclining a little from the perpendicular; generally applied to drooping flowers.

CEROCHILUS. *Rhamphidia*.

CEROPEGIA. A genus of *Asclepiadaceæ*, containing more than fifty species of perennial herbaceous plants or undershrubs, natives of India and Africa. They have a bulbous root, and short erect or slender twining stems, with opposite leaves and interpetiolar umbels of few or many flowers. The calyx is five-parted. The corolla tube is slender in the middle, expanding more or less below as well as above, where the limb divides into five generally slender portions, which being united at their points form a globose head. The staminal corona consists of five, ten, or fifteen ligulate lobes in one or two series. The gynostegium is included. The anthers have no membrane. The pollen masses are rounded, have a pellucid interior margin, and are connected by short processes. The slender follicles are cylindrical with comose seeds. Several species are employed for food; in some cases the whole plant is eaten as a salad, in others the fleshy leaves, stems and tubers, are used as pot vegetables. [W. C.]

CEROPTERIS. A name formerly proposed but not adopted for the species of *Gymnogramma*, which have the surface covered by a coloured powdery secretion, and which are familiarly known as Gold Ferns and Silver Ferns, from the colour of this substance which is of a waxy nature, whence the name. [T. M.]

CEROXYLON. This genus of Palms is by some botanists combined with the genus *Iriartea*, from which, however, it is distinguished by the spathe or bract which covers the young flower-spikes being entire (in *Iriartea* it is divided), by some of its flowers being perfect, while those of *Iriartea* are all imperfect, and also by a slight difference in the position of the embryo in the seed. Both calyx and corolla are three-parted, the calyx being very minute; the stamens are generally twelve in number, but occasionally vary from nine to fifteen; and the females have a three-celled ovary and three stigmas. The fruit is a small round berry containing

one seed. Three species of this genus are known, two of which are noble trees of great height.

C. andicola, the Wax Palm of New Grenada, was first made known and described by the celebrated travellers Humboldt and Bonpland, who found it growing in great abundance in very elevated regions on the chain of mountains separating the courses of the rivers Magdalena and Cauca, in New Grenada, extending almost as high as the lower limit of perpetual snow, which is a remarkable fact when it is remembered that the generality of the palm tribe luxuriate in tropical climates. It has a straight trunk of great height, and about a foot in diameter, cylindrical for the first half of its height, after which it swells out, but again contracts to its original dimension at the summit; but the most singular feature connected with the trunk is the circumstance of its being covered with a thin coating of a whitish waxy substance which gives it a curious marble-like appearance. It is surmounted by a tuft consisting of from six to eight

from it. The candles used by the inhabitants for offerings to the Saints and Virgin are, however, made without any such mixture; but on account of their resinous nature the priests will not allow them to be used for the high ceremonies of the Romish Church. The wood is very hard towards the exterior, and is commonly employed for building purposes; and the leaves are used for thatching. [A. S.]

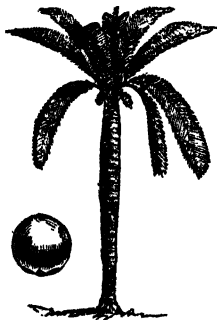
CERVANTESIA. A genus belonging to the order of Sandalworts, characterised by the disk, or part intervening between stamens and pistil, being five-cleft, shorter than the flowers, and adherent to it below, the style or appendage on the seed-vessel thick and slightly notched at the end. The name was given in honour of Cervantes. The species are trees or shrubs, natives of Peru, having scattered entire simple leaves. The fruit of *C. tomentosa* is used as food in Peru. [G. D.]

CERVINE. Deep tawny, such as the dark part of a Hen's hide.

CESTREAU A' BAIES NOIRES. (Fr.) *Cestrum Parqui*.

CESTRUM. A genus of Solanaceous shrubs, of which several are in cultivation in this country, though of no great beauty. They have a funnel-shaped yellowish fragrant corolla concealing the stamens, whose anthers open longitudinally. The fruit is a dark-coloured berry, enclosed within the calyx, with two compartments (or from the union of the placentae and breaking down of the partition, one only) with few seeds, and a straight embryo. The plants are natives of Brazil. Some of them possess a bitter principle like quinine, while others are used as diuretics, and for other medicinal purposes. [M. T. M.]

CETERACH. A genus of polypodiaceous Ferns of the group *Asplenites*, distinguished by having distinct simple sori, reticulated veins of which the marginal veinlets are free, and fronds clothed thickly with scales, among which the sori are hidden. One species is a commonish native fern called Milt-waste or Scale Fern, and another of twice the stature is found in the Canary Islands, both being alike coriaceous, and clothed on the under surface with a thick covering of imbricated tawny scales, by which peculiarity the British species may be readily known from all other native ferns. To this plant was formerly attributed a marvellous influence over the spleen, and Vitruvius states that it had the effect of destroying that organ in certain Cretan swine which fed upon it. So Gerard writes:—'There be empiricks or blinde practitioners of this age who teach that with this herbe, not only the hardness and swelling of the spleen, but all infirmities of the liver, may be effectually, and in a very short time removed. But this is to be reckoned amongst the old wives' fables, and that also which Dioscorides telleth of touching the gathering of Spleenewort in the night, and other most vaine things



Cerrotylon andicola.

handsome pinnate leaves, each of which is about twenty feet long, and has a strong thick footstalk, the base of which spreads out and clasps round the trunk, leaving a circular scar when it falls away; the leaflets are densely covered on the under side with a beautiful silvery scurf, while the upper side is of a deep green colour. The waxy substance of the trunk forms an article of commerce amongst the inhabitants of New Grenada. It is obtained by cutting down the tree and scraping it with a blunt implement, each tree yielding about twenty-five pounds. According to the analysis of Vauquelin, it consists of two parts of resin and one of wax, and is therefore of too inflammable a nature to be used by itself; but by mixing it with one-third part of tallow, very good candles for ordinary purposes are manufactured

which are found here and there scattered in old books.' It is said, however, to be still usefully employed as a bait for rock-od fishing on the coast of Wales. The genus is a somewhat anomalous one as to classification, the Indusium, which is one of the characteristics of the *Asplenites*, being here either wholly wanting or merely rudimentary. The sori are nevertheless unilateral, and something like an indusium has been detected, so that it is now generally associated with the *Asplenites* as it was by Linnaeus. The name *Oeterach* has also been used by Presl to distinguish a section of *Gymnogramma*. [T. M.]

CETRARIA. A genus of lecidineous lichens distinguished by the fructification being fixed laterally to the borders of the thallus, and consequently margined by it. It is not, however, petitate. It deserves notice here as containing *C. islandica*, or the well-known Iceland Moss, which affords at once a nutritious article of food, and a doubtful medicine. Before using it requires to be steeped for several hours to get rid of a bitter principle. It is sometimes boiled to form a jelly, which is mixed with milk or wine; sometimes it is reduced to powder and used as an ingredient in cakes or bread. It is esteemed by many useful in pulmonary complaints or as a restorative, but after the bitter principle has been extracted it seems to possess no active qualities. [M. J. B.]

CEVADILLA. The seeds of *Asagraea officinalis*.

CHA DE FRADE. A Brazilian name for a decoction of *Casearia lingua*. — **DE PEDRESTE.** A Brazilian name for *Lantana pseudo-Thea*.

CHABREÆA. The generic name of plants belonging to the Composite order, having the flowers uniform, smooth, two-lipped, the lips bent down, the outer largest and three-toothed, the inner with two teeth; the fruit narrow below, covered with short projections, and crowned with feathery appendages. The name was given in honour of Chabrè, a botanist of Geneva. The species of this genus are natives of Chili and of the Straits of Magellan; they have alternate leaves, those below mostly twice pinnate; and the heads of flowers are purplish. Dr. Hooker, in the *Flora Antarctica*, alludes in these terms to *C. suaveolens*: 'The odour of this plant, which is a great ornament to the grassy hills of the Falkland Islands, is decidedly that of benzoin.' [G. D.]

CHAGA, or OROCO. *Sectium edule*.

CHÆNANTHE. *Diadenum*.

CHÆNOSTHE. A genus of trees or large shrubs, belonging to the Solanaceous family, and having long crimson or orange-coloured flowers of much beauty, like those of *Dunalia*, an allied genus; but the stamens, in the present instance, are destitute of the lateral appendages which characterise *Dunalia*. There is another

distinguishing feature in the peculiarity of the tubular calyx, which splits open by the growth of the fruit. The trees grow in the valleys of the Andes. [M. T. M.]

CHÆNOSTOMA. A considerable genus of herbs or undershrubs, belonging to *Scrophulariaceæ*, natives of South Africa. They have opposite dentate rarely entire leaves, and axillary or racemose pedicellate flowers, which do not blacken in drying. The calyx is five-parted, the deciduous corolla is funnel-shaped, sometimes with a short tube, and its limb is five-cleft. There are four didynamous stamens the length of the corolla or slightly exserted. The style is simple, and the stigma subclavate. The capsule is membranaceous and two-celled. [W. C.]

CHÆRADOPLECTRON. *Glossula*.

CHÆTA. A bristle. The slender stalk of the spore-case of mosses; also called *Seta*.

CHÆTACHINE. A small spiny S. African genus, belonging to the *Ulmaceæ*. It differs from the elm in not having winged fruits, and from *Sponia* or *Celtis* in its natural habit more than in anything else. The leaves are smooth or downy, oval or elliptical in form, with entire or toothed margins, and from one to two inches long; they are generally terminated by a bristle, and accompanied at the base of the stalks by two short spines. The flowers are small and green, male and female on the same plant; the males are numerous in the axils of the leaves, and have a five-parted calyx with five stamens opposite its divisions; the females are single in the axils of the leaves, with a similar but smaller calyx, enclosing a one-celled ovary, which is crowned with two reflexed stigmas. The fruit is a little oval nut, about the size of a pea, with one seed. In some works the name has been spelt *Chætachyne* and *Chætachne* by mistake. [A. A. B.]

CHÆTOGASTRA. A genus of *Melastomaceæ*, natives of tropical America, allied to *Arthrostemma*, but with the parts of the flower in fives. Like that genus the present is an unnatural one, the species having only trifling technical characters in common. [J. T. S.]

CHÆTOSTOMA. A genus of small dry heath-like Brazilian shrubs, belonging to *Melastomaceæ*. Stems leafless at the base; flowers solitary, rather small, purple with yellow anthers; parts of the flowers in fours or fives, the stamens being twice as many as the petals; capsule free, cylindrical, three-celled. [J. T. S.]

CHÆTURUS. A genus of Grasses belonging to the tribe *Agrostideæ*. The only species described, *C. fasciculatus*, is a small annual grass, a native of Spain. [D. M.]

CHAFF, CHAFFY. The same as paleaceous.

CHAFF-FLOWER. *Alternanthera Achromatica*.

CHAFF-SEED. An American name for *Schoalbea*.

CHAFF-WEED. *Centunculus minimus*.

CHAGAS DA MINDA. A Portuguese name for *Chymocarpus*.

CHAILLETIA. A genus which gives its name to the family of *Chailletiaceae*. It is found more or less in most tropical countries, but represented in greatest numbers in Brazil. The species are small erect trees or shrubs, but sometimes (as in *C. pedunculata*, a Gulana species) extensive climbers, reaching the tops of the highest trees. The leaves are shortly-stalked, alternate, entire, and generally oval in form. The flowers are small white, often odoriferous and disposed in axillary-cymes and racemes; the calyx five-leaved; the corolla of five cleft petals; the stamens five; and the ovary two or three-celled, crowned with a like number of styles, and becoming when ripe a somewhat dry drupe, with one or two seeds. The only extra-tropical species is *C. cymosa*, which is a native of South Africa, and has oblong obtuse leaves; and the only species whose uses are recorded is *C. toxicaria*, a native of Sierra Leone, where the seeds of this plant are said to be used by the colonists for poisoning rats, and by them called Ratsbane. Upwards of thirty species are known. [A. A. B.]

CHAILLETIACEÆ. A family of Dicotyledons, belonging to Lindley's Rhamnal alliance, differing from *Celastraceæ* in their usually notched petals, in the five distinct glands which take the place of the perigynous disk, and generally in the want of albumen to the seeds. They are remarkable also by the great tendency of the peduncles to combine with the petioles, so that the flowers, which are really axillary, appear to spring from the leaf itself at the summit of the petiole. They are all trees or shrubs, with alternate stipulate entire leaves, often white underneath. The flowers are small, in paniculate cymes or compact clusters. There are usually five sepals, petals, and stamens, regularly alternating with each other; but these numbers are, in one genus (*Tapura*), irregularly reduced. The ovary is superior with two or three cells, and two pendulous ovules in each cell; the style is simple; the fruit a rather dry drupe with one to three seeds. There are nearly twenty species, natives of tropical regions, and dispersed over both the New and the Old Worlds. They have been distributed into four or five genera, of which the principal are *Chailletia*, *Moacurra*, and *Tapura*.

CHALAZA (adj. **CHALAZINUS**). That part of the seed where the nucleus joins the integuments; it represents the base of the nucleus, and is invariably opposite the end of the cotyledons.

CHALEF. (Fr.) *Elaeagnus*.

CHALK-WHITE. Dull white, with a dash of gray.

CHAMÆACTE. *Sambucus Indica*.

CHAMÆBATIA. *C. foliolosa*, the only representative of this genus, which belongs to the Rose family, is a beautiful Californian shrub, about three feet high. All the young parts of the plant are covered with small glands, which secrete a resinous fluid, having a pleasant balsamic odour. The leaves are unlike those of any other plant in the family, and bear great resemblance to those of the millifol (*Achillea*), but are of a much harsher texture, and generally from two to three inches long. The flowers are in terminal cymes, and in size and colour very much like those of the hawthorn. The plant is in cultivation, having been introduced in 1859, and will prove a great acquisition to our gardens. [A. A. B.]

CHAMÆDATOS. *Rubus casticus*.

CHAMÆBUXUS. *Polygala Chamabuxus*.

CHAMÆCERASUS. *Cerasus Chamacerasus*, also *Lonicera tatarica*.

CHAMÆCISSUS. *Glochoma hederacea*.

CHAMÆCISTUS. *Rhododendron Chamæcistus*; also *Helianthemum vulgare*.

CHAMÆCYPARIS. A little group of Conifers forming a section of the genus *Cupressus*, from which it is separated by some botanists, and characterised by the seeds being two only under each scale. It is sometimes restricted to the American species, sometimes extended to those Japanese ones, which have been separated under the name of *Retinospora*.

CHAMÆCYPARISSUS. *Santolina Chamæcyparissus*.

CHAMÆDAPHNE. *Daphne Laureola*; also *D. Mezereum*.

CHAMÆDOREA. A genus of Palms, containing between thirty and forty species. They have reed-like stems marked by rings or scars, and seldom more than fifteen or twenty feet high, and one or two inches thick, and surmounted by tufts of leaves, which are either pinnate or nearly entire. All of them are natives of tropical America, inhabiting forests and forming dense masses of underwood. Their flowers are of separate sexes, borne on distinct plants, very small, and produced in great quantities on long branching spikes: the males having a cup-shaped three-lobed calyx, a corolla of three roundish petals, and containing six stamens and a rudimentary or barren ovary; and the females, a three-parted cup-shaped calyx, a corolla like the males, and a three-celled ovary crowned by three short stigmas, and without any rudimentary stamens. The fruit is a small roundish berry containing a single bony seed. The stems of most of the species serve for walking-sticks and similar purposes; and their young unexpanded flower-spikes are used by the Mexicans as a culinary vegetable, under the name of *Tepejilote*.

C. Ernest-Augusti is a small species, native of New Grenada, having a stem about four or five feet high. Its leaves are two feet long, wedge-shaped at the base and almost entire, being merely divided, for about half-way down the centre, into two spreading sharp-pointed plaited lobes; the foot-stalks of the leaves widen out at their bases and clasp round the stem, giving it a swollen appearance. The female flower-spikes of this species are cylindrical, about a foot long and undivided, and form a very striking object, being at first of a dark green colour and studded with red bead-like flowers; but when these latter fall away, the spike becomes a bright coral-red colour. [A. S.]

CHAMÆDRYS. An old herbalist's word, literally signifying 'dwarf oak,' applied to both *Teucrium Chamædrys* and *Veronica Chamædrys*.

CHAMÆJASME. *Androsace Chamæjasme*; also *Stellaria Chamæjasme*.

CHAMÆLAUCIACEÆ. A tribe of *Myrtaceæ*, sometimes considered as a separate family. They are distinguished by their heath-like habit and foliage, their one-celled ovary with few ovules, their stamens partially reduced to staminodia, and by their sepals often extended into bristles or broken up into fringes. The latter character is, however, evanescent in some genera, and the others may be more or less traced through *Beckea* or its allies into the true *Myrtaceæ*. There is a considerable number of species, all Australian, and distributed under fourteen or fifteen genera, of which the principal ones are *Calytrix*, *Lhotskya*, *Verticordia*, *Chamelaucium*, *Genetyllis*, &c.

CHAMÆLAUCIUM. A genus of *Chamelauciacææ*, containing small heath-leaved shrubs, from South Australia. The leaves are opposite, crowded, semi-cylindrical or three-edged, with dots formed by small cavities containing essential oil. The flowers are white, shortly-stalked, axillary or terminal. The calyx has two concave mucronate bracts at the base, which enclose the bud; the calyx tube adheres to the short ovary at the base; the limb is five-cleft and subpetaloid; the petals are five; stamens ten, the alternate ones abortive, strap-shaped; capsule one-celled, indehiscent, few-seeded. [J. T. S.]

CHAMÆLEON, BLACK. *Cardopatum corymbosum*. —, **WHITE.** *Carlina gumifera*.

CHAMÆMELES. A genus of Apple-works, having the free border of the calyx truncate, and obscurely five-toothed; petals five, small, irregularly-toothed; stamens ten to fifteen; style, or appendage on the seed-vessel, simple, slightly notched at the tip; fruit one-celled; cotyledons convolute. The name means literally 'pigmy apple,' to indicate the general nature of the fruit, and the low habit of the plant. The genus was founded by Dr. Lindley, to

comprehend a dwarf shrub very like Box, a native of the sea cliffs in Madeira, having simple shining evergreen mostly entire leaves, and flowers growing in clusters, which are leafy at the base. [G. D.]

CHAMÆNESPILUS. *Pyrus Chamænespilus*.

CHAMÆMORUS. *Rubus Chamæmorus*.

CHAMÆNERION. A subdivision of the genus *Epilobium*, comprising those species which have regular erect flowers (though in some cases drooping while in bud), and either club-shaped or four-cleft, not cruciform stigmas. [O. A. J.]

CHAMÆPEUCE. A genus of the Compositæ family, allied, on the one hand, to plume-thistles (*Cirsium*), and, on the other, to true thistles (*Carduus*). From the first of these it differs in the covering of the achenes being hardened, not membranaceous; and from the second, in the pappus being feathery, not simple-haired. A few of the species have narrow entire leaves with recurved margins, but the greater portion of them are hostile-looking thistle-like plants, from one to six feet high: the leaves generally lanceolate in form, smooth above, but as well as the stems covered underneath with a white cottony substance, and their margins furnished with numerous long spiny teeth; the flower-heads one to two inches in diameter, arranged in corymbs or long leafy racemes; the corollas purple or white, and enclosed by an involucre made up of many spiny-pointed scales. The fifteen known species are natives of the Mediterranean region, and extend eastwards to the Caucasus. The name also belongs to *Saxifraga Chamæpeuca*. [A. A. B.]

CHAMÆPITYS. *Ajuga Chamæpitys*.

CHAMÆRHODOS. A genus of the *Rose* family, allied, on the one hand, to *Potentilla*, from which it differs in having a definite number of stamens and carpels; and on the other to *Sibbaldia*, which has a double calyx composed of ten segments in two rows, while the calyx in this genus is of five segments in one row. The species are small perennial plants, seldom attaining more than a foot in height, and generally having decumbent stems which are furnished with alternate three or many-parted leaves, about half an inch long, their segments narrow and covered with greyish pubescence. The flowers are small, white or purple in colour, either single in the axils of the leaves, or numerous and arranged in leafy panicles. These plants are found in Siberia, N. China, and Tibet (where *C. sabulosa* grows at an elevation of 15,000 feet), and also in the Rocky Mountains of N. America. [A. A. B.]

CHAMÆROPS. This is the most northern genus of Palms. It contains about ten or twelve species, inhabitants of Northern Asia, Africa, and America, and Southern Europe. They are mostly of dwarf habit, but sometimes grow as high as thirty feet.

Their leaves are shaped and plaited like a fan, having the margin deeply cut into numerous sharp-pointed divisions; and the bases of their long and generally prickly footstalks are inserted into a mass of coarse fibrous matter. Their flowers are produced in panicles from among the bases of the leaves, and are either perfect or of separate sexes, and consist of a three-parted calyx, and a corolla of three petals with from six to nine stamens attached to their bases; the fertile ones having, in addition, three distinct ovaries tapering into awl-shaped styles. The fruit is a berry about the size of an olive, containing one seed.

C. asmiila, the only European species of the palm tribe, does not extend farther north than Nice. It is generally very dwarf, not more than three or four feet high, sending up numerous suckers from its creeping roots, and thus forming dense tufts, which, in Sicily and North Africa, take the place of our furze bushes; but if these suckers are not allowed to grow, the plant forms a trunk twenty or thirty feet high. The leaves of this Palm are commonly used in the south of Europe for making hats, brooms, baskets, &c., and for thatching houses; they also yield a large quantity of fibre, from which the French manufacture a material resembling horse-hair—for which it is substituted. The coarse fibre from the bases of the leaves is used by the Arabs for mixing with camel's hair to make their tent covers.

C. Fortunei grows to about twelve or twenty feet in height, and is a native of the north of China, but is perfectly hardy in the southern parts of England, a plant having attained ten feet in height in Her Majesty's garden at Osborne. The Chinese agricultural labourers use the coarse brown fibre, obtained from the bases of the leaves, for making hats and also the garment called *So-e*, worn in wet weather. [A. S.]

CHAMÆSPHERION. The name given to a pigmy plant of the Composite family found in W. Australia. The whole plant is about the size of a large pea, and consists of a globular dense cluster of white flower-heads, surrounded by a rosette of narrow leaves a quarter of an inch in length. The achenes have a crown-like lacerated pappus. [A. A. B.]

CHAMARAS. (Fr.) *Tenarium Scordium*.

CHAMBURU. *Carica digitata*.

CHAMÉCERINTIER DES HAIES. (Fr.)
— ROSE. *Lonicera*

tatarica.

CHAMISSOA. A genus of tropical herbs belonging to *Amaranthaceae* with alternate leaves and flowers in axillary or terminal spikes or globular heads; differing from *Amaranthus* by having the seeds furnished with a small white axil at the hilum, and the radicle of the embryo superior. [J. T. S.]

CHAMOMILE. *Anthem. nobilis*, some-

times written *Camomile*. —, WILD. *Matricaria Chamomilla*.

CHAMP. The timber of *Michelia Champaco*, and *M. anisala*.

CHAMPIGNON. The French name for mushrooms in general, but applied in this country only to *Agaricus (Marasmius) Oreades* or by mistake to very different and often dangerous species. In some parts of the country it is known under the name of Scotch Bonnets. The Champignon grows in fairy rings, generally of a few feet only in diameter. It seems to luxuriate most in a sandy soil, but occurs everywhere in exposed pastures. The pileus when moist is of a dull fawn colour, when dry of a creamy white; the stem is tough with a villous bark, the gills broad, cream-coloured, free from any attachment to the stem, and very distant. The only species with which it can be fairly confounded is *A. (Marasmius) urens*, which has narrow brown gills, and leaves a burning sensation in the throat, while the true champignon is the mildest and most sapid of fungi. It is excellent as a *fritassée*, or stewed like common mushrooms, and it has the great merit of drying admirably. Few comparatively are acquainted with its excellent qualities, but those who are, gladly avail themselves of it as a most welcome article for the table. The Champignon cultivee of the French is *Agaricus campestris*.

Some doubts have lately been thrown upon the safety of the Champignon, in consequence of certain Fungi, which were said to have proved fatal, having been referred to this species by Mr W. G. Smith. But the case is probably analogous to that mentioned under *Blasworm*. It may have been mixed with species which proved fatal. [M. J. B.]

CHAMPIONIA. A genus named after the late Lieut. Col. Champion, who was mortally wounded at Inkerman, containing a single species, an undershrub from Ceylon, belonging to the *Cyrtandrea* division of *Gonimaceae*, having opposite oblong leaves, and short axillary trichotomous peduncles, bearing white glabrous rotate corollas longer than the calyx, and having a very short tube, and a four-parted limb. There are four equal stamens and no hypogynous glands. The ovary is one-celled with two parietal placentae; and the style filiform with a capitate stigma. The oblong capsular fruit exceeds the persistent calyx; it is one-celled and contains many ovate seeds with a reticulated testa. [W. C.]

CHANDELIER TREE. *Pandanus Canadabrum*.

CHANNELLED. Hollowed out like a gutter, like many leaf-stalks.

CHANTARELLE. The French name for *Cantharellus cibarius*, adopted in this country. The genus *Cantharellus* is distinguished from *Agaricus* by the gills of the latter being replaced by veins which are frequently branched, and if they ever approach the appearance of gills, they are distinguished by their very obtuse edge,

the shorter ones not being distinct as in mushrooms, but connected with the longer as if immediately given off by them. The Chantarelle is a common though seldom an abundant inhabitant of our woods. The rich yolk-of-egg yellow and fragrant fruity smell at once distinguish it. It is rather acrid when eaten raw, but makes an excellent fricassée if steeped before dressing in boiling milk, and then stewed very gently. It is, however, of far less frequent use in this country than on the continent, where it is highly esteemed. We are not aware that there is any deleterious fungus with which it can be confounded. [M. J. B.]

CHANVRE. (Fr.) *Cannabis*. — D'EAU. *Bidens tripartita*. — SAUVAGE. *Galeopsis Tetrakit*.

CHANVRINE. (Fr.) *Eupatorium cannabium*.

CHAPEAU D'ÉVÊQUE. (Fr.) *Epimedium alpinum*.

CHARACEÆ. A small natural order of Acrogens consisting of two or at most three genera. The species are all aquatic, and are found in almost all parts of the world, but are most common in temperate countries. In the genus *Najas*, the structure of the plant has much resemblance to that of *Cladophora*, which circumstance, combined with the aquatic habit, has caused these plants to be associated with *Algae*. In *Chara*, however, the axis is coated with tubes, and a large quantity of calcareous matter is deposited upon them. The branches are given off in whorls, those of the fruit-bearing branchlets, however, being imperfect on the outer side. The species are either monœcious or dioecious, the two kinds of fruit being often seated close to each other. The female fruit consists of an ovate nucleus externally coated with spirally-arranged tubes, the tips of which are free and look like so many stigmas, and secondly with a firm spirally-ribbed integument, the cells of which abound in starch granules. The male fruit is globose and brick-red, the surface being divided into eight equal areas consisting of tubes radiating from a common centre. From each of these a short tube is given off within the eight tubes, meeting in the centre, and joined to a cellular mass, which is supported by a ninth bell-shaped process which is fixed by the broader end to the plant, and keeps the globe from falling prematurely. At this point of junction a number of jointed threads are attached, each cell of which contains a spiral spermatoid with two long slender thong-shaped processes at one end, by means of which they move about. Wallroth asserts that he has seen the globules vegetate, a circumstance which is not impossible after they have performed their function. A more common mode of reproduction is by means of little tuberciform bodies attached to the creeping roots. Each articulation in these plants has a distinct system of circulation

which seems to be connected with the manner in which the grains of chlorophyll are arranged on the walls of tubes, a free longitudinal colourless space being left round which the juices circulate from the base upwards at the rate of about two lines in a second. An ordinary microscope is amply sufficient to show this interesting phenomenon. A little alcohol, as also many other chemical substances, at once arrests the motion, as is also the case when the distribution of the chlorophyll is disturbed. We know of no use to which these plants can be applied. The smell which they emit resembles that of sulphuretted hydrogen, and it is to this cause probably that they have an evil report as productive of fevers. Their nucules, known to mineralogists under the name of *Gyrogonites*, are found for the first time in the lower freshwater formations. [M. J. B.]

CHARACTER. A short phrase expressing the essential marks by which a given plant or group of plants is distinguished from others. A specific character distinguishes one species from other species; and so on.

CHARAGNE. (Fr.) *Chara*.

CHARBON. (Fr.) *Uredo Carbo*.

CHARDINIA. A genus of the Composite family with a single species, *C. ceranthemoides*, which is a pretty little annual herb, a few inches high, found in Asia Minor and Persia. It has alternate lance-shaped entire leaves, nearly an inch long, covered with white pubescence; and twigs terminating in solitary silvery flower-heads, which when mature are nearly an inch across, and owe their beauty to the shining chaffy lance-shaped pappus scales which crown the cylindrical striate achenes, and are nearly half an inch in length. In the closely-related genus *Xeranthemum* the inner scales of the involucre are much longer than the others, bent out at the top, and often of a bright pink colour, so that they look like ray florets; here, however, the inner scales are erect like the outer, not much longer, and of the same silvery hue. [A. A. B.]

CHARDON. (Fr.) *Carduus*. — A' BONTIER. *Dipsacus fullosus*. — ARGENTE'. *Silybum Marianum*. — ÉTOILE'. *Centaurea Calcitrapa*. — HEMORRHOÏDAL. *Carduus arvensis*. — MARIE. *Silybum Marianum*. — ROLAND. *Eryngium*

CHARDS. The late summer blanched leaves of the Artichoke, *Cynara Scolymus*.

CHARIANTHUS. A genus of *Melastomaceæ* from the West Indies. Erect shrubs with opposite stalked five-nerved leaves, generally entire. Flowers purple in a trichotomous corymbose cyme; calyx-tube adhering to the ovary, its limb slightly four-lobed; petals four; stamens eight; fruit a globose berry depressed in the centre, with four cells and numerous seeds. [J. T. B.]

OHARIBIS. A genus of the Compositæ order, having the heads of flowers surrounded by a covering of scales in two rows, forming an involucre, those of the outer row being plane, those of the inner keeled; the receptacle or part supporting the flowers is pitted, the pits slightly toothed at the margin; the fruit is broadest at the upper part, having a border composed of one row of hairs. The name is derived from the Greek word signifying 'graceful' or 'elegant.' The only species, *O. heterophylla*, is an annual, a native of the Cape of Good Hope, having the stem erect, striated and hairy, all the leaves stalkless, the lower ones opposite, those at the upper part of the stem alternate, narrow lance-shaped, and the heads of flowers yellow in the centre, and violet at the circumference. [G. D.]

CHARLES' SCEPTRE. *Pedicularis Scaptrum Carolinum*.

CHARLOCK. *Sinapis arvensis*. — **JOINTED.** The wild Radish, *Raphanus Raphanistrum*.

CHARLWOODIA. A genus of *Liliaceæ*, closely allied to *Cordylina* and *Dracæna*, with the former of which it is, indeed, often associated. Dr. Planchon, in his recent revision of the genera of this group of plants, considers it a well-marked genus, sufficiently distinguished from *Dracæna* by the numerous ovules in each cell, and from both *Dracæna* and *Cordylina* by the persistent perianth, and by the remarkably biserial insertion of its lobes, which are very much imbricated in their activation. The general habit is that of the *Cordylina*s. The type of the genus is *C. congesta*, an Australasian species, of elegant habit, with elongate nervously-striate leaves, and crowded many-flowered panicles. Three or four other species are associated with it. [T. M.]

CHARME COMMUN. (Fr.) *Carpinus Betulus*. — **HOUBLON**, or **D'ITALIE.** *Ostrya vulgaris*.

CHARRAE. The Arabian name for the Trumpet-Gourd, *Lagenaria vulgaris clavata*.

CHARTACEOUS. Having the texture of writing-paper.

CHARTOLOMA. A genus of *Crucifera*, allied to *Jasite*, but with the radicle of the embryo bent over the edges of the cotyledons, not over the back of one of them. The only species, *C. platycarpum*, is an annual, with oblong sinuate-toothed leaves, yellow flowers, and large deflexed pods, which are eight or ten lines long, by six or eight broad, and are indehiscent, one-celled, and one-seeded. [J. T. S.]

CHASSE-BOISSE. (Fr.) *Lysimachia vulgaris*.

CHASSE-RAGE. *Lepidium graminifolium*.

CHASTE TREE. *Vitex Agnus-castus*.

CHÂTAIGNE D'EAU. (Fr.) *Trope nantes*.

CHÂTAIGNIER. (Fr.) *Castanea vulgaris*.

CHATE. The hairy Cucumber, *Cucumis Chate*.

CHAUBARDIA. An obscure genus of Orchids, apparently allied to *Masilaria*. It is said to have altogether the habit of *Xerostictia*.

CHAUDRON. (Fr.) *Narcissus Pseudo-Narcissus*.

CHAULMOOGRA. The seeds of *Gynocardia odorata*.

CHASSE-TRAPPE. (Fr.) *Centranthus Calceitrapa*.

CHAVICA. A genus of *Piperaceæ*, producing two important plants, namely, the Long Pepper and the Betel Pepper. The genus is distinguished from the true peppers (*Piper*) by its perfectly unisexual flowers, which are sessile on spikes placed opposite the leaves, each flower being protected by a stalked quadrangular perianth. *C. Roxburghii* is largely distributed in India, where it is cultivated to furnish the Long Pepper of the shops, which consists of the spikes of flowers which, while yet immature are gathered and dried in the sun. The natives employ them for various medicinal purposes, as also the roots, and the stem cut into small pieces. In chemical composition and qualities, Long Pepper resembles ordinary black pepper, like which



Chavica Betle.

it contains *piperin*. The Long Pepper which is imported by the Dutch is said to be produced by an allied species, *C. officinarum*. *C. Betle* and *C. Siriboa* furnish the betel already mentioned under **ARECA**: which see. The betel leaf is chewed with lime, and a slice of the Areca nut. The saliva is tinged of a bright red in consequence. It acts as a powerful stimulant to the digestive organs and salivary glands, and causes, when swallowed, giddiness and other un-

symptoms persons unac-
customed to its use. [M. T. M.]

CHAW-STICK. *Gouania domingensis*.

CHAY-ROOT. *Oidenlandia umbellata*.

CHEAT OR CHESS. An American name for *Bromus secalinus*.

CHEESE RENNET. *Gallium verum*.

CHEESEROOM. The common name in some parts of the country for *Agaricus arvensis*, or Horse Mushroom. This fungus grows in large rings, often many yards in diameter, and in some years, as in the wet summer of 1860, occurs in extraordinary abundance. It is known from true mushrooms by its large size, paler gills, generally thick rings, which are double at the edge, but especially by their turning yellow when bruised. It constitutes the greater part of the mushroom baskets in the Covent Garden market, and is consumed in large quantities in Leeds and other important towns in the north. When properly dressed and eaten in moderate quantities with plenty of bread, to insure mastication, these Horse Mushrooms are an excellent article of food, though they occasionally prove unwholesome, partly from over-indulgence, and partly from their having undergone decomposition before use. The term is sometimes applied to species of *Boletus*, several of which are highly dangerous. [M. J. B.]

CHEILANTHEÆ. A section of polypodiaceous Ferns, in which the sori are punctiform at the apices of the veins, and covered by indusia, which, — sometimes short and rounded, sometimes elongated continuous and therefore pteroid — consisting of portions of the margin inflected over them, are therefore necessarily transverse to the margin of the frond or of its segments. [T. M.]

CHEILANTHES. A genus of polypodiaceous Ferns of the group of *Cheilanthes*, which it typifies. The species, which are numerous and scattered over the tropical and temperate regions both of the Old and New Worlds, generally inhabiting dry rocky situations, are much varied in aspect, and for the most part are dwarf plants of tufted habit, with more or less compound fronds, the under surface in some cases being covered with silvery or gold-coloured powder, as in *Gymnogramma*. The distinguishing features of the genus consist in its producing small punctiform sori at the ends of the veins close to the margin of the frond, the margin itself becoming membranaceous, and bent over them to form the indusia, which are either linear and continuous, or take the shape of roundish lobes. The veins are free. *Cheilanthes* has considerable affinity with *Notholaena*, the species of which possess a similar habit, but have naked or non-indusiate sori. Owing, however, to the different degrees in which the margin becomes attenuated and reflexed, it is sometimes not easy to decide between the

two. *C. argentea*, a pretty dwarf tripartite silvery species, is found in Siberia; *C. fragrans*, a dwarf bipinnate species, whose fronds have a grateful anthoxanthoid or new-hay-like odour, occurs throughout the region of the Mediterranean, and reaches as far north as Switzerland; whilst Arabia, Abyssinia, South Africa, India, the Eastern Islands, Australasia, North and South America, and the West Indies, yield a variety of species, some of which, like *C. tenuifolia*, are distributed over a very wide area. One of the most beautiful species, and one which is familiar in gardens, is *C. farinosa*, a fine bipinnatifidly-pinnate plant, with tallish fronds silvered beneath and having black stalks. A peculiar group of the species has sometimes been separated under the name of *Myriopteris*; in this, the segments are small, roundish, pouch-shaped, the indusium entire and almost closing over the back of the segment, which, when reversed, looks not unlike a small roundish watch-pocket. The difference is hardly important enough to warrant their separation. [T. M.]

CHEIRADENIA *cuspidata* is a small Demorara Orchid with the aspect of some equitant *Oncidium*. It has the lateral sepals adnate to the prolonged foot of the column, a pair of solid pollen masses, and a round lip bearing five processes near the margin, arranged like the fingers of an expanded hand: a circumstance alluded to in the name of the genus.

CHEIRANTHERA. A genus of *Pittosporaceæ*, containing four Australian undershrubs, with flexuose or twining branches, and narrow leaves. The flowers are blue, in terminal corymbs or cymes, or solitary, drooping from slender terminal pedicels. Sepals, petals, and stamens five, the anthers longer than the filaments, all turned to one side, and opening by two pores at the top. Ovary two-celled; seeds nearly globular. [J. Br.]

CHEIRANTHUS. A genus of Cruciferous flowers, all so nearly resembling in habit and characters the common species, *C. Cheiri*, the Wallflower, as to be easily recognised. This is a native of all Southern Europe, growing on old walls, in quarries, and on sea-cliffs. In its wild state the flowers are always single and of a bright yellow colour, but the varieties obtained by cultivation are of various tints, many of them beautiful, and all fragrant, especially in the evening. Seeds of numerous beautiful varieties are annually imported from Germany; and small gardens, in which the supply of ornamental early summer flowers is limited, may be made very gay by planting them liberally with these German wallflowers. The wallflower has long been a favourite cottage-garden flower, and has been praised in many a rustic lay; it is supposed by many to be the *Viola* of the Latin poets. Its French names are *Giroflée jaune*, *Violer*, *Ranuncelle*, *Rameau d'or*, *Baton d'or*, &c.; German, *Leucoje*. Several other species are also worthy of cultivation. Among these the

Groffes de Delle of the French, perhaps a variety of *C. limifolius*, forms small tufts, the extremities of which are covered with flowers which, during expansion, pass through several shades of purple; it continues in bloom during a great part of the year. *C. Marshallii*, a low tufted plant with bright evergreen leaves and numerous large orange-coloured flowers, blooms early in the year. All these, and several other species, are well suited for adorning rock-work. [C. A. J.]

CHEIROGLOSSA. A name under which *Ophioglossum palmatum* was proposed to be separated from the other species of this genus of Ferns. [T. M.]

CHEIROPLEURIA. A synonym of *Anapausia*, applied to *A. Vesportillo* and *A. bloupsii*, two Ferns which are remarkable in bearing fronds of a form resembling bats' wings. [T. M.]

CHEIROSTEMON. The Hand-flower tree, or Macpalochtiquahuitl of the Mexicans, is the sole species of this genus of Sterculiads. The plant, *C. platanoides*, is a tree growing thirty or more feet in height, and having plane-like leaves of a deep-green colour on the upper surface, but covered underneath with a rust-coloured scurf composed of star-like hairs, each leaf being about six inches long by five broad, deeply indented at the base and divided at the margin into from three to seven blunt, rounded lobes. Its flowers are two inches



Cheirostemon platanoides (flower).

long by as much broad, and are destitute of a corolla, but have a leathery, rusty-red, cup-shaped calyx, deeply cut into five broad, sharp-pointed divisions, the bottom of the cup having five bright yellow cavities which secrete a quantity of sweet fluid. The arrangement of the stamens is most remarkable; they are of a bright-red, and united together for about one-third of their length (four inches), when they separate into five curved claw-like rays, and thus bear some resemblance to the human hand. The club-shaped style

emerges from the centre of the stamens, and is terminated by a pointed stigma. The fruit is five-cornered, and splits open in five places when ripe, allowing the escape of the numerous seeds.

A solitary specimen of this tree was first discovered growing near the town of Toluca in Mexico. It was of great age, and an object of veneration among the Indians, both on account of the remarkable structure of its flowers, and because they supposed that no other tree of the kind existed elsewhere; but forests of it have since been discovered near the city of Guatemala, from whence it is probable that the Indians of Toluca had transported it in very early times. [A. S.]

CHEIROSTYLIS. A genus of terrestrial Orchids, consisting of little plants with the habit of *Anacrotichus*, to which it is nearly allied. Its most distinguishing character is having the three sepals united into a short tube, from the front of which hangs down a lip divided into narrow lobes. The column, moreover, has four arms, half its own, and half belonging to the stigma.

CHE'LIDONE PETITE. (Fr.) *Ficaria verna*, also known as *Ranunculus Ficaria*.

CHELIDONIUM. The Greater or Common Celandine, a plant frequently found in this country in the neighbourhood of villages or old ruins, is the only species of this genus of the Poppy family, and is not to be confounded with the Lesser Celandine (*Ficaria*). The Common or Greater Celandine is a glaucous hairy annual plant, with pinnately-lobed leaves, small yellow flowers in a loose umbel, and a fruit, consisting of a long pod, bursting from below upwards by two valves, and containing a number of seeds with a small crest on them, near to the place where they are attached to the interior of the pod. The whole plant is full of a yellow juice which is of an acrid poisonous nature, and has been used in certain diseases of the eye, and as a caustic to destroy warts, &c. [M. T. M.]

CHELIDOSPERMUM. A section of the genus *Pittosporum*, containing a few species from New Guinea, with the calyx deeply five-parted, valvate, and the seeds with long seedstalks. The leaves are oblong; the flowers grow in a pedunculated terminal umbel; and the capsule is two-seeded, with leathery valves. [J. T. S.]

CHELONANTHERA. *Pholidota*.

CHELONE. A small genus of Linariads, very closely allied to the *Penstemon*, from which, however, it is easily distinguished by its imbricated winged seeds, by its sterile fifth stamen being shorter than the other four, and by its flowers being arranged in short dense bracted spikes. The form of the corolla in this genus is also very distinct, the broad keeled upper lip and scarcely open mouth giving it some resemblance to the head of a tortoise or turtle, to which feature are due both its scientific appellation and the popular American name of Turtle-head. The best-

known representative of this genus is the *O. obtusa*, a perennial with creeping roots, erect smooth bluntly four-angled stems, opposite serrated lanceolate leaves varying considerably in breadth and acuteness, and flowers in terminal spikes, with corollas mostly of a rosy-purple colour. The so-called *O. glabra* is now regarded as but one of the forms of *O. obtusa*. *O. Lyoni*, with the same habit, has smaller flowers and longer and thinner leaves. *O. nemorosa* seems to be intermediate between *Chelone* and *Pentstemon*, having the winged seeds of the former genus, with the inflorescence and habit of the latter. It has ovate serrated leaves, and dull purple pentstemon-like flowers produced from the upper axils. It is proper to note that several popular border flowers pass for *Chelones* which are in fact true *Pentstemons*; as examples may be cited the *Pentstemon barbatus*, *P. campanulatus*, and *P. contranthifolius*, all of which have been improperly classed under the present genus, though they possess none of its distinguishing features. [W. T.]

CHEMISE DE NOTRE-DAME. (Fr.) *Cyrtoglossa cephura* and *Cardamine pratensis*.

CHENA, or CHAINA. An inferior kind of Indian Millet, *Panicum pilosum*; also sometimes applied to *Panicum miliaceum*.

CHÊNE. (Fr.) *Quercus*. — A' GRAP-PES. *Quercus pedunculata*. — ANGOU-MOIS. *Quercus Tauzin*. — A TROCHETS. *Quercus sessiliflora*. — AU KERMES. *Quercus coccifera*. — BROSEE. *Quercus Tauzin*. — COMMUN. *Quercus pedunculata*. — CYPRE'S. *Quercus fastigiata*. — DES PYRENE'S. *Quercus fastigiata*. — GREG. *Quercus Agilope*. — NOIR D' AMERIQUE. *Catalpa longissima*. — PETIT. *Teucrium Chamædrye*; and also *Veronica Chamædrye*. — QUEROITRON. *Quercus tinctoria*. — ROURE. *Quercus sessiliflora*. — VE'LANI. *Quercus Agilope*. — VERT or YEUSE. *Quercus flex*. — TAUZIN or TOZA. *Quercus Tauzin*. — ZANG or ZEEN. *Quercus Mirbeckii*.

CHENILLETTÉ. (Fr.) *Scorpiurus*.

CHENOPODIACEÆ. (*Chenopoda*, the Goose-foot family.) A natural order of Monochlamydeous Dicotyledons, characterising Lindley's Chenopodial alliance. Herbs or undershrubs with alternate sometimes opposite leaves without stipules, and small flowers which are sometimes unisexual, i.e. have stamens and pistils in separate flowers. Perianth (calyx) deeply divided, sometimes tubular at the base, persistent; stamens inserted into the base of the perianth and opposite to its divisions. Ovary free, one-celled, with a single ovule attached to its base. Fruit an utricle (inflated) or an achene, sometimes succulent; embryo curved round mealy albumen, or spirally curved without albumen. Inconspicuous plants found in waste places in all parts of the world, but abounding in extra-tropical regions. Many of them, as species of *Salsicoria* and *Sals-*

it salt-marshes in the northern of Europe and Asia. Some of them are used as potherbs, for instance, Spinach, (*Spinacia oleracea*), Orach (*Atriplex hortensis*), Beet (*Beta vulgaris*), English Mercury (*Chenopodium Bonus Henrious*), Australian Spinach (*Chenopodium crassum*). The Man-gold-wurzel is a variety of beet used for the food of cattle. The beet is much cultivated in France for its sugar. Some of the plants yield soda, others supply essential oils which render them useful in cases of worms and in spasmodic diseases. The seeds of *Chenopodium Quinoa* are used as food in Peru. They abound in starch, but have a bitterish taste. The seeds of *Chenopodium Bonus Henrious* are used in the manufacture of shagreen. There are seventy-four known genera and 533 species. Illustrative genera: *Salsicoria*, *Atriplex*, *Spinacia*, *Beta*, *Bittum*, *Salsola*, *Chenopodium*. [J. H. B.]

CHENOPODIUM. A genus of annual and perennial herbs giving its name to the natural order of Chenopoda, and chiefly remarkable for the weedy character of the species composing it, of which the Common Goosefoot, a plant found everywhere in waste places, with triangular leaves covered with a whitish mealliness, and numerous small flowers in terminal clusters, is an example. It includes, however, a few species interesting for their utility, and one which has some merit as an ornamental plant. The latter is *C. Atriplicis*, a tall branched annual of erect pyramidal habit, growing four to five feet high, with reddish stems, rhomboidly-ovate and often sinuate leaves, covered while young with a glittering purple meal, and numerous small flowers in terminal compound spikes of a dark-purple colour, and also clothed with purple meal. *C. ambrosioides*, or Mexican Tea, the *Ambrosia ambrosioides* of some botanists, a tropical species, contains an essential oil to which it owes tonic and antispasmodic properties; and *C. anthelminticum*, a species differing from the preceding, of which it is perhaps but a variety, chiefly in its leaves being more deeply cleft, and the flower-spike mostly leafless, yields the wormseed oil, a popular vermifuge in the United States. The species to which the greatest interest attaches is, however, *C. Quinoa*, indigenous to the Pacific slopes of the Andes, where it is largely cultivated in Peru and Chili for the sake of its seeds, which are extensively used as an article of food. They are prepared either by boiling in water like rice or oatmeal, a kind of gruel being the result, which is seasoned with the Chili pepper and other condiments; or the grains are slightly roasted like coffee, boiled in water and strained, the brown-coloured broth thus prepared being seasoned as in the first process. This second preparation is called 'carapulque', and is said to be a favourite dish with the ladies of Lima. However prepared, the Quinoa is unpalatable to strangers, though it is probably a nutritious article of food

from the amount of albumen it contains.

odorata. —, WILD *Charophyllum sylvestre*.

which is that employed as roon, and a dark-red fruited one called the Red Quinoa. A sweetened decoction of the seeds of the latter is used medicinally, as an application to sores and bruises, and cataplasms are also made from it. This species attains a height of four to five feet, and has a stout furrowed branched stem, large triangular-ovate deeply-aurate leaves, on long foot-stalks, and densely-clustered small green flowers, produced in axillary and terminal panicles. Botanically, the genus *Chenopodium* is distinguished by a five-parted perianth, five stamens, two styles crowning the ovary which contains a single round flattened seed. [W. T.]

CHERAMELLA. An Indian name for the subacid fruits of *Cicca disticha*.

CHERIMOYER. *Anona Cherimolia*, a delicious Peruvian fruit.

CHERMESINE. A kind of crimson.

CHE-ROOT. *Oldenlandia umbellata*.

CHERRIS. An Indian name for the resinous exudation of the Hemp, *Cannabis sativa*.

CHERRY. A well-known fruit produced from cultivated varieties of the Wild Cherries, *Cerasus Avium* and *C. vulgaris*. —, **BARBADOS.** *Malpighia glabra*. —, **BASTARD.** *Cerasus Pseudo-cerasus*. —, **BEECH or BRUSH.** *Trochocarpa laurina*. —, **BIRCH.** *Betula lenta*. —, **BIRD.** *Cerasus Padus*. —, **CHOKE.** *Cerasus virginiana*; also *C. serotina*, *hiemalis*, and *borealis*. —, **OLANMY.** *Cordia Collococca*. —, **COW-HAGE.** *Malpighia urens*. —, **CORNELIAN.** *Cornus mascula*. —, **GROUND.** *Cerasus Chamacerasus*; also an American name for *Physalis*. —, **HOTTENTOT.** *Cassia Marroccina*. —, **NATIVE.** of Australia. *Exocarpus cypripediformis*; —, of N. S. Wales. *Nelitris ingens*. —, **WINTER.** *Physalis Alkekengi*; also sometimes applied to *Physalis angulata* and *Cardiospermum Halicacabum*.

CHERRY-CRAB. A variety of the Siberian Crab, *Pyrus Malus baccata*.

CHERRY-LAUREL. *Cerasus Lauro-cerasus*.

CHERRY-PEPPER. *Capiscum cerasiforme*.

CHERRY-PIE. *Epilobium Aitruum*; in gardens the *Hellebore*.

CHERUL (Fr.) *Stum Sisarum*.

CHERVIL. A garden potherb, *Charophyllum sativum*, also called *Anthriscus Cerefolium*. The name Chervil is also applied generally to the plants referred to *Charophyllum*. —, **GREAT.** *Myrrhis odorata*. —, **NEEDLE.** *Scandix Pecten veneris*. —, **PARSNIP.** *Scandix bulbosum*, or *Anthriscus bulbosus*. —, **SWEET.** *Myrrhis*

CHERVIS. (Fr.) *Stum Sisarum*.

CHESNEYA. A genus of dwarf woody plants, belonging to the pea-flowered *Leguminosae*, nearly related to *Calophaea* and *Cohuta*, from both of which it differs, in having the spaces between the seeds in the pod occupied by a spongy pith-like substance. The leaves are alternate, unequally pinnate, with from three to nine pairs of wedge-shaped leaflets, about half an inch long, and downy. The flower-stalks are axillary, bearing on their apex one to three yellow or violet-coloured flowers, whose tubular calyces are curiously swollen above at the base. The pods are from one to two inches long, roundish, or somewhat flattened, containing four to six seeds. There are about eight species known: one of them, *C. cuneata*, found in Tibet at an elevation of eight to twelve thousand feet, but the greater portion in W. Asia, and chiefly in Persia. [A. A. B.]

CHESTNUT. The common name for *Castanea*. —, **BORSE.** *Æsculus Hippocastanum*. —, **MORETON BAY,** or **NEW HOLLAND.** The large fleshy seeds of *Castanospermum australe*. —, **SPANISH.** *Castanea vesca*, the fruits of which are known as Sweet Chestnuts. —, **TAHITI.** *Inocarpus edulis*. —, **WATER.** *Trapa natans*. —, **WILD.** A name given by the settlers at the Cape to the seeds of *Bradyum*. —, **YELLOW.** *Quercus Castanea*.

CHESTNUT OAK. *Quercus Castanea*; also sometimes applied to the timber of the sessile-fruited English oak, *Quercus sessiliflora*.

CHEVEUX DE VENUS. (Fr.) *Adiantum Capillus-Veneris*; also applied to *Oscula major*, and *Nigella damascena*. —, **DU DIABLE.** *Oscula major*.

CHEVREFEUILLE. (Fr.) *Lonicera*. —, **DES BOIS.** *Lonicera Periclymenum*. —, **D'ITALIE.** *Lonicera etrusca*. —, **DE VIRGINIE.** *Lonicera sempervirens*.

CHEVRILLE. (Fr.) *Lactuca perennis*.

CHEVREUILA. A small genus of *Compositae multicaeae*, containing a few species from Chili and Brasil. They are mostly of procumbent habit, with entire or sinuate leaves rising from the rootstock, and a naked peduncle surmounted by one head of flowers, those of the disk being males, and those of the ray females. One species, *C. (Leucopodioides)*, occurs in the Falkland Islands, where, however, it is scarce. The genus *Leucopodium*, founded by Gardner on one of his Brazilian plants, is better included in the present genus. [J. Br.]

CHEYNIA. *Balaustion*.

CHIAZOSPERMUM. A genus containing an annual herb from temperate Asia, allied to *Hypocnemum*, and like it forming a connecting link between the orders *Papaveraceae* and *Fumariaceae*. It differs from *Hypocnemum* by having the seeds somewhat

four-aided, each side with a cross-marked elevation. [J. T. S.]

CHIBOU RESIN. A product of *Bursera gummiifera*.

CHICASAW PLUM. *Cerasus Chicasa*.

CHICHA. *Sterculia Chicha*, the seeds of which are eaten as nuts by the Brazilians; also a colouring-matter obtained from the leaves of *Bignonia Chica*.

CHICHE. (Fr.) *Lathyrus Cicera*.

CHICKEN-WEED. A name under which *Roccella tinctoria* has been sometimes imported. Also *Stellaria media*.

CHICHOW. The seeds of *Cassia Absus*, an Egyptian remedy for ophthalmia.

CHICKRASSIA. A latinised version of the Bengalee name of a lofty Indian tree, belonging to the order *Cedrelaceae*. The leaves are pinnated; the flowers large, in terminal panicles with ten stamens united by their filaments into a tube. Ovary three-celled, placed on a broad disc, with pendulous ovules, arranged in two rows. The fruit is a capsule opening from above downwards by three valves, leaving a central column. The seeds are winged. The wood of *C. tabularis* is close-grained, light-coloured, and elegantly veined; hence it is in much request by cabinet makers, who call it Chittagong wood, though there are other woods with a similar appellation. The bark of this tree is astringent but not bitter. [M. T. M.]

CHICKWEED. The common name for *Aisne*. The well-known weed of this name is *Aisne*, or *Stellaria media*. — **BASTARD.** *Hyssopus tenuifolia*. — **FORKED.** *Anychia dichotoma*. — **INDIAN.** An American name for *Mollugo*. — **MOUSE-EAR.** The common name for *Cerastium*; also specially *C. vulgatum*. — **SEA.** *Arenaria peploides*. — **SILVER.** *Paronychia argyrocoma*. — **WATER.** *Montia fontana*; also sometimes applied to *Malachium aquaticum*, and *Callitriche verna*.

CHICO. A kind of beer, made in Chili from the Indian corn, *Zea Mays*.

CHICON. (Fr.) *Lactuca sativa*.

CHICORÉE. (Fr.) Succory, *Cichorium Intybus*. — **FRISÉE.** Curled Endive, a variety of *Cichorium Endivia*.

CHICORIA DE LA TIERRA CALIENTE. A South American name for *Achyroperus sessiliflorus*.

CHICORY. *Cichorium Intybus*, or Succory.

CHICOT, or CHICHOT DU CANADA. (Fr.) *Gymnocladus canadensis*. The term Chicot is also applied to the seeds of *Moringa pterygosperma*.

CHIENDENT. (Fr.) *Cynodon Dactylon*. — **A' BALAIS.** *Andropogon Ischamum*. — **A' CHAPELET.** *Avena bulbosa*. — **DES BOUTIQUES.** *Triticum repens*.

CHILLI. The fruit of *Capsicum annuum*, and other allied species.

CHIOLOCARPUS. An imperfectly known genus of climbing shrubs, natives of Java, with a salver-shaped corolla, capitate stigma, and a capsular fruit. The genus is referred to the *Apocynaceae*. [M. T. M.]

CHILODIA. A genus of *Labuteae*, containing a single species, a native of New Holland. It is a branched glabrous or slightly pubescent shrub, with small entire linear-sessile leaves and single flowered axillary peduncles, with two small subulate bracts below the calyx. The calyx is campanulate with a short striated tube, and a bilabiate limb, the upper lip being entire and the lower emarginate or bidentate. The corolla is campanulate and faintly two-lipped. There are four stamens shorter than the tube; the anthers have two smooth parallel cells, without appendages. The apex of the style is slightly bifid with sub-equal lobes. In habit and structure this genus is very near *Prostanthera*, differing only in having no appendages to the anther-cell. [W. C.]

CHIOGLOTTIS. Under this name stand a small number of terrestrial Australasian Orchids, bearing radical leaves in pairs and solitary galeate reddish flowers at the end of a short naked scape. Like *Caladenia* its lip is marked by prominent glands; nor, indeed, does it differ much from that genus, except in having a very broad arched dorsal sepal.

CHILOPSIS. A genus of *Bignoniaceae*, consisting of a single species of erect branching shrubs from Mexico. It has long linear entire alternate leaves, and beautiful flowers in terminal dense spicate racemes, on short bibracteolate pedicels. The bilabiate calyx is membranaceous, inflated, and deeply-cleft in front; the corolla-tube is dilated upwards, and the two-lipped limb is five-lobed. The four stamens are didynamous, the sterile fifth being very minute. The style is filiform, and the stigma bilobed. The pod-like capsule is two-celled, with the partition bearing the pinnate contrary to the valves. The seeds are transversely winged. [W. C.]

CHIOSCHISTA usneoides is a leafless Indian epiphyte of the Orchidaceous order, with narrow, flat, green roots, which cling to the branches of trees and appear to serve the purpose of leaves, as also happens in the leafless *Angraecums*.

CHIMAPHILA. A small genus of *Pyrolaceae*, natives of Europe, Siberia, and North America, differing from *Pyrola* by the hairy filaments, very short style, and capsule splitting from the apex downwards with the edges of the valves not woolly. The plants, called Winter Greens in America, have woody subterranean shoots, and a short stem with a tuft of thick shining evergreen leaves, oblong, wedge-shaped, or lanceolate—in the latter case variegated with white. The scape is corymbosely or umbellately branched at the apex; the

...leaves one-flowered, bearing handsome, white flowers, tinged with and very sweet-scented. The leaves contain a bitter extractive matter, on which account they have been used in medicine, in North America. [J. T. S.]

CHIMNEY PLANT. *Campanula pyramidalis*.

CHIMONANTHUS. The Japan Allspice, *C. fragrans*, is the only representative of this genus of the *Calycanthus* family, and it is well-known in gardens for its early flowering and the sweet scent of its blossoms. It was introduced from China in 1766, and for a long while was known under the name of *Calycanthus pracoce*, until it was shown to differ from that genus in having but ten stamens arranged in two rows; while in *Calycanthus* they are very numerous, and arranged in four rows. The Japan Allspice is a much-branched shrub, and generally treated as a wall-plant in gardens; its leaves are opposite, stalked, between oval and lanceolate in form, and very rough on the surface; they generally fall late in the autumn, but sometimes a few remain till the spring. The flowers are sessile on the branches, about an inch in diameter, and made up of a large number of pale yellow waxy petals, arranged in several rows: the inner series in one variety chocolate-coloured, and in another mottled with red. These flowers in mild winters often appear about Christmas, and last for a long time. [A. A. B.]

CHINA ASTER. *Callistephus chinensis*, also called *Callistemma hortense*.

CHINA BARK. The bark of *Buena hecandra*, an indifferent febrifuge.

CHINA GRASS. The fibre of *Bohmeria nivea*, the Rhea, or Ramee.

CHINA ROOT. The tuberous rhizome of *Smilax China*.

CHINCAPIN. (Fr.) *Castanea pumila*.

CHINCHIN. A Chilian name for *Polygala theioides*.

CHIN-CHON. A gummy or glutinous matter, much used as a glue or varnish in China and Japan, and supposed to be the produce of *Plocaria tenax*.

CHINESE SWALLOWS' NESTS. These curious productions, which sell at such a high price in China, though they have no especial points of recommendation beyond many other gelatinous ingredients in soups, were formerly supposed to be made of some species of the rose-spired *Alga*, as *Sphaerococcus lichenoides*; but this is now ascertained to be a mistake, and it is known that they are formed of a secretion from the mouth of the bird itself. [M. J. B.]

CHINESE TREE. *Paonia Moutan*.

CHINESE VARNISH. *Rhus vernicifera*.

CHINKWORT. The popular name in some districts for the different species of

Opegrapha and their allies, which grow on the trunks of trees. These lichens are also sometimes called Letter-lichens, or Scripture-worts. [M. J. B.]

CHINQUAPIN. An American name for *Quercus prinoides*; also for *Castanea pumila*.

CHIOOOCCA. A genus of the *Cinchonaceae* family, consisting of small shrubs, with a funnel-shaped yellowish corolla, concealing the five stamens, which are provided with hairs. Ovary two-celled, with two inverted ovules. Fruit a berry with two seeds. The species are remarkable for the violent emetic and cathartic properties possessed by the roots, which are administered in Brazil as a certain remedy for snake bites, though their intense action would seem to be, from the account of Von Martius, almost as dangerous as the wound they are intended to cure. The name is derived from two Greek words, signifying 'snow-berry', in allusion to the white fruit. [M. T. M.]

CHIONANTHUS. The Snowdrop tree of North America, or the Snow-flower, as the name implies, belongs to a genus of *Oleaceae*, and is distinguished by its deciduous leaves, and the long narrow ribbon-like segments of the corolla. The fruit is a drupe like that of the olive. *C. virginica* is a deciduous shrub or small tree, with large smooth leaves like those of a *Magnolia*, and bearing flowers in terminal panicles. It blossoms in this country in June, and is highly ornamental. [M. T. M.]

CHIONOPHILA. A genus of *Scrophulariaceae*, nearly allied to *Pentstemon*, but differing from that genus in its five-toothed (not five-cleft) calyx, as well as in habit. *C. Jamesii*, the only known species, found in the Rocky Mountains near the snow limit, is a small unbranched herb about two inches high, with a few smooth linear leaves which are enveloped near the base by a number of membranaceous scales. The tubular flowers grow one or two on the apex of a short scape. The fruit is not known. [A. A. B.]

CHIP. A material used for plaiting into various articles of ornament and use, and obtained from the leaves of the palm called *Thrinax argentea*.

CHIUQUICHUQL. The Venezuelan name for *Attalea funifera*, which yields the Pia-saba fibre of commerce.

CHIRATA. An Indian tonic, *Agathotes Chirayta*; also called Chireeta or Chiretta.

CHIRITA. A small genus of *Gesneraceae*, natives of tropical Asia. They are herbaceous plants with a short stock or a simple leafy stem, the leaves opposite, and the flowers solitary or umbellate, on axillary or radical peduncles. The calyx is five-lobed; the corolla tubular, the limb two-lipped. Of the four stamens the two upper are small and sterile, and the fertile pair have divaricate anther-cells cohering

laterally. The stigma is flattened and emarginate or two-lobed. The linear capsule contains many minute seeds without appendages. [W. C.]

CHIRONIA. A genus of the Gentian family, somewhat singularly named after Chiron, one of the reputed fathers of medicine, inasmuch as the species inhabit a district unknown in those days, to wit, the Cape of Good Hope. The genus consists of herbs or small shrubs with narrow ribbed leaves, and a corolla with a short tube, and a five-cleft bell-shaped limb with deciduous segments. The five stamens are short, inserted on the throat of the corolla and bent downwards, and the anthers open by two pores at the top. The ovary is partly two-celled, by the bending inwards of the placenta, bearing the numerous seeds; the style terminal, curved at the top, and directed away from the stamens. The capsule has a somewhat fleshy external rind, and an inner membranous one. Several kinds are in cultivation. They have for the most part pretty pink flowers. [M. T. M.]

CHIRONIS. (Fr.) *Stem Stearum.*

CHIROPETALUM. A genus of *Euphorbiaceae*, allied to *Oreton*, but differing in the stamens being united into a column, not free, and also to *Ditaxis*, which, however, has ten stamens in two tiers, instead of five in one tier. The plants are herbs or small shrubs confined to the temperate parts of South America, some of them having all their parts covered with little simple hairs. The leaves are alternate entire or serrate, generally lanceolate in form and three-nerved. The small green flowers are disposed in axillary or terminal racemes, the upper portion of the raceme being occupied by the males, which are the most numerous, the lower by the females. The calyx is five-parted, and the petals, of a like number, are three or seven-lobed. The ovary is crowned with three styles, each forked at the summit in the form of a Y, and bent back on the fruit which is three-lobed and contains three seeds. The leaves of some of the species are of a reddish-brown colour owing to the presence of colouring matter. [A. A. B.]

CHITONIA. A genus of West Indian shrubs of the family *Melastomaceae*, some species of which are grown in this country as ornamental stove-plants. They form shrubs or small trees, and have opposite ovate acute five-nerved leaves, and terminal panicles with three-flowered branches. The limb of the calyx is described as being in two rows, the outer consisting of awl-shaped teeth, the inner of short very blunt membranous processes, adherent to the base of the outer teeth; the anthers open by one pore only; the ovary is enclosed within the tube of the calyx, and has six compartments. [M. T. M.]

A. An Indian name for

CHITTAGONG WOOD. The timber of

several Indian trees, especially of *Cedrela Toona*, and *Chloroxylon tabularia*.

CHITTAH-PAT. The Assam name for *Lacuna peltata*.

CHIVES or CIVES. *Allium Schoenoprasum*, a garden esculent.

CHLÉNACEÆ. A small family consisting of only four genera of one or two species each, all from the island of Madagascar, and as yet but very imperfectly known. They are trees or shrubs with the habit, alternate leaves, stipules, and terminal inflorescence of some *Sterculiaceae*, of which they have also the free petals, monadelphous stamens and anthers; and the structure of the ovary fruit and seed is the same as in some genera of that family; but the calyx is said to be always three-cleft or composed of three sepals, and enclosed in a five-toothed involucre, an anomaly which has prevented the absolute union of *Chlénaceae* with *Sterculiaceae*.

CHLAMYDANTHUS. A name now applied to a section of the genus *Thymelae*, in which the tubular calyx remains attached after withering and encloses the nut. The plants embraced in this section are low woody-stemmed bushes, chiefly natives of the Mediterranean regions. Their bark is very tough as in all the plants of the family to which they belong (*Thymelaceae*). Their leaves are seldom more than half an inch long, and generally linear in form; and the flowers are small and inconspicuous in the axils of the leaves. [A. A. B.]

CHLIDANTHUS. A genus of South American *Amoryllidæ* having truncated bulbs, linear-lorate leaves sheathing at the base, developed after the flowers, and a scape, one and a half foot high, supporting an umbel of a few large fragrant flowers. The perianth has an erect cylindrical tube widened at the mouth, and a nearly-equal somewhat spreading limb of six segments. The filaments of the six stamens are inserted in the points of the alternately unequal teeth of a thin membrane adhering completely to the tube and base of the petals, but partite. This membrane Dr. Herbert regarded as an incipient manifestation of the staminate cup of his pinceriform section of *amoryllidæ*, with which *Chlidanthus* thus becomes a connecting link. *C. fragrans*, the only species, has glaucous erect leaves about a quarter of an inch wide; its flowers are yellow, fragrant, sub-sessile, with the tube two to four inches long, and the limb one inch and a half. [T. M.]

CHLOANTHES. A genus of *Verbenaceae* from extra-tropical New Holland, consisting of undershrubs thickly covered with opposite or ternate sessile linear and revolute leaves, and having solitary axillary flowers with short peduncles. The calyx is campanulate, five-cleft, and spreading. The tube of the corolla has a woolly ring on its interior above the apex of the ovary, and the ringent limb has the upper

liphid, and the lower tripartite, the middle lobe being the longest. The four didynamous stamens are inserted in the corolla-tube, and the ovary is four-celled, with a slender

flowers are in simple or branched terminal spikes, often articulate, as in *Gnetum*. There is no perianth. One or more stamens are adnate to the ovary when the flowers are hermaphrodite. The ovary contains a single pendulous ovule, and is crowned by a thickened sessile stigma. The fruit is a small drupe, the embryo very minute in the top of a fleshy albumen. There are but very few species, all tropical and contained in two genera: *Chloranthus* in Asia, and *Hedyosmum* in America.

CHLOIDIA. Among the terrestrial Orchids with the habit of small bamboos are two species referred to *Neottia* by Swartz: *N. flava* and *N. polystachya*, the first found in swamps in Jamaica and Brazil, the second inhabiting barrens on the highest mountains of Jamaica. Both look like a *Corymbis* or *Cnemidia*. They seem to fill the same position among *Neottia* as *Evelyna* among *Epidendrea*. *C. decumbens* is six feet high; but *C. vernalis* is not more than a foot.

CHLORA. An annual herbaceous plant, well marked among the *Gentianaceae* by its eight-cleft flowers and eight stamens. *C. perfoliata*, called Yellowwort, the only British example, is a singularly erect slender plant, about a foot high, with but few root-leaves, opposite stem-leaves which are united at the base (connate), and stems which are forked towards the extremity, having a single flower in each fork and others crowded at the extremity. The whole plant is perfectly smooth and of a decided glaucous hue. The flowers, which are rather large, and of a delicate clear yellow, expand only during the sunshine, like the genus *Erythraea*, to which *Chlora* is allied. The whole plant is intensely bitter, and may be employed with advantage as a tonic; it also dyes yellow. It is of tolerably common occurrence in chalky pastures, especially near the sea. Two other species resembling *C. perfoliata* in habit occur on the European continent, one a native of Germany and Hungary, the other of Southern Europe. French, *Chlore*; German, *Bikerkraut*. [C. A. J.]

CHLORÆA. An extensive genus of terrestrial Orchids exclusively found in the southern districts of South America. Botanically they are allied to *Arethusa*, although very different in habit from that genus. Their roots are coarse fascicled glutinous fibres. The leaves are all radical. The scape is clothed with thin herbaceous sheaths. The flowers grow in spikes or racemes in the manner of the genus *Orchis*, are greenish, whitish, or yellow, occasionally marked by deep brown specks. Some thirty or forty species are known, none of which are in cultivation, although they have been occasionally introduced, among which is the plant called, in the *Botanical Magazine* (t. 2856), *Ulantha grandiflora*, the native country of which is unknown.

CHLORANTHACEÆ. A small family of Dicotyledons with flowers of a very simple structure, allied to those of *Piperaceæ* and *Saururaceæ*. They are trees, shrubs, or rarely herbs, with opposite leaves connected by sheathing stipules. The minute

CHLORANTHUS. A genus of tropical *Chloranthaceæ*, the only floral envelope of which is a very small calyx, consisting of one scale adhering to the side of the ovary. It consists of small evergreen shrubs, having jointed stems with tumid articulations, and opposite simple leaves with minute intervening stipules. The apparently single stamen, which is the most remarkable part of its structure, consists of three, the central one of which has a perfect two-celled anther, and the other two, one on each side of it, have only half an anther, so that they are only one-celled; or the two lateral half anthers may be deficient, leaving a single perfect stamen. They are attached to the side of the ovary immediately above the calyx. The three stamens grow together except at their points, so as to become monadelphous, which has given rise to different opinions as to their structure. The ovary is one celled, consisting of a single carpel with one pendulous ovule; and the seed has a large quantity of albumen, the embryo being very minute.



Chloranthus inconspicuus.

The roots of *C. officinalis*, a native of Java, occasionally seen in our hot-houses, are an aromatic stimulant, which, Dr. Blume states, has proved of the greatest service in a typhus fever of that island, accompanied with symptoms of extreme debility, languid pulse, and stupor. It was also employed most beneficially in malignant intermittent fever; and he adds

there can be no doubt that it is one of the most valuable stimulants in such cases. It was given in infusion, and was usually combined with a decoction of *Cedrela Toona*. The roots are also employed there with the greatest success, mixed with carminatives, as anise, in the malignant small-pox in children. *C. brachystachys* has similar properties. [B. C.]

The detached flowers of *C. inconspicua*, which are fragrant, are used in China under the name of Chu-lan, for scenting some of the perfumed teas. They are placed with the prepared leaves in alternate layers under pressure, and thus impart their fragrance to the tea. [T. M.]

CHLORETTE. (Fr.) *Chlora perfoliata*.

CHLOEIS. A genus of Grasses, typical of the tribe *Chlorideæ*, distinguished chiefly by the spikes of inflorescence being in finger-like fascicles, rarely two, or only one. Flowers polygamous; glumes two, containing from two to six florets; lower flowers one to three, hermaphrodite; male flowers often stalked; pales with terminal awns; stamens three; styles two. Sixty-nine species are described in *Stendel's Synopsis*, and these are mostly natives of warm, dry countries, and consequently require the protection of a conservatory in Britain. *C. radiata* is a pretty annual grass, frequently cultivated in green-houses, in consequence of its ornamental and curious appearance. Many of the other species are handsome also. [D. M.]

CHLORO. In Greek compounds=green.

CHLOROCHROUS. Having a green skin.

CHLOROPHYLL. The green resinous granular colouring matter secreted below the surface of plants.

CHLOROSA *latifolia*, is an insignificant Javanese Orchid, allied to *Neottia* and *Cryptostylis*, from the latter of which it differs in the pollen, which is strictly powdery, and in the anther, which is terminal. It has small insignificant green flowers.

CHLOROSIS. One of the most formidable diseases to which plants are subject, and often admitting of no remedy, especially where it is constitutional. It consists in a pallid condition of the plant, in which the tissues are weak and unable to contend against severe changes, and the cells are more or less destitute of chlorophyll. It is distinct from blanching, because it may exist in plants exposed to direct light on a south border, but is often produced or aggravated by cold ungenial weather and bad drainage. Plants may, however, be affected by this disease as soon as the cotyledons make their appearance, and the seedlings of chlorotic plants partake often of the weak constitutions of the parent. The best culture will not always restore such plants to health. The most promising remedy is watering them with a very weak solution of sulphate of iron. Many forms exist, of

which those of clover, onions, cucumbers, and melons, are perhaps the best known. Melons have become so subject to chlorosis, from some unknown cause, that their cultivation is daily becoming more difficult; and cucumbers are still more generally affected, the fruit even partaking of the maldy, and not only losing its brilliant green, but becoming distorted from gumming and partial decay. [M. J. B.]

CHLOROSPERMEÆ. One of the three great divisions of *Algae* characterised by the green colour of the spores. To this there are occasional exceptions, and in some of these the spores are originally green. The species are in general far less compound than in the two other orders, though in some instances the phenomena of fructification are more striking. The green powdery or gelatinous productions, which are so common upon damp walls or rocks; the curious microscopic few-celled productions which abound in our pools or infest other *Algae*; the green floating masses which form a scum upon our pools, or the shrubby tufts of the same colour in running streams or on sea rock; the flat filmy membranes which occur both in fresh and salt water, are so many members of the division; to which may be added, the spongy *Codiums* and the herbaceous tinted *Cuclerpes*, which often assume the more solid appearance of the more perfect *Algae*. In a few genera large quantities of carbonate of lime are deposited, so as to give them a corn-like appearance. To avoid repetition the peculiar features of each group will be stated in its proper place. In *Diatomaceæ* the spores, which are however rarely produced, their multiplication being chiefly effected by repeated cell divisions, are of a yellow brown, and in an artificial system they might be referred to the *Melanosperms*. Though, however, they are in some respects so peculiar as to stand apart from other *Algae*, they are so closely connected with *Desmidiaceæ*, that they can scarcely be separated from true *Chlorosperms*.

The spores of most members of this great division when they are first liberated are endowed with active motion, which is produced by long thorny-like appendages and by short cilia. In most cases they are very minute. Such spores are called, from their resemblance to Infusoria, *Zoosperms*. In some instances, as in *Coscinata*, the admixture of the contents of two contiguous cells, either in the same or different individuals, is requisite for the production of the perfect spore. In the latter case, short lateral tubes are thrown out, by means of which different threads are united, or they become adherent without any distinct connecting thread. Male organs have been found in many of the divisions. [M. J. B.]

CHLOROXYLON. A genus of *Cedrelaceæ*, generically distinguished by its fruit having only three cells, and splitting into three parts instead of five.

The Satin-wood tree of India, *C. Siamensis*,

forms a fine tree fifty or sixty feet in height. It is a native of Ceylon, and the Oromandel coast, and also of other parts of India. Its leaves are pinnate, consisting of numerous pale-coloured leaflets, of a somewhat egg-shaped outline, but with the two sides unequal. These leaflets are readily distinguishable from those of all the allied genera, with the exception of *Plindertia*, an Australian genus, by their substance being dotted with minute pellucid glands or oil cells. The small whitish flowers of this tree are borne in large branching panicles, growing at the ends of the young branches. They have a small five-parted calyx; five spreading petals with short stalks; ten awl-shaped spreading stamens, all of which are distinct and fertile; and a three-celled ovary, which is half buried in the disk from which the stamens rise. The fruit contains four seeds in each cell, and the seeds are prolonged at one end into a thin wing or membranous expansion.

This tree yields the Grain-wood of India, a handsome light-coloured hard wood, with a satin-like lustre, and sometimes beautifully mottled or curled in the grain, bearing some resemblance to box-wood, but rather deeper in colour. The best kind of Satin-wood, however, comes from the West Indies, and is the produce of a different but unknown tree. In 1858 the imports of this wood amounted to 248 tons, valued at 2,487: the Indian wood being in circular logs of nine to thirty inches in diameter, and that from the West Indies (St. Domingo and New Providence) in square logs or planks varying from nine to twenty inches across. The principal use of satin-wood is for making the backs of clothes- and hair-brushes, and for articles of turnery ware; the finest mottled pieces, however, are cut into veneers and used for cabinet-making and similar purposes.

[A. S.]

CHENOOPHORA. A name sometimes given to certain Ferns usually referred to *Allophila*.

[T. M.]

CHOCOHO. *Sedum adule*, a tropical succulent of the Cucurbitaceous order, occasionally imported into this country.

CHOCOLATE ROOT. *Geum canadense*.
—, **INDIAN.** *Geum rivale*.

CHOCOLATE TREE. *Theobroma Cacao*. The Chocolate-nut is the seed of this tree, and the chocolate of the shops a preparation of these seeds.

CHERADODIA. A genus referred by Herbert to the alströmeriform Amaryllidæ. It has fibrous roots, numerous radical linear acute erect glabrous leaves, and a scape five to six feet high, bearing three or four smaller alternate clasping leaves, and supporting a corymb of flowers, of which the sepals and petals are very unequal in size, the one white the other tipped with red. It is a little-known plant of Chili, where it is called *Thabel*. A cold

infusion of its leaves is purgative and diuretic. [T. M.]

CHOHO. An Abyssinian name for *Indigofera argentea*.

CHOIN. (Fr.) *Schenus*.

CHOISYA. A Mexican Rutaceous shrub, with ternate leaves, a paniced inflorescence, with large deciduous bracts beneath the flower-stalks; white flowers sprinkled with glandular dots; the five petals and ten stamens inserted on a short stalk supporting the ovary, which consists of five carpels fused into one. The style is short with five furrows, hairy like the ovary; stigma capitate. The fruit is a capsule with five furrows. [M. T. M.]

CHOKE-BERRY. An American name for *Pyrus arbutifolia*.

CHOKE, BLACK. *Cerasus hiemalis*.

CHOLA. An Indian name for Gram, *Cicer arietinum*.

CHOLLU. An Indian name for the grain of *Eleusine coracana*.

CHOLUM. The great Millet, *Sorghum vulgare*.

CHOMORO. *Podocarpus cupressinus*, one of the best timber trees of Java.

CHONDRILLA. A genus of the Composite family, nearly allied to the Lettuce (*Lactuca*), which has the achenes prolonged into a beak and smooth; while those of *Chondrilla* are often rough and furnished at the base of the beak with five small scales, arranged in the manner of a little calyx. The plants are herbs, with generally pinnatifid root-leaves, having a large terminal lobe and small lateral ones; those of the stem, few small and entire. The yellow flower-heads are solitary and terminating the branches, or in corymbs or leafy spikes. *C. juncea*, a native of the south of Europe, a straggling much-branched plant, is almost destitute of leaves when in flower; a narcotic gum is said to be obtained from it in the Island of Lemnos. About twenty species are enumerated, all of them weedy plants, natives of South Europe, the East, and Siberia. [A. A. B.]

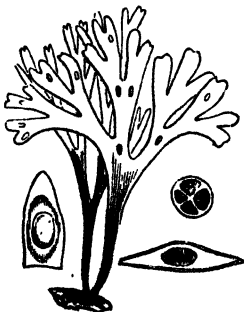
CHONDRODENDRUM. A genus of climbing shrubs belonging to the *Montiper-maceæ*, and closely allied to *Coccolus*, from which it is distinguished by the stigmas, which are ovate and simple; by the globose fruit, which consists of one drupe, owing to the suppression of the others, and by the flat orbicular seeds with a striated margin. *C. convolvulaceum* is called by the Peruvians the Wild Grape, on account of the form of the fruits, and their acid and not unpleasant flavour. The bark is esteemed as a febrifuge. [M. T. M.]

CHONDRORHYNCHA *rossii* is a terrestrial Orchid related to *Cymbidium*, inhabiting Central America. It has long ribbed broad grassy leaves, and large dry

purple radical flowers, with the upper sepal united to the back of the column, and the lip in the form of a large boat-shaped body. The pollen masses are four, secured in pairs to a long soft gland attached to a hard cartilaginous rostell.

CHONDROSPERMUM. A genus of climbing evergreen shrubs, natives of India, with opposite petiolate and three-nerved leaves; the flowers are in very short pedunculate panicles with small lanceolate bracts. The calyx and corolla consist each of four parts; the corolla has a long tube, and spreading limb, cleft into four linear clavate lobes; there are two scarcely exerted stamens, a two-celled ovary with a single erect ovule in each cell, and two very short styles or stigmas. The yellow flowers and climbing stems, together with the erect ovules, have caused this genus to be referred to *Jasminaceae*. The whole structure of the flower seems, however, to unite it more closely to *Oleaceae*. [W. C.]

CHONDRUS. A small genus of rose-spored *Algae*, with a forked fan-shaped frond, and the capsules, which contain several masses of spores, immersed in the frond without any definite border. The type of the genus is *C. crispus*, the true *Carrageen*. It is very common on our



Chondrus crispus.

coasts, as it is also on the Atlantic coast, from the shores of British America to those of Long Island. The colour varies from a dull livid purple to greenish and yellowish. [M. J. B.]

CHONEMORPHA. A genus of *Apocynaceae*, closely allied to *Echites*, and differing from it principally in the funnel-shaped corolla. The species are, moreover, Indian not American. The root and leaves of *C. malabarica*, a plant of Malabar, are used medicinally by the natives. [M. T. M.]

CHOOA or CHOUA. An Indian name for *Amaranthus frumentaceus*, and *oleraceae*.

CHOOA. *Pterardia dulcis*, a Malacca fruit.

CHORDA. A genus of dark-seeded *Algae*, with a simple cylindrical tubular frond, in the surface of which are imbedded a number of obconical spores. In *C. Alga*, the frond is silmy, perfectly cylindrical, and sometimes twenty, or even forty feet in length. It is occasionally used instead of fishing lines, for which, however, it must be a poor substitute. 'It is in quiet land-locked bays,' says Dr. Harvey, 'with a sandy or somewhat muddy bottom, and in from three to six fathoms of water, that it reaches its greatest size. In such places it frequently forms extensive submarine meadows so dense as seriously to affect the passage of boats, and to endanger the life of the unfortunate swimmer who may chance to become entangled in its silmy cords, which when growing have considerable tenacity.' [M. J. B.]

CHORDA PISTILLARIS. A line of tissue reaching from the stigma down to the cavity of the ovary.

CHORDARIÆ. A natural order of dark-spored *Algae*, distinguished by their compound gelatinous frond consisting of vertical and horizontal threads variously interlaced, the cysts being contained in the substance of the frond, and not external as in *Ectocarpea*. Some are as gelatinous as *Batrachospermum*; while *Leathesia* presents an irregular firm but hollow truffle-like mass; *Ralfsia* forms an adherent crust. They are principally inhabitants of colder regions, though species are found at Port Natal and amongst the Philippines. The spore-like cysts are often of two kinds, both producing zoospores. The tips of the terminal threads are often swollen so that they appear to be fruit. [M. J. B.]

CHORETIS. A genus of Mexican and Texan *Amaryllidaceae*, with the habit of *Ismene*, and the flowers of *Hymenocallis*. The perianth has a long slender nearly straight tube, a reflexed limb of long narrow segments, and a large rotate corone lacerated at the margin, the long filaments being spreading-connivent. *C. glauca* is a beautiful species with black-coated bulbs, erect glaucous leaves, a foot and a half long and two and a half inches wide, and a scape upwards of a foot high, supporting three or four sessile flowers. The tube of the perianth is six inches long, quite slender, green, the limb three and a half inches or more, linear white-ribbed with green, the cup, or corone above an inch long, white, rotate, with large teeth between the stamens, which have long incurvo-connivent filaments attached to the upper part of the anther in a prominent callosity. *C. galvestonensis* is a smaller-flowered species from Texas, producing four-flowered umbels, the tube of the perianth and the limb each about two and a half inches long. [T. M.]

CHORETRUM. A genus belonging to

the order of Sandalworts. The flowers have both stamens and pistils; the divisions of the calyx vaulted and covering the five stamens; the style, or appendage on the top of the ovary, is very short, ending in a star-like surface. The name is derived from the Greek word signifying a rustic, probably in allusion to the plain aspect of the species. They are natives of New Holland, having the form of shrubs resembling our native broom. The leaves are very small and scattered, confined mostly to the vicinity of the flowers, which are also small, white, and subtended by four leaflets or bracts. [G. D.]

CHORION. A carpel; also the pulpy matter which fills the interior of a young seed before impregnation.

CHORIPETALUM. A genus of scandent shrubs or trees of the Ardisiad family, distinguished among its allies in its petals being four in number and free, not united, as well as in its racemed flowers. The leaves are alternate, shortly-stalked, and entire, generally about five inches long, between ovate and elliptical in form, and furnished with glandular dots. The small white or yellowish flowers are borne in little axillary racemes, and the berries when ripe are scarlet in colour and contain few seeds. Those of *C. undulatum* are, according to Dr. Hooker, eaten in Sikkim as well as the leaves, which are sour to the taste. This species grows to a straggling tree of sixty feet, and, along with a few others, is a common plant in the temperate regions of the Himalayas. One species is found in Ceylon; another, with small leaves, rounded at the apex and narrowed towards the base, is found in Hong Kong, the eastern limit of the genus, Java being the southern, and Bombay the western. [A. A. B.]

CHORISIA. A genus of small prickly-stemmed trees of the Sterculiad family, peculiar to South America. Their leaves are alternate stalked and digitate, made up of five oblong, or elliptical smooth leaflets, each from three to six inches in length. The flowers (one to three in the axils of the upper leaves) are large, rose-coloured, and composed of a bell-shaped three or five-lobed calyx; five narrow petals from one to three inches long, either entire or with crisped margins, and covered with silky hairs; a double staminal tube, the outer one short and bearing on its apex ten barren stamens, the inner much longer and bearing ten fertile stamens. The number and arrangement of the stamens serve to distinguish the genus from its allies. The fruit is a one-celled pear-shaped capsule, containing many seeds, which are covered with silky or cottony hairs. The tough bark of *C. crispiflora* is used in Brazil for making cordage; and the white cottony hairs of the seeds of *C. speciosa* are used by the Brazilians for stuffing pillows and cushions. The tree is known by the name of *Arvore de Palma* in Brazil. M. de St. Hilaire

remarks, that the cottony hairs which cover the seeds and line the walls of the fruit of many of the plants of this *Bombax* family, are used wherever they grow—whether in India, Africa, or America, for precisely similar purposes. [A. A. B.]

CHORISMA. The only species of this genus, *C. repens*, a little plant of the Composite family, grows on the sandy seashores, from Loo Choo and Hong Kong to Kamtschatka. The stems, about the thickness of a straw, creep along the sand and emit roots where the leaves are given off; these leaves have stalks about three inches long, and are generally three or five-lobed, but sometimes three-parted with three-lobed segments, the blades much shorter than their stalks and quite smooth. The yellow flower-heads are from one to three, supported on a stalk a little longer than the leaves. This plant is nearly related to the sow-thistles, but the peculiar habit and form of its leaves readily serve to distinguish it. It has been called *Chorina repens*, and is now placed in the genus *Ixoria*. [A. A. B.]

CHORISTORA. A genus of *Cruciferae*, allied to *Cakile*, but differing in the longer cylindrical pod, which breaks across into one-seeded divisions. Annual plants, natives of Siberia and the Altai, with purple, white or yellow flowers. [J. T. S.]

CHORISTES. A genus of much-branched Mexican shrubs, belonging to the *Cinchonaceae*. The flowers are few in number, with a top-shaped calyx, having four persistent, short divisions; a somewhat bell-shaped corolla; four stamens; a two-celled ovary, becoming a capsule, dividing from the top into two divisions, to liberate the numerous seeds. [M. T. M.]

CHORISTOPHYLLOUS. Separate-leaved.

CHORISTYLIS. A South African genus of *Escalloniaceae*, represented by a shrub with panicles of small green flowers, having five awl-shaped silky three-nerved petals, valvate in the bud, and four stamens with a fleshy connective between the lobes of the anther. The ovary is inferior, with two compartments, and surmounted by two styles, united partially at first, but ultimately becoming disjointed. The fruit is a capsule bursting into two pieces to liberate the many seeds it contains. [M. T. M.]

CHORIZANDRA. A genus of Cyperaceous plants, belonging to the tribe *Scelerineae*. The spikes are many-flowered, and androgynous the exterior flowers male and monandrous, the central ones solitary, female, with two to three-cleft styles. Three species are described of these little-known plants, which are all natives of Australia. [D. M.]

CHORIZANTHE. A genus of *Polypogonaceae*, of the tribe *Brigoneae*. Herbs, natives of California, or under-shrubs from Chili. Leaves alternate, crowded at the

base of the stem, woolly; inflorescence cymose, lax, or contracted into heads; involucre one-flowered, tubular, three-sided, six-toothed; perianth herbaceous, tubular, with a six-lobed limb, the lobes in two rows; stamens nine, the filaments cohering at the base; styles three; fruit a three-sided nut. [J. T. S.]

CHORIZOPTERIS. A name proposed for one or two Acrostichoid Ferns, now classed with *Neurocaulis*, which are remarkable in having the parts of the fronds articulated, so that they readily fall to pieces when dry. [T. M.]

CHOROZEMA, also **CHORIZEMA**. A genus of pretty West Australian bushes belonging to the *Leguminosae*, nearly allied to *Callistachys*, but differing in having the keeled petal shorter than the wings, as well as in the inside of the pod being destitute of any pithy substance. The plants are very often to be met with in green-houses, upwards of a dozen species being in cultivation, the greater portion of them producing their graceful elegant flowers in the spring months. The leaves are simple, either entire or with spinous teeth, generally smooth, and varying much in form. In the greater portion the flowers are in racemes, but in a few they are axillary and solitary; the pods are generally oval in form, turgid, and about half an inch long, containing a number of seeds.

The first species of the genus, *C. ilicifolium*, was found by Labillardiere in West Australia. This botanist was attached to the expedition sent by the French government in search of the lost La Perouse, and one of his excursions suffered much, with his party, for want of water; at last they met with an ample supply, and near it with this plant, which he named *Chorozema*, a name said to be derived from *choros* a dance, and *sema* a drink, in allusion to the joyful feelings of the party on meeting with a supply of water.

Amongst the most beautiful of the *Chorozemas* known in cultivation are:—*C. Henchmanni*, with long terminal leafy racemes, of a beautiful red colour, the standard having a green spot at its base; the leaves are awl-shaped, about half an inch long, and generally disposed in clusters of three. *C. spectabile*, a twiner of great beauty, producing long drooping racemes of orange-coloured flowers, which appear in the winter months; its leaves are oblong-lanceolate, with a little point at the apex. *C. cordatum*, a plant very common in gardens, and having ovate short-stalked leaves, heart-shaped at the base, the margins armed with prickly teeth; the flowers, in loose racemes, are red, the standard spotted with yellow at the base. *C. Dicksoni*, a handsome plant with larger flowers than the others; the leaves are entire and lance-shaped, generally having on both surfaces a few long-spreading hairs. There are upwards of fifty species known. [A. A. B.]

CHOU. (Fr.)

CARAIBE.

Caladium sagittifolium, and *Colocasia esculenta*. — **DE CHIEN.** *Mercurialis perennis*. — **FLEUR.** *Brassica oleracea botrytis*. — **MAKIN.** *Crambe maritima*. — **PALMISTE.** *Arca oleracea*.

CHRISTISONIA. A genus of *Orobanchaceae* containing ten or twelve species, natives of India. They are parasitic plants, with fleshy stems, scattered or imbricated scaly leaves, and the flowers terminal or in the axils of the upper leaves; the calyx is tubular and five-toothed; the corolla infundibuliform and somewhat two-lipped; the anthers two-celled, with one of the cells barren and subulate; and the ovary imperfectly two-celled, the inflexed septa only partially meeting in the axis, and the placentiferous margins remaining free, and being reflexed form two loose placentae in each cell. [W. C.]

CHRISTMAS ROSE. *Helleborus niger*.

CHRISTOPHER, HERB. *Actaea spicata*; also *Osmunda regalis*.

CHRISTS EYE. *Inula Oculus Christi*.

CHRISTS THORN. *Paliurus aculeatus*.

CHRISTYA. A Cape shrub forming a genus of *Apocynaceae*, and having erect rod-like branches and large handsome flowers, with a calyx divided into five lance-shaped divisions, each with a cleft gland at its base; a somewhat bell-shaped corolla with a row of cleft fleshy scales at its mouth, alternating with the linear divisions of its limb; five anthers, hairy on their back, and cohering with the velvety cushion-like stigma. The two ovaries contain several seeds. [M. T. M.]

CHROMATIDIUM. The colouring matter of plants.

CHROMISM. Præternatural colouring of plants, as that of leaves when they become red, &c.

CHROMULE. The fluid colouring matter of vegetation.

CHROOLEPUS. A curious genus of *Algae*, referred to the green-spored division on account of its clear natural affinities, but exhibiting, when fresh, orange not green tints. The species grow on damp walls, rocks, evergreen leaves, bark, &c., and when fresh often emit a scent like that of violets. The minute zoospores are contained in lateral cysts, and by these the genus is at once distinguished from *Callithamnion*, which in some respects it resembles. The black productions, commonly referred to this genus are evidently fungi and not algae. *Chroolepus* sometimes occurs in a rudimentary state on exposed stones, and then obtains the name of the sweet-scented *Byssus*. [M. J. B.]

CHRYSALOIDEUS. Rolled up and folded up at the same time.

CHRYSANTHEME DES INDES OU POMPON. *Pyrethrum indicum*.

CHRYSANthemUM. A genus of her-

baceous or slightly shrubby plants belonging to the Corymbiferous group of the order *Compositæ*, distinguished by their hemispherical involucre composed of imbricated scales which are membranous at the edges, large naked receptacles, and by the absence of a pappus from the fruit. The family is represented in Britain by the familiar Ox-eye Daisy, *C. Leucanthemum*, and Corn Marigold, *C. segetum*: the former a common weed in hay-fields, where its flowers, which are white with a yellow disk, are conspicuous; and the latter a handsome but mischievous weed in corn-fields, where it is sometimes so abundant as to be more conspicuous with its large golden-yellow flowers than the crop which it tends to impoverish. Many species have been introduced from various countries, and are cultivated in our gardens, of which *C. grandiflorum* from the Canaries, *C. pinatifidum* from Madeira, and others, are of a shrubby habit and flower during a large portion of the year, but require protection in winter; while *C. coronarium* from the Levant, and *C. carinatum* (called also *C. tricolor*) from Barbary, are ornamental border annuals. The species, however, which holds so high a rank, and with reason, among florists' flowers is *C. sinense*, a plant which has long been familiar to us from its frequent appearance in Chinese drawings, but has of late years been improved to such an extent as to be prized for its intrinsic beauty, and not simply from its valuable property of blooming in November and December. This plant, popularly known as the Chrysanthemum, is more generally referred by botanists to the genus *Pyrethrum*, as *P. sinense*. Chrysanthemums are classed by growers into Large-flowered, Anemone-flowered, Pompons, and Anemone-flowered Pompons. [O. A. J.]

CHRYSANTHUS. Yellow-flowered.

CHRYSEIR. A name sometimes given to the species of *ESCHSCHOLTZIA*: which see.

CHRYSIPHIALA. A synonym of *Stenomeson*, adopted in some systematic books.

CHRYSO. In Greek compounds = golden yellow.

CHRYSOBACTRON. A genus of *Liliacæ*, near *Anthericum*, from the Auckland and Campbell Islands, New Zealand. It has linear leaves and racemose flowers (which are occasionally dioecious) of a bright yellow colour. The perianth is six-lobed; the anthers connected (absent in the female flowers). The ovary has three furrows; style thick; stigma capitate, three or six-lobed; capsule ovoid, three-celled, the cells usually two-seeded. *C. Hookeri* is a pretty little bog plant, which has been introduced into this country, where it requires the protection of a greenhouse. [J. T. S.]

CHRYSOBALANACEÆ. A family of *Dicotyledons* closely allied to *Rosacæ*, or more generally considered as a tribe of

that order taken in its most extended sense. They are distinguished from the other tribes by a frequent irregularity in the stamens, and more especially by their solitary carpels, with the style always proceeding from the base, and containing two ascending ovules. The fruit is free, either drupaceous or capsular. They are all trees or shrubs with alternate stipulate leaves and several of them produce edible fruits. There are nearly one hundred species, more or less known (including several as yet unpublished), dispersed over the tropical regions both of the Old and New World, although much more abundantly so in the latter. They are distributed into about twelve genera, of which the principal ones are *Chrysoalanus*, *Hirtella*, *Couepia*, *Parinari* and *Princeps*.

CHRYSOBALANUS. This genus, the type of the family to which it belongs, is composed of shrubs and small trees, natives of the tropical parts of Africa and America, one species being found in Florida. It differs from others of the family in having its stamens, in number about twenty, arranged in a regular whorl, not inserted on one side of the flower, as well as in the nut of the fruit being one-celled only. The leaves are alternate, stalked, entire, and obovate in form, having both the surfaces smooth. The flowers, borne in short panicles or racemes, are small, white, and made up of a bell-shaped five-cleft calyx; five petals; about twenty stamens; and an ovary the style of which arises from one of its sides near the base, which latter is one of the principal characters of the family. The *Coccolonium*, *C. Ioaco*, is one of the commonest species. The fruits are about the size of a plum, and vary much in colour, being either white, yellow, red, or purple. The pulp is sweet, a little austere, and not disagreeable. The shell of the kernel is hard and six-grooved. In the West Indies, according to McFadyen, the fruits prepared with sugar form a favourite conserve with the Spanish colonists, and large quantities are annually exported from Cuba. The kernels yield a fixed oil, and an emulsion made with them is said to be used in dysentery. An astringent bath recommended in leucorrhœa and blennorrhœa is prepared from the leaves and roots. Four species are known. [A. A. B.]

CHRYSOCHROUS. Having a yellow skin.

CHRYSOOMA. A genus of South African shrubs or undershrubs of the *Compositæ* family, nearly allied to *Linocypis*, from which it differs in the hairs of its pappus being in a single series. About nine species are enumerated. Their leaves in most cases are linear in form and entire. The yellow nearly spherical flower-heads are about the size of a pea, and single on the ends of the branches; the florets all tubular and perfect. The achenes are laterally compressed, somewhat hispid, and seated on a naked honey-combed

receptacle. *C. Coma aurea* is in cultivation, and is said to be a very common species about Cape Town; its leaves are linear, and about half an inch long. [A. A. B.]

CHRYSOORYNE. A curious genus of small annual Australian plants belonging to the Composite family. They are branched from the base, and seldom exceed three inches in height. The leaves are small, linear, and covered with loose white wool; but the most marked feature in the plants is the arrangement of the flower-heads: these are disposed in short yellow club-shaped spikes, and each flower head is almost hidden by a yellow bract, and contains but two florets. The florets are tubular and bi- or tridentate, an unusual circumstance in this family. The achenes are covered with wart-like glands, and are destitute of pappus. Five species are known; they are chiefly found in the western and southern parts of Australia. [A. A. B.]

CHRYSOORYNIS *Schlimtii* is a New Grenada epiphytal Orchid, with a thick creeping rhizome, from which arise at long intervals small flat pseudo-bulbs, each bearing one stalked oblong leathery leaf. From the base of the pseudo-bulbs rise numerous short one-flowered peduncles clustered in the manner of some *Maxillarias*. The flowers are furnished with a sagittate stalked lip, and are rose-coloured or dull purple, by no means yellow, as shown in Reichenbach's *Xenia*, t. 55, and as the name implies. The genus, if it be one, is near *Omaridium*.

CHRYSODIUM. A synonyme of the typical species of *Acrostichum*, represented by *A. aureum*. [T. M.]

CHRYSOGLOSSUM. Under this name Blume has a genus of two species only, *C. ornatum* and *villosum*, inhabiting the mountainous parts of Java. Both are terrestrial one-leaved Orchids, allied to *Liparis*, and have fleshy subterranean rhizomes. In *C. villosum*, a shaggy plant, and the best known of the two species, the leaf is large, plaited and ovate, while the scape is about two feet high, bearing orange and yellow flowers the size of a wild pansy.

CHRYSOGONUM. This genus of the Composite family differs from its allies in its achenes being crowned with a two or three-toothed pappus. Its only representative is *C. virginianum*, a dwarf perennial herb found in many parts of the United States. All its parts when young are covered with hairy tomentum. It is nearly stemless when it begins to flower, but soon sends out several stems, some of which are erect and flower-bearing, while others take the form of runners and creep along the ground. The leaves are opposite on long stalks, ovate, with notched margins. The flower-heads, stalked, solitary, and terminating the branches, are made up of numerous bright yellow florets, those of the ray few and strap-

shaped, and those of the disc numerous and tubular. [A. A. B.]

CHRYSOMA. A genus of North American plants of the Composite family, considered by the authors of the *Flora of North America* to be the same as that of the golden rod (*Solidago*). The species are perennial plants, with alternate lance-shaped entire or serrated leaves, sometimes furnished with pellucid dots, and they bear terminal corymbs of yellow flower-heads, each of which contains from six to eight florets, one to three of them being strap-shaped. [A. A. B.]

CHRYSOPHYLLUM. A name expressive of the golden colour on the underside of their leaves, which the trees of this genus possess. It is a group of *Sapotaceæ*, and consists of trees with a milky juice, alternate leaves with numerous transverse closely aggregated ribs, and golden hairs on the under surface. The corolla is somewhat campanulate; its tube bears five fertile stamens and no sterile ones; the ovary is five to ten-celled with a short style; the fruit is a berry with ten cells, or one only from the suppression of the rest. Some of the species are grown in this country for the sake of their handsome foliage; while in the West Indies the fruit of *C. Cainto* is esteemed a delicacy under the name of the Star apple, inasmuch as it is of the size of a large apple, while the interior, when cut across, reveals ten cells, and as many seeds disposed regularly around the centre. [M. T. M.]

CHRYSOPSIS. A genus of annual or perennial North American plants of the Composite family, the greater portion of the species having all their parts covered with villous or silky hairs. The oblong or linear leaves are usually entire and sessile. The showy yellow flower-heads, usually terminating the branches and often corymbose, have an involucre of many linear scales enclosing numerous florets: those of the ray strap-shaped and bearing pistil only, those of the disc tubular and perfect. The genus differs from its allies in having the pappus of the ray and disc florets similar and double, the exterior short and scale-like, the inner copious and capillary. *C. villosa*, a plant with oblong hairy leaves about an inch and a half long, and numerous yellow flower-heads, half an inch in diameter, is said to be one of the commonest plants on the prairies of the Saskatchewan. *C. graminifolia* extends southwards to Mexico; its leaves are clad with beautiful close-pressed silvery hairs. [A. A. B.]

CHRYSOPTERIS. A synonym of *Phlebodium*, a genus of Ferns which includes Linnaeus's *Polypodium aureum*, the specific appellation seeming to have suggested this generic name. [T. M.]

CHRYSORRHŒ. A genus of *Chamaelacææ*, consisting of a rigid shrub from the Swan river, with narrow terete leaves, and terminal corymbs of bright yellow

flowers. The sepals are five in number, and cut into many pilose segments; the petals five, serrate; the stamens free, ten fertile and ten imperfect and shorter than the others; the ovary completely covered by the disc. The genus is closely allied to *Verticordia*, but that has monadelphous stamens, and the sterile ones longer than the fertile. [J. T. S.]

CHRYSOSPLENIUM. Golden Saxifrage. A small genus of unimportant herbaceous plants belonging to the *Saxifragaceae*, among which they are discriminated by their one-celled seed-vessel, and by being destitute of petals. Two species are indigenous to Britain, and scarcely differ from one another, except that one has the leaves opposite, the other alternate. They grow on the margins of streams, forming extensive patches, and in hilly districts often betray, by a line of bright green, the course of a mountain-spring which has worn a narrow way for itself down the slope. The roots are intermatted and send up numerous delicate green very succulent stems, to the height of three or four inches. The leaves are roundish, somewhat fleshy, and sprinkled with longish hairs. The flowers, which are bright yellowish-green, appear in April and May, growing in fat tufts at the summit of the stems. *C. oppositifolium* is the commonest species. *C. alternifolium* is more abundant in the north. The genus is represented in various parts of the world by plants of similar habit, none of which are worthy of cultivation. In the Vosges, the species are used as a salad under the name of *Cresson de Roche*; French, *Dorine*; German, *Goldmiltz*. [C. A. J.]

CHRYSOSTEMMA. Under the name of *C. tripteris* is sometimes cultivated in gardens a tall smooth North American herb of the Composite family, with opposite leaves, those on the lower part of the stem pinnately five-parted, the upper ones three-parted, with lance-shaped segments one to four inches long, and having the yellow-rayed flower-heads arranged in a corymbose manner at the ends of the twigs, each head one to two inches across. The plant is placed by modern authors in the genus *Coreopsis*, with the same specific name, and may be recognised from others in that genus by the achenes being narrowly-winged, with a toothed fringe at the summit of the wing. [A. A. B.]

CHRYSOXYLON. The name of a South Bolivian tree, now referred to *HOWARDIA*, which see. It derived its name from the yellow colour of its wood.

CHRYSURUS. A genus of grasses belonging to the tribe *Festuceae*. Only one species is described, *C. cynosuroides*, which is the *Lamarckia aurea* of some authors. This handsome dwarf-habited annual grass is a native of the south of Europe and north of Africa, and is occasionally cultivated in gardens. [D. M.]

CHUCHU. The Chocho, *Sesothum edule*.

CHUICHUNCHULLI. The root of *Lontidium microphyllum*.

CHU LAN. The flowers of *Chloranthus inconspicuus* and *Aglaia odorata*, used in China to scent tea.

CHUMBELEE. *Jasminum grandiflorum*.

CHURN-STAFF. *Euphorbia helioscopia*.

CHURRAS. The Nepalese name of the resinous exudation of the Hemy, *Cannabis sativa*.

CHUSSALONGO. The vulnerary, Matico, *Eupatorium glutinosum*.

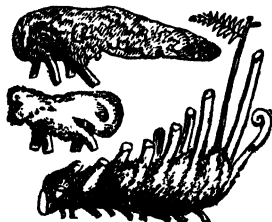
CHYMOCARPUS. A genus of scandent herbs belonging to the *Tropaeolaceae*. The flowers consist of a coloured calyx, prolonged behind into a hollow spur, and divided at the margin, in a somewhat two-lipped manner, into five nearly equal lobes; a corolla of two petals inserted in the mouth of the tube-like spur; and eight hypogynous stamens. The sessile three-lobed three-celled ovary grows into a three-lobed sweet fleshy edible berry, which remains attached to the front of the persistent calyx. This black juicy berry, which is not unlike in appearance and flavour to the Zante or currant grape, is the most remarkable peculiarity of the genus, which was founded on *C. pentaphyllus*, a plant of Bucoae Ayres, long cultivated in our gardens. This is a handsome species, with a thick fleshy fusiform tuber, and smooth filiform stems, climbing several feet high, and furnished with alternate stalked five-parted leaves, having oblong-elliptic leaflets. The flowers are solitary in the axils of the leaves, the spur of the calyx funnel-shaped, above an inch long, bright orange-red, the limb green, marked with dark red spots. The two petals are very small, purple. [T. M.]

CHYSIS. Under this name are collected about four species of Orchids from tropical America, with fleshy stems covered with sheaths, thin-ribbed leaves, and lateral spikes of large handsome white or yellow flowers of the consistence of wax. The finest species is *Chysis bracteescens*. They all have eight pollen masses attached to a broad yellow pulverulent somewhat rectangular plate.

CIBOTIUM. A genus of polypodiaceous Ferns, belonging to the *Dicksoniae*, among which it is distinguished by having the indusia or involucre two-valved, both the valves being coriaceous, the outer one larger and cucullate, the inner one operculiform. They are large growing and very handsome ferns, in some cases arborescent, the fronds bipinnate and often glaucous beneath. The fructification is remarkably pretty. *C. Barometz*, sometimes called *C. glaucescens*, is believed to be the Baranets, *Agnus Scythicus*, or Tartarian Lamb, about which travellers have told so wondrous a tale. This 'Lamb' consists merely of the decumbent shaggy caudex of a kind of

fern, which is no doubt the species just referred to. When inverted, the basal part of the stipes of four of the fronds suitably placed, having been retained as legs, and the rest cast away, these caudices present an appearance which may be taken as a rude representation of some small woolly animal. The 'traveller's tale' is that on an elevated uncultivated salt-plain of vast extent, west of the Volga, grows a wonderful plant, with the appearance of a lamb (Baran in Russian), having feet, head, and tail distinctly formed, and its skin covered with soft down. The 'lamb' grows upon a stalk about three feet high, the part by which it is sustained being a kind of navel; it turns about and bends to the herbage, which serves for its food, and pines away when the grass dries up and falls. The fact on which this tale is based appears to be, that the caudex of this plant may be made to present a rude appearance of an animal covered with silky hair-like scales, and if cut into is found to have a soft inside with a reddish flesh-coloured appearance. When the herbage of its native haunts falls through drought, its leaves no doubt droop and die, but both perish from the same cause, and independently of each other. 'Thus it is,' observes Dr. Lindley, that 'simple people have been persuaded that there existed, in the deserts of Scythia, creatures half animal, half plant.' 'This condition of the rootstock of some ferns,' writes Sir W. J. Hooker, 'long engaged the attention of early writers of the marvellous, and many strange figures were published of it; but Dr. Beyne, of Dantzic, in 1795, declared that the pretended *Agnus Scythicus* was nothing more than the root of a large fern covered with its natural villus or yellow down, and accompanied by some of the stems, &c., in order, when placed in an inverted position, the better to represent the appearance of the legs and horns of a quadruped.' He also adds, 'that the down or villus is the *poco sempio*, or "golden moss," so much esteemed by the Chinese for the purpose of stopping hemorrhage,'—the very use to which it has been found to be applied elsewhere in modern times. A substance called Pulu, consisting of silky fibrous hairs, used for stuffing mattresses, &c., is obtained from three species of this genus, *C. glaucum*, *Chamissoi*, and *Menziesii*, natives of the Sandwich Islands, whence this article has become a regular export, to the extent of some thousands of pounds annually. This Pulu consists of the hair-like scales found on the crown of the stem and about the base of the frond-stalks of the ferns; only a small quantity, about two or three ounces, is found on each plant, and it takes about four years for the plants to reproduce this amount. The ferns which produce the Pulu grow on all the high lands of the Sandwich Islands at an elevation of about 1000 ft. The silken golden-coloured hairs of *Dicksonia Ouleta* are employed in the same way in Madeira and the adjacent isles. A similar fibrous substance, used

medicinally as a styptic, is derived in the islands of the Eastern Archipelago from the caudex and stipes of *C. Barometis*; and also from *Dicksonia chrysotricha*, of which latter a plantation belonging to the Dutch government exists in the interior of Java, and the produce of this plantation has been exported to Holland for public sale. This substance is called Penghiawar Djambi. Its styptic properties seem attributable to



Clibotium Barometis (caudex, in a natural state, and formed into a Tartarian Lamb)

the rapidity with which its filaments, acting by capillary attraction, absorb the aqueous particles of the blood, and thus cause its immediate coagulation. *C. Menziesii*, one of the species said to furnish Pulu, has large thick coriaceous bipinnate fronds, the large oblong acuminate sinuato-pinnatifid pinnules with rounded lobes, bearing several large coriaceous opaque involucre. This may be taken as a fair representative of the other species, one of which, besides those already mentioned, is found in Assam, and another of very graceful habit in Mexico. [T. M.]

CIBOULE. (Fr.) *Allium ascalonicum*. — **COMMUNE.** The Welsh Onion, *Allium fistulosum*.

CIBOULETTE. (Fr.) *Allium Schoenoprasum*.

CICATRICULE. The scar formed by the separation of a leaf from its stem.

CICATRISATE, CICATRICOSE. Marked with scars.

CICATRIX. Any kind of scar formed by the separation of one part from another.

CIOCA. A genus of *Euphorbiaceae*, comprising a number of small trees or shrubs, natives of the tropical parts of India, Africa, and America. The leaves, stalked, entire, and generally oval, are furnished with minute stipules; the small green flowers are shortly stalked, generally four to five in the axis of the leaves, but sometimes in long-bracted racemes; the males and females being on the same, or on different plants. The males have a calyx of four divisions, no petals, and four free stamens inserted on a disc, which arrangement of the parts in fours serves to distin-

guish the genus from its allies. The calyx of the females is like that of the male. The ovary is three or five-celled, crowned with a like number of styles, each divided at the apex in the form of a V, and each cell contains two seeds. *C. disticha*, sometimes called the Otaheite Gooseberry, is an elegant small tree and a native of India, where it is cultivated, as well as in many other countries, for the sake of its fruits. The slender leaf-bearing branches, about a foot long, are furnished with numerous oval smooth leaves, and might by a superficial observer be taken for pinnate leaves. The racemes of small flowers proceed from the old wood, and are provided with a number of small scales, each of which bears in its axil six to eight stalked flowers. The fruits in size like those of a gooseberry are green, three or five-furrowed, and somewhat acid and cooling. In India they are used as an article of food, either in a raw state or cooked in various ways. Europeans pickle or make preserves of them, and also use them in tarts. In Java they are brought to the markets and sold for preserving at threepence per gallon. A decoction of the leaves is used to cause perspiration, and the roots are emetic, but too violently so to be used.

C. indica, sometimes called *Prosorus indicus*, is a tree of thirty or forty feet high, found in the Bombay district and also in Ceylon; its ovate-lanceolate entire leaves are pale green underneath, and the flowers are in axillary fascicles. The bright blue seeds are contained in a dry capsule, and according to Mr. Thwaites are a favourite food of the green pigeon. Its wood is white, tough, and used for building purposes in Ceylon. [A. A. B.]

CICELY, SWEET. *Myrrhis odorata*; also an American name for *Osmorrhiza*.

CICER. A genus of Leguminous plants, which, in combination with five or six others, closely allied, forms the vetch tribe of that order. About a dozen or fifteen species, natives of Southern or Eastern Europe, Western Asia, and Abyssinia, are described. They are annuals or perennial herbaceous plants or undershrubs, clothed with glandular hairs, and having pinnate leaves, consisting either of a definite number of leaflets in pairs with the leaf-stalk terminating in a tendril, or of several pairs of leaflets with an odd one at the end, the leaflets being conspicuously marked by veins. The generic character consists in the tube of the five-lobed calyx being puffed out on the upper side, and two or three of the lobes being pressed upon the upper petal of the pea-like corolla. The pods have their sides swollen out, and contain only a few (seldom more than two or three) seeds, which bear some resemblance to peas, but are of an irregular shape.

C. arvense is the Chick-pea, or Egyptian pea of the English, the 'Cece' of the Italians, the 'Garbanzo' of the Spaniards, and the 'Gram' of India. It is an annual plant, growing about a foot or more in

height, and is a native of the south of Europe, and also of India. Its leaves consist of from three to seven pairs of leaflets with an odd one at the end, the leaflets being egg-shaped, and having their edges cut into very sharp teeth. Both leaves and stems are covered with glandular hairs containing oxalic acid, which exudes from them in hot weather and hangs in drops, ultimately forming crystals. The flowers are either white or rose-coloured, and are produced singly upon stalks growing from the bases of the leaves. The pods are from an inch to an inch and a half long, of a rhomboidal form, with puffed-out sides, and generally contain two seeds, but sometimes only one. These seeds vary in size and colour in different varieties, the finest kinds being nearly a quarter of an inch in diameter, slightly pointed, and of a pale yellow colour, with their skins netted in consequence of inward shrivelling, and having two swellings on one side; the peculiar form of these peas has given rise to the specific name of the plant *aristinum*, which alludes to their supposed resemblance to a ram's head.

This plant is extensively cultivated in India and other eastern countries, and likewise in the south of Europe. In India the seeds form one of the pulses known under the name of 'Gram,' and are greatly used as an article of food by the natives, being ground into meal, and either eaten in puddings or made into cakes. They are also toasted or parched, and in this state are commonly carried for food on long journeys; rolled in sugar-candy, these toasted peas form a rough sort of comfits, and gram-flour made up with sesamum oil and sugar-candy is an Indian sweet-meat. Small quantities of these peas come to this country from Turkey, and are used for grinding into pea-meal. Attempts have been made to employ them as a substitute for coffee. In Paris they are greatly used in soups. [A. B.]

In Mysore the natives collect the dew from the 'Gram' plants by means of muslin cloths, which become saturated with it. The liquid thus obtained, which is very acid, is ----- in bottles for use, and is regarded as a sure medicine in cases of indigestion, being administered in water. It is stated that the boots of a person walking through a dewy gram field will be entirely destroyed by the pungency of this acid given out by the leaves. [T. M.]

CICHE. (Fr.) *Astragalus Cicer*; also *Cicer aristatum*.

CICORACEÆ. (Chicory family.) A sub-order of the natural order *Compositæ* or *Asteraceæ*, under which its full characters are given. The plants have numerous florets (small flowers) on a common head, and all of them are irregular, having a ligulate form in consequence of the corolline tube being split down on one side, and a tongue or strap-like process formed by the united petals projecting on the other side. The suborder sometimes receives the name of *Ligulifloræ* from the form of the

flowers. The stamens are united, and their anthers are as other syngenesious or composite plants. The fruit is an achene adherent to the calycine-tube, and furnished with pappus or a hairy calycine limb at the top. The plants abound in a milky juice, and they have bitter and sometimes narcotic qualities. Some of them, as the Dandelion, act on the kidneys and the liver. Some of them are esculent vegetables and salads. They abound in cold regions. Their heads of flowers have usually the property of opening under the influence of light and closing in darkness. Chicory or Wild Succory (*Cichorium Intybus*) is much cultivated in France and Germany, its roots being used as an addition to coffee. The admixture, without the due indication of it, is forbidden in Britain. *Cichorium Endivia* supplies the salad called endive. *Lactuca virosa* furnished Lactucarium, a drug employed in place of opium to procure sleep. Common Lettuce is the produce of *Lactuca sativa*, *Scorzonera* is the root of *Scorzonera hispanica*, while Salsify is obtained from *Tropaeogon poffifolius*. The root of Dandelion (*Leontodon Taraxacum*) is sometimes used as coffee. See **ASTERACEÆ**. [J. H. B.]

CICHOBIUM. A genus of Compositæ which includes the Chicory and the Endive, and belongs to the division characterised by the presence of ligulate or strap-shaped florets only in the heads of flowers, and by the presence of a milky juice. It consists of perennial plants, with stiff branching stems, and sessile heads of blue flowers, surrounded by an involucre consisting of two rows of bracts, the outer of which are reflexed and shorter than the inner. The fruits are crowned by two rows of minute scales, constituting the limb of the calyx.

The Wild Chicory or Succory, *C. Intybus*, is a perennial plant found in this country by roadsides and in dry, especially chalky, soil. It has a long tap root, and a rigid slightly hairy branched stem, with a few sessile clasping leaves. The lower leaves spread on the ground, and are pinnately lobed and coarsely toothed, while the upper ones are scanty and embrace the stem by the two pointed lobes at their base. The heads of flowers are few, sessile, of the size of a penny-piece, and of a brilliant light blue colour. The leaves of chicory are blanched and used as a salad under the name of Barbo du Capucine. The root roasted was largely used to mix with and adulterate coffee, but within the last few years grocers mixing chicory with coffee are bound to affix a label on the outside of the package announcing the admixture, so that purchasers can now have pure coffee, or coffee mixed with chicory, as they prefer—for there are some who like the mixture. It need hardly be said that chicory is entirely destitute of those properties which render coffee an agreeable and nutritive beverage, while on the other hand it possesses medicinal properties closely like those of dandelion, and which therefore render it unwholesome for

constant use. Moreover, the chicory used to mix with coffee is very often largely

detection of these several materials is easily accomplished by the aid of the microscope and the test tube as shown in Dr. Hassall's work on the adulteration of food. Chicory is readily cultivated in this country. That grown at Canterbury was acknowledged to be finer than that imported from abroad, and would have been a very profitable crop, but that the buyers arbitrarily fixed a lower price upon the English than upon the imported. The herbage forms good food for cattle. [M. T. M.]

The Endive, *C. Endivia*, is a hardy annual indigenous to the northern provinces of China, and other parts of Asia, and, according to the *Hortus Kewensis*, was cultivated in this country in 1548. Macintosh in his *Book of the Garden*, believes it is also a native of Egypt, and that it was carried from thence to Italy, and afterwards into Britain. Be this as it may, there is no doubt of its having been used as an esculent from a very early period by the Egyptians, who probably communicated it to the ancient Greeks and Romans, along with their manner of using it. Endive, radishes, and succory are mentioned by Ovid as forming part of a garden salad; and Pliny states that endive in his time was eaten both as a salad and potherb. As such it has been used in this country for three centuries, and it is a singular fact that the manner in which it was prepared for winter use, as described by Gerard in 1597, differs but little from the mode that is often practised at the present day. The plant has numerous large sinuate smooth toothed, or in some varieties much undulated and finely-curved deep-green leaves. The flower-stem rises about two feet high and produces numerous pale-blue flowers. It is cultivated solely for the stocky head of leaves, which after being blanched to diminish their bitterness, are used in salads and stews during winter and spring. The different varieties of endive are arranged in two classes, namely: 1, the *Batavian* (Scaroles of the French), which comprises all with large broad leaves, slightly ragged or torn; and 2, the *Curved* or *Chicorees* of the French, being all those with crisp and finely-frizzled leaves. [W. B. B.]

CICORIUM. A section of the genus *Pelargonium*, comprising the species with the petals all the same colour, the two upper ones shorter and narrower than the rest; stamens short and erect, the two lowest shorter, with the anthers nearly sessile. The stems are somewhat shrubby and fleshy. [J. T. B.]

CICUTA. A deadly genus of Umbellifera or Apiaceæ, known by their dissected leaves, by their compound umbels without any general involucre, but with partial involucre consisting of several awl-shaped bracts, and by the teeth of the calyx pro-

jecting above the fruit, which is roundish, compressed at the side, and marked with ten scarcely prominent ridges, five to each half of the fruit, while beneath each furrow in the rind of the fruit there runs a single channel filled with volatile oil.

C. virosa, the Cowbane or Water Hemlock, is a plant occasionally found wild in this country by the side of ponds and ditches. The rootstock is large, white, and fleshy, covered externally with fibres, and internally hollow and divided into several compartments, by transverse partitions, filled with a yellowish milky juice. The stem is erect, hollow, striated, somewhat branched, and attains a height of three or four feet. The leaves are twice or thrice-plinate, with narrow lance-shaped segments, one to one and a half inches long, and slightly toothed at the margin. The umbel consists of from ten to fifteen principal rays, unprovided with any involucre or with only a few small bracts. The flowers are whitish. This plant is dangerously poisonous, having qualities like those of *Conium*; indeed, it is called Water Hemlock. It produces tetanic convulsions, and is fatal to cattle eating the herbage. In April 1857, two farmer's sons were found lying paralysed and speechless close to a ditch where they had been working. Assistance was soon rendered but the poor fellows shortly expired.



Cicutaria virosa.

A quantity of the Water Hemlock grew in the ditch where they had been employed. A piece of the root was subsequently found with the marks of teeth in it, near to where the men lay, and another piece of the same root was discovered in the pocket of one of them, so that there can be no doubt that they were poisoned by eating the root of this plant in mistake for some other. The root of the American *C. maculata* is even more virulent. [M. T. M.]

CICUTAIRE. (Fr.) *Cicutaria*.

CIERGE. (Fr.) *Cereus*.

CIGUE AQUATIQUE. (Fr.) *Cicutaria virosa*. — D'EAU. *Eleonthe Phellandrium*.

— GRANDE. *Conium maculatum*.
— PETITE. *Athusa Cynapium*.

CILIXE (adj. CILIATED). Marginal hairs forming a fringe.

CILIATO-DENTATE. When the teeth of anything are finely serrated as if fringed.

CILIATO-SERRATE. When the serratures of anything end in a hair.

CIMICIFUGA. Bugbane. A genus of *Ranunculaceae*, allied to *Actaea*, but differing by having several carpels, which are follicles, not berries. The species are natives of Eastern Europe, Siberia, and North America.

The European species, *C. fetida*, which has twice-ternate leaves and racemes of inconspicuous flowers arranged in a terminal panicle, is extremely fetid, and has been used to drive away vermin, whence the generic name. [J. T. S.]

CIMICINE. Smelling of bugs, as *Coriander*.

CINCHONA. This important genus gives its name to the order of which it is a member. The genus consists of evergreen trees or shrubs growing in the tropical valleys of the Andes. The flowers are of a white or pinkish colour, very fragrant, arranged in panicles. The corolla is salver-shaped, and nearly, if not quite, conceals the five stamens. The ovary is crowned with a fleshy disc; the style is simple; the stigma two-lobed. The fruit is an ovate capsule, grooved on both sides, crowned by the limb of the calyx, and dividing from below upwards, in order to allow of the escape of the numerous winged seeds.

There are, according to Weddell, numerous species of this genus, but only some of them yield the commercial Cinchona, or Peruvian bark. Of this there are several varieties, the most esteemed of which are the Calisaya or yellow bark, the produce of *C. Calisaya*; grey, or Huanuco bark, the produce of *C. micrantha* and *C. villosa*; Loxa, or crown bark, the produce of *C. Condaminensis* (*officinalis*); and red bark, furnished by *C. moschubra*. Their great value as tonics and remedies for fevers, depends upon the presence of certain alkaloid substances called quinia, quininidia, cinchonina, and cinchonidin, which exist principally in the cellular tissue outside the fiber, in combination with kink and tannic acids. It is found that certain of the barks contain more of one principle than of another; hence their greater or less value commercially, and the skill and complex knowledge required by the manufacturer to distinguish the different varieties of bark one from the other. Quinia is the most useful of the alkaloids, and this is found in greatest abundance in Calisaya bark; cinchonina occurs most abundantly in the best grey and red barks; while Loxa bark furnishes the largest amount of quininidia. The several alkaloids have all similar properties, but varying in degree. Quinia, in its combination with sulphuric acid, is the most gener-



VEGETATION OF THE CINCHONA FORESTS OF PERU, WITH PALMS & TREE-FERNS
(After Weddell)

ally used under the name of sulphate of quinine—next to opium and calomel, probably the most important of all drugs. The alkaloids extracted from the barks are recognised by their distinctive chemical characteristics, while the barks producing them are likewise distinguished by a careful scrutiny of their external appearance, the lichens, &c., growing on them, the way in which they break, their taste, odour, &c., as well as by their microscopical and chemical characteristics. The way in which the barks break, or the fracture, as it is termed, depends on their anatomical structure, that is to say, on the size and arrangement of their cellular and woody portions. Where the former preponderates, the fracture is smooth and even, and such barks are said to yield the greatest quantity of quinine. Where there is less cellular tissue, or the constituent cells are smaller, then a fibrous or stringy fracture is observable, and a short stringy fibrous fracture is considered to be an indication of the presence of quinine. No doubt the same tree, in varying circumstances, produces different sorts of bark; while similar-looking barks may be produced by very different species.

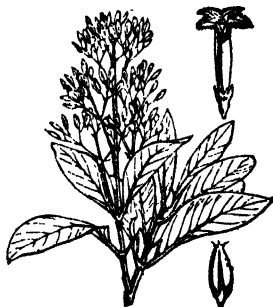
The *Cinchona* trees grow in the forests of Bolivia, Peru, &c., in groups or clusters. The cascarrileros, or bark collectors, encamp in these forests, and ascertain where the trees are to be found, a process in which the sagacity and endurance of the Indians are put to a severe test. They are reported to be able to tell the trees at a distance by a peculiar movement of the leaves, and by the colour of the masses of bloom. When the position of the trees has been ascertained, there is frequently much difficulty in getting to the spot; this done, however, the trees are felled; no light labour, for the intertwining climbing plants sustain the trunks when cut through. When the trees are at length felled, the bark is stripped off all round, and cut into pieces of a convenient size for carriage; and particular care is taken to secure the bark near the root, as it is there thicker and more valuable. The bark from the small branches rolls up when stripped into cylindrical pieces or quills, while the larger pieces are placed in stacks to dry, with a heavy weight on the top. The carriage of the packages of the bark to the place of encampment by a route which is traversed with much difficulty by the unembarrassed Indian, is a work of great hardship and labour.

In the process above described, the trees are necessarily destroyed, and hence the supply of this valuable drug was in imminent danger of exhaustion. Thanks, however, to the labours of Messrs Markham, Spruce, and others in South America, as well as to those of Mr. McIvor and other cultivators in India, there are now established in many of the hilly districts of the latter country large plantations of the most valuable kinds of cinchona, the commercial success of which seems assured. Mr. Wilson also has met with tolerable success in the cultivation of

these plants on the higher mountains of Jamaica.

The species most cultivated in India are *C. succutubra*, and *C. officinalis*, and it is found not only that the tree will thrive, but that the quantity of alkaloid is as great as in the South American barks. Moreover, by the process of 'mossing,' introduced by Mr. McIvor, and which consists simply in protecting the bark from light and air by a layer of damp moss, the quantity of alkaloid can be increased. The mossing process also allows of the periodical removal of the bark, and it is found that the new layers formed after the removal of the old bark are even richer in alkaloid than are those first formed.

Bark was first employed in Europe in the middle of the seventeenth century. The discovery of its medicinal value is a matter of fable and conjecture. The name *Cinchona* is derived from the wife of a Viceroy of Peru, who is said to have brought the drug from South Ame-



Cinchona Calceya.

rica in 1639. Afterwards the Jesuits used it; and it became generally known when Louis XIV. purchased of Sir R. Talbor, an Englishman, his heretofore secret remedy for the cure of intermittent fever, and made it public. For full information on the subject of *Cinchona* and its barks, the reader should consult the magnificent works of Weddell and Howard, the account of Mr. Markham's travels, Mr. Spruce's report of his explorations, or the valuable epitome contained in Pereira's *Materia Medica*, from which sources the greater part of this notice has been gleaned. The aspect of a *Cinchona* forest is shown in Plate 12. The name is now sometimes written *Chinchona*. [M. T. M.]

CINCHONACEÆ. (*Rubiaceæ*, *Cinchonads*, the Peruvian bark family.) A natural order of gamopetalous Calycifloral Dicotyledons, characterising Lindley's Cinchonales Alliance. The order is sometimes considered as a sub-order of the natural family of *Rubiaceæ*, or Madderworts. Trees, shrubs,

or herbs, with simple opposite leaves, having glandular stipules placed between the bases of the leafstalks (interpeticular), and flowers arranged in panicles or corymbs. Calyx adherent, entire, or toothed; corolla regular; stamens attached to the corolla. Ovary two-celled; style one. Fruit inferior, either dry or succulent, splitting into two or not opening; seeds either definite in number, or numerous, containing a small embryo in horny albumen. Chiefly found in tropical regions, where they constitute $\frac{1}{2}$ of the flowering plants. In northern regions the order is represented by *Guttaceae*, which some regard as a sub-order of *Eubiaceae*. The order furnishes many important products. The plants supply remedies for intermittent fevers: some are emetics and purgatives, others act in strengthening the tone of the stomach. The various medicinal barks are yielded by species of *Cinchona*, which grow in the Andes between 8,000 and 9,000 feet of elevation above the level of the sea. *Coffea arabica* supplies Coffee, which is the hard albumen of the seeds. *Cephaelis Ipecacuanha* yields the well-known Ipecacuan root which is used commonly as an emetic. A dye called Soorange is procured from the root of *Morinda citrifolia*. White Gambier, a kind of catechu, is the product of *Uncaria Gambir*. Gardenias have showy as well as fragrant flowers, and *G. Rothmannia* yields an edible fruit. There are upwards of 800 genera and 2,800 species in the order. Illustrative genera: *Spermacoce*, *Cephaelis*, *Coffea*, *Ixora*, *Hedyotis*, *Pentas*, *Cinchona*, *Nauclea*, *Gardenia*, *Mussaenda*. [J. H. B.]

CINCINALIS. This name as originally employed by Gleditsch is a synonyme of *Pteris aquilina*; as however used by subsequent writers it is synonymous with *P.*, a genus of Ferns. [T. M.]

CINCINIDIUM. A fine genus of Acrocarpous Mosses belonging to *Bryaceae*, and closely allied to *Mnium*, agreeing with it in the characters of the stem and large leaves, but differing in having the inner peristome cup-shaped with sixteen short outer teeth. It occurs in spongy bogs and is rare in Great Britain. It resembles in general appearance *Mnium punctatum*, but the stems are more densely matted together with the purple rootlets. Only one other species is known, *C. arcticum*, which has been found in Norway. [M. J. B.]

CINCILIDOTUS. A genus of aquatic Acrocarpous Mosses belonging partly to that division which has been called *Cladocrypt*, because in the majority of species the fruit terminates in short lateral branches. It is named from the lattice-like structure of the peristome, which consists of thirty-two teeth anastomosing at the base. This structure obtains in *C. fontinaloides*, which grows in large tufts on rocks and stones in rivulets and on the borders of lakes, especially in hilly limestone districts, and also in *C. riparius*;

but in *C. equatious* the peristome is quite rudimentary. [M. J. B.]

CINOTUS. A term applied to albumen when surrounded by an annular embryo.

CINENCHYMA. That kind of tissue in which latex, or the proper juice of plants, is supposed by some to be conveyed from place to place. Probably a form of the intercellular passages.

CINERACEOUS. Ash-greyish.

CINERAIRE. A' FLEURS BLEUES. (Fr.) *Agathaea amelloides*.

CINERARIA. A family of Compound flowers, difficult of discrimination, and containing many species which are referred by some botanists to the genus *Senecio*, &c. As at present constituted, *Cineraria* does not contain any native examples, but is well known as an ornament of the conservatory and window garden. Some of the species are half-shrubby, but the majority are herbaceous and of easy cultivation; and some may be so managed as to be made to bloom almost at any season. *C. cruenta*, a native of Teneriffe, has heart-shaped leaves, variously toothed at the edge, tinged with red or purple, or of unmixt green; the upper leaves clasp the stem and are auricled at the base. In the wild state of the plant, the flowers have a deep purple disk with bright purple rays; but since it has been taken up as a florist's flower, a countless number of varieties have been raised from seed, with flowers in which white, purple, rose-colour, crimson, violet, azure, &c., are combined in ever-varying proportions. 'The early flowering of this plant,' says *Le bon jardinier*, 'its long duration, which allows it to be an ornament of the conservatory and window during several months, have given some importance to its culture.' [C. A. J.]

CINEREUS. Ash-grey; a mixture of white and black.

CINNABAR, CINNABARINOUS. Scarlet touched with orange.

CINNAMODENDRON. A genus allied to *Cassia*, and like it belonging to *Danellaceae*, but distinguished by its petaliferous flowers, and lateral inflorescence. The *C. cassiaria* is a Brazilian tree, with smooth whitish bark cracking transversely. Its leaves are alternate, leathery, elliptic, and entire; its peduncles axillary, three-flowered. The flowers have three bracts, four (or five) sepals, and as many petals (petaloid scales), with hypogynous stamens, united by their filaments into a tube. The bark is aromatic, and used as a tonic and antiscorbutic. [J. T. S.]

CINNAMOMEUS. The colour of cinnamon.

CINNAMOMUM. The trees furnishing Cinnamon and Cassia barks belong to a genus of *Lauraceae*, or true laurels, characterized by the presence of ribbed leaves, leaf-buds not provided with scales, a six-

cleft leathery calyx, nine fertile stamens in three rows, with four-celled anthers which open inwardly, except those of the third or innermost row, which open towards the outside of the flower. The stamens of this third row are moreover provided with two sessile glands, one on each side of their base, and within them is a fourth row of abortive stamens. The fruit is berry-like, one-seeded, in a cup-like calyx.

C. zeylanicum is largely cultivated in Ceylon, for its bark, which furnishes the best Cinnamon. The bark is stripped off the branches, when it rolls up into quills, the smaller of which are introduced within the larger and then dried in the sun. The thinner the bark is as a rule, the finer its quality. Cinnamon is largely used as a condiment for its agreeable flavour, while its astringent and cordial properties give it a medicinal value. It is said to possess the special property of restraining uterine hæmorrhage.

C. Cassia furnishes Cassia bark, which is much like cinnamon, but thicker, coarser, stronger, less delicate in flavour, and cheaper; hence it is frequently used to adulterate cinnamon. Its admixture, however, can be readily detected, even in a powdered state, according to Dr. Hassall. Cassia is grown in China, Java, &c. The German and Russian chocolate-makers prefer cassia to cinnamon, as affording a stronger flavour. The same, or some closely-allied trees, furnish Cassia buds, which are something like cloves, and, like them, consist of the unexpanded flower-buds; but they possess properties similar to those of the bark.

Other species of this genus, afford aromatic barks: such as *C. Oulilawon*, a native of Amboyna, whose bark has a flavour of cloves. *C. tiera*, a native of Malabar, is employed medicinally in fevers and dysentery: the seeds are the parts used; the bark is likewise employed as a condiment. The leaves of *C. nitidum*, dried, are said to have furnished the aromatic leaves called 'folia Malabathri'; indeed, it is surprising that the leaves of the cinnamon are not more often imported, as they, like the inner bark, though to a less extent, contain the volatile oil on which the fragrant aromatic properties depend. [M. T. M.]

CINNAMON. *Cinnamomum zeylanicum*, a tree cultivated in the tropics for its aromatic bark. —, **BASTARD.** *Cinnamomum Cassia*. —, **BLACK.** *Pimenta acris*. —, **ISLE OF FRANCE.** *Oreodaphne cupularia*. —, **SANTA FE.** *Nectandra cinnamomoides*. —, **WILD.** *Cassia alba*; also *Myrcia acris*.

CINQUEFOIL. The common name for *Potentilla*. —, **MARSH.** *Comarum palustre*.

CIONIDIUM. A small genus of Australasian polypodiaceous Ferns belonging to the *Dicksonia*, distinguished by having the indusium cup-shaped and standing out beyond the margin of the frond, and

having the veins reticulated. The only species known, *C. Moorei*, has a short decumbent rhizome, and pedately bipinnatopinnatifid fronds of membranaceous-herbaceous texture, which are studded with sori around the margin. The fructification of *Cionidium* is that of *Deparia*, the distinction between these two consisting in the reticulated venation of the former, and the free venation of the latter. [T. M.]

CIPURA. A small genus of Iridaceous plants closely allied to *Marica*, consisting of bulbous herbs with ensiform leaves and terminal heads of flowers. The species, which are but few in number, are found in tropical and subtropical America. The perianth has a very short tube and a six-parted limb, of which the inner or petaloid divisions are much the smaller; there are three stamens with distinct filaments inserted in the tube of the perianth, and a three-celled ovary containing numerous ovules, and surmounted by a very short style, and three petaloid undivided styles alternating with the stamens. *C. paludosa*, a native of humid meadows in Cayenne, has conico-globose bulbs, radical linear-lanceolate plaited leaves from three to five inches long, the scape shorter than the leaves, and bearing a short densely-imbricated distichous terminal spike of bluish flowers. [T. M.]

CIRCEA. A plant with a name so ominous as Enchanter's or Enchantress-Nightshade might well be supposed to be gifted with the most potent properties. It is, however, a humble herbaceous plant, belonging to the *Onagraceæ*, growing to the height of about a foot and a half, with delicate egg-shaped leaves which taper to a point, and small white flowers tinged with pink, which are succeeded by small roundish seed-vessels thickly covered with hooked bristles. *C. Lutetiana*, the common species, is abundant in shady woods, where it frequently covers a large space of ground. It often too finds its way into shrubberies, where it is a pretty but troublesome weed, creeping extensively, and very difficult to eradicate. It has no affinity with any of the true nightshades; and the English name, according to Dr. Prior, has been transferred, by some blunder, from the mandrake to the present plant. It was called 'Enchanter's' from its Latin name *Circeæ*, after the goddess Circe. *C. alpina*, a closely-allied species, scarcely differs from the preceding except that it is of smaller size, and of more delicate habit; it is not unfrequent in Scotland and the north of England. French, *Circe*; German, *Beemkraut*. [C. A. J.]

CIRCINALIS, CIRCNATE. Bent like the head of a crozier, as is the young leaf of a fern when it begins to grow.

CIRCUMPOSITIO. A layer; that is to say, a branch laid into the ground or layered in order that it may strike root.

CIRCUMSCISSILE, CIRCUMSCISSUS.

Out circularly round the sides, as the seed-vessel of *Anagallis*.

CIRCUMSCRIPTIO. The outline of anything.

CIRCUMSEPIENTIA FOLIA. Leaves which rise up like a funnel and surround the stem as if to protect the young shoots, as in the Marvel of Peru. Such is De Candolle's definition, but the term is very rarely used.

CIRIER or CIRIER DE LA CAROLINE. (Fr.) *Myrica cerifera*.

CIRRHEA. A genus of pseudobulbous Orchids from tropical America, with solitary ribbed leaves, and drooping racemes of flowers, yellowish, greenish, or spotted with purple. They are remarkable for their long column, which bears a one-celled anther at the back of the upper extremity, curving gracefully over a deeply three-lobed lip, the middle division of which turns back from the side ones. The proscolla or stigmatic point is extended into a slender tendril-like thread, whence the name.

CIRRHIFEROUS. Bearing a tendril.

CIRRHIIFORM. Shaped like a tendril.

CIRRHOPE TALUM. An extensive genus of small epiphytal Orchids, with solitary fleshy leaves proceeding from the top of roundish pseudobulbs. Their flowers are remarkable for having the lateral sepals prolonged into narrow streamers, by which the species are readily distinguished from *Bolbophyllum*. Between thirty and forty species are known, all from tropical Asia except *C. Thaurasi*, which inhabits the Mascaren and South Sea Islands. The singularly-formed flowers have made a few favourite objects of cultivation. The best are *C. fimbriatum*, *refractum*, *chinense*, and *Cumingii*.

CIRRHOSSITAS. The production of tendrils.

CIRRHUS (adj. **CIRRHOSE**). A tendril. A slender twining organ by which a plant climbs.

CIRSIIUM. A genus of Compound flowers belonging to the thistle group, distinguished from *Carduus* by having the receptacle covered with chaffy bristles, and the achenes crowned with a soft feathery pappus. Several British species are described by English botanists as belonging to the genus *Cnicus*. Numerous others occur in various parts of the continent, some having purple, and others yellow flowers, but none of sufficient interest to require further notice. [C. A. J.]

CISSAMPELOPSIS. The name given to a number of trailing shrubby plants of the Composite family which are found in India and the adjacent islands, as well as in S. Africa. They differ in little except habit from groundels (*Senecio*), in which genus indeed they are placed by some authors. Most of them have heart-shaped stalked

leaves with toothed margins, and their under-surface is invariably covered with short close-pressed white hairs. The yellow flower-heads, arranged in terminal or axillary panicles or corymbs, have an involucre of eight or ten scales, enclosing about a dozen florets, all of them tubular. The achenes have no beak, are somewhat angular in form, and crowned with a pappus of many rough hairs, arranged in a single series. [A. A. B.]

CISSAMPELOS. A genus of *Montepermaea*, with the climbing character of the ivy—*kissos* of the Greeks, and the clustered fruit of the vine—*ampelos*. Their flowers are dioecious. The male flowers have four sepals and four petals combined into a cup; the female flowers have two sepals fused into a somewhat fleshy two-nerved scale, frequently notched at the margin, and having externally a small bract, formerly considered as a sepal. The ovary is solitary. In drawing up the differential characteristics of this genus, the explanations of Hooker and Thomson as to the structure of these flowers have been adopted as being probably correct, though at variance with the account given by other writers. The most important plant of the genus is the Velvet Leaf, *C. Pareira*, a native of the West Indies, Central America, and India. It is an exceedingly variable plant with a climbing stem, the leaves of variable rounded shape, and dotted with velvety pubescence; male flowers in stalked hairy cymes, and female flowers in clusters, with large rounded bracts, and succeeded by sub-globose hairy scarlet drupes. The root of this plant furnishes the 'Pareira brava' of the druggists, which is used with much benefit in diseases of the bladder and urinary organs. Many other species are used as tonics and diuretics, while *C. glaberrima* and *C. ebractenta* are used as remedies for serpent bites. The root of *C. obtecta* is used in the manufacture of an intoxicating drink. [M. T. M.]

CISSAROBRYTON. A genus of *Vivianaceae* found in the Andes of Chili, and differing from its congeners in having a five-parted calyx, five petals, and three conspicuous slender styles. The only species known, *C. elegans*, is a little prostrate branching plant with slender woody stems and opposite roundish leaves an inch long; their stalks as long as the blade, which has three to seven deep notches, is slightly hairy above, and is covered underneath with a hoary down. The flowers are blue, in size and form made like those of the wood sorrel, and single from the axils of the leaves, supported on long slender stalks. [A. A. B.]

CISSUS. A genus of *Vitaceae* scarcely differing from the vine (*Vitis*). The petals, however, usually separate before they fall, instead of remaining united at the tips as in *Vitis*, and are usually four instead of five; the disk is more conspicuous. The leaves are often more deeply divided. Most of the species are found within the

Tropics, especially in Asia; a few occur in North America. [J. T. S.]

CISTACEÆ (*Rock Rose* family.) A natural order of Thalamifloral Dicotyledons, characterising Lindley's Cistal alliance. Shrubs or herbs, often viscid, with simple entire leaves and showy flowers. Sepals three to five, persistent, unequal, the three inner twisted in the bud. Petals five, rarely three, falling off, often crumpled, twisted in an opposite direction from the sepals. Stamens numerous, not united. Fruit a one-celled capsule with parietal placentas, or imperfectly three to five-celled with central placentas. Seeds with mealy albumen; embryo curved or spiral. The plants are found chiefly in the south of Europe and north of Africa. They are very rare in North America, still more uncommon in South America, and scarcely known in Asia. They are usually resinous, and have a balsamic fragrance. The resin called *Ladanum* is procured from several species of *Cistus*. *Helianthemum vulgare*, the common Rock Rose of Britain, has remarkably irritable stamens, which in sunny weather move on being touched. There are eight known genera, and about 190 species. Illustrative genera: *Fumana*, *Cistus*, *Helianthemum*. [J. H. B.]

CISTELLA, CISTULA. A cell-like shield found among lichens in the genus *Sphaerophorum*.

CISTOME. A membranous sac which according to some, penetrates stomates, and reaches the bottom of the subjacent chamber. If this statement is correct the cistome must be a fold of the cuticle.

CISTOPHORUM. The stipe of certain fungi.

CISTOPTERIS. A mode of spelling which is sometimes adopted instead of *Cylopteris*. [T. M.]

CISTUS A genus of the Rock Rose family, to which it gives the name, composed of handsome shrubs, many of them in cultivation, natives of Southern and Western Europe, North Africa, and the Canary Islands. They are commonly known as Rock Roses and Gum Cistus, but the latter name is the better of the two, as the former is equally applied to *Helianthemum*, from which this genus differs in having an imperfectly five or ten-celled capsule, while in *Helianthemum* the capsule is imperfectly three-celled. The greater portion of the species are elegant erect bushes, with opposite entire or sometimes toothed leaves, generally oblong or lance-shaped, and axillary or terminal flower-stalks bearing one or many flowers. These are made up of a five-leaved calyx, five large petals, numerous stamens, and an ovary crowned with a simple style. The flowers of all are handsome, and many of them in size and appearance resemble those of the dog-rose; they seldom last more than a few hours after expansion, and do not open in dull weather when there is no sunshine. In one group of

species the petals are white and furnished with a yellow or purple mark at their base; while in a second the petals are rose-coloured, each with a yellow spot at its base. None of them have yellow flowers, a colour so common among the *Helianthemum*.

The *Ladanum* or *Labdanum* of Crete is a well-known gum, which exudes from the leaves and branches of *C. creticus*, and some other allied species. This plant is a handsome shrub, with oblong obtuse rough leaves with wavy margins and about an inch in length. The flowers are terminal and single or twin, the petals purple with a pale yellow spot at the base. The gum is collected in Crete by means of a kind of rake, with a double row of long leathern straps, employed in the heat of the day when not a breath of wind is stirring. Seven or eight country fellows, in their shirts and drawers, whip the plants with these straps, which, by rub-



Cistus creticus.

bing against the leaves, lick off a sort of odoriferous glue sticking to the foliage. Formerly it was said to be gathered from the beards of goats, which are fond of browsing on the foliage of the plant. The gum, by gently rubbing in the hands, emits a very pleasant balsamic odour, from the presence of a volatile oil. It was once used in time of the plague as a stimulant and expectorant, and as a constituent in plasters. About fifty hundredweight of it is annually sent from Crete to Turkey, where it is used as a perfume, and as a fumigation. The *Ladanum* of Spain and Portugal is derived from *C. ladaniferus*. This is one of the most beautiful of the genus, and is very frequently to be met in gardens. In Portugal it is said to cover leagues of country. Its leaves are lance-shaped, entire, and three-nerved, the upper surface covered with a clammy glutin, and the under surface prominently three-nerved and covered with a dense white tomentum. The large white flowers are sometimes more than three inches across in one variety, the petals having a deep purple blotch at the base. The gum

is said to be obtained by boiling in water the summits of the branches. It has odour similar to that of the former, but is not in much repute.

A much more common plant in gardens is *C. cyprus*, which is often confounded with the former, but has large and always solitary flowers, while this has three or four flowers on a common stalk; the leaves are also stalked, while in *C. ladaniferus* they are sessile.

One of the most beautiful of the rosy-flowered species is *C. vaginatus*, a native of Teneriffe. Its hairy leaves are lance-shaped, three-nerved, and dilated towards the base, while the splendid large rose-coloured flowers are very numerous and in terminal panicles. The petals are crumpled and have wavy margins, bent inwards, with a yellow spot at their base. A large number are in cultivation, and upwards of thirty coloured figures of these plants are given in Sweet's *Cistinea*. [A. A. B.]

CISTUS, GROUND. *Rhododendron Chamæcistus*. —, **GUM.** *Cistus ladaniferus*, and *C. ledon*.

CISTURAPES. A name given by Lindley to the group of Cytinaceous parasites.

CITHAREXYLON. A considerable genus of trees or shrubs, belonging to the order *Verbenaceæ*, natives of tropical and sub-tropical America. They have tetragonous sometimes spiny branches, opposite or verticillate leaves, and small racemose flowers each with a minute bracteole. The persistent calyx is cup-shaped or tubular; the limb of the corolla is subequally five-parted. The included stamens are inserted below the throat of the corolla on short filaments; they are subequal or the fifth is shorter than the others, sometimes rudimentary and sterile, on altogether absorbed. The ovary is four-celled, with one ovule in each cell. The juicy drupe is surrounded by the large cup-shaped calyx, and is two-stoned, each stone being two-celled. [W. C.]

CITREOUS, CITRINOUS. Lemon-coloured.

CITRIOBATUS. A genus of small thorny Australian trees or shrubs belonging to *Pittosporaceæ*. Leaves alternate, shortly stalked, obovate, leathery, entire. Flowers small, solitary, sessile, axillary, with five sepals bracteated at the base; five petals united at the base; and five stamens. Fruit an orange berry with a leathery skin, sub-globular, about one inch and a half in diameter, eaten by the natives; seeds large. The plants are called the Native Orange and Orange Thorn by the Australian colonists. [J. T. S.]

CITROSMA. A genus of opposite-leaved bushes or small trees belonging to the *Menispermaceæ*, confined to the tropical parts of South America, and numbering upwards of fifty species. A large proportion of them have their parts, especially the leaves, covered with glands which

secrete an oily substance of a strong citron odour. Some of the species are known on this account by the name of Limoncillo, and the genus also derives its name from this circumstance. The leaves, sometimes three or four in a whorl, are either entire or toothed, and very often covered with rusty hairs, but sometimes smooth. The small green or yellow flowers without petals are numerous, disposed in axillary cymes, and either male and female on the same or on different plants. They are made up of a three or six-lobed cup-shaped calyx, which in the male encloses few or many stamens, and in the female a number of one-celled and one-seeded ovaries, each with a simple style; these are at length entirely enveloped by the fleshy tube of the calyx. This latter circumstance serves to distinguish the genus from its allies. The fruit is about the size of a pea when ripe. The name of the genus was formerly written *Citrosma*. [A. A. B.]

CITRON, *Citrus medica*. —, FINGERED. *Sarcodactylis*.

CITRONELLA. *Andropogon citratus*, which yields an essential oil used in perfumery.

CITRONELLA. (Fr.) *Artemisia Abrotanum*. Also applied to *Melissa officinalis*, and to the aromatic Guava.

CITRONIER, or CITRONNIER. (Fr.) *Citrus medica*.

CITRONWORTS. A name given by Lindley to the family of Aurantiaceæ plants to which the Orange and Citron belong.

CITROUILLE. (Fr.) A race of large oblong Gourds derived from *Cucurbita Pepo*. —, **PASTEQUE.** *Cucumis Citrullus*.

CITRUL. The Water Melon, *Cucumis Citrullus*.

CITRULLUS. The Bitter Cucumber or Colocynthis, which furnishes a well-known cathartic drug, belongs to this genus of the gourd family, *Cucurbitaceæ*, and is known by its unisexual flowers, which have a persistent five-parted calyx and corolla. In the male flowers, the stamens are free, united into three bundles, and the anthers are sinuous. The female flowers have an inferior three to six-celled ovary, a cylindrical three-cleft style, and kidney-shaped stigmas. The fruit is a many-seeded gourd. *C. Colocynthis* was originally a native of the warmer parts of Asia, but has now become widely diffused. The drug known as Colocynthis consists of the round fruits or gourds, which are imported either with the rind on or peeled, from Spain, the Levant, &c. The pulp in the interior of the fruit is light and spongy, and very bitter; from it a watery extract is made, which is much employed as a purgative in the form of pills. Some discrepancy exists as to the seeds of this plant, which some describe as bland and

nutritious, while others say that they are bitter and purgative. Certainly the dried dark-coloured seeds met with in this country are so; but it is stated that



Citrus Colocynthis.

the seeds are used as food at the Cape of Good Hope. An oil is also extracted from them for burning in lamps. [M. T. M.]

CITRUS. The Orange, Lemon, Citron, and other well-known fruits of a similar kind, are included in this genus of *Aurantaceae*. Its distinguishing characteristics are: the presence of a cup-like calyx, numerous stamens irregularly united by their filaments into several bundles, a cylindrical style, and a pulpy fruit with a spongy rind. The leaves of these trees are also remarkable inasmuch as they consist of one leaflet, separated from the leaf-like stalk supporting it, by a distinct joint.

The most important species, in a medical or pharmaceutical sense, are the Citron, Lemon, and Seville Orange. The Citron, *C. medica*, furnishes two kinds of oil, used by perfumers, the essential oil of citron and the essential oil of cedar. The Lemon, *C. Limonium*, is employed for the sake of its aromatic bitter rind; its odour is due to the volatile oil in which it abounds. The juice of the Lemon is used as a refreshing beverage in fevers and scorbutic affections, and as effervescing lemonade to check sickness and nausea. As it is apt to decompose, crystallized citric acid is usually employed in its place as an antiscorbutic, and with the best effects. Lately it has been recommended in acute rheumatism. Lime juice is employed for similar purposes. The Seville or Bitter Orange, *C. Bigaradia*, is used for the sake of its rind and its flowers, which possess a stronger flavour and odour than the sweet orange. The rind is used as a stomachic and tonic, while the flowers yield by distillation orange-flower water. [M. T. M.]

The Citron, Orange, Lemon, Shaddock, and Lime have been referred to various species of *Citrus*; with regard to which botanists, however, are not agreed. It is even doubtful whether all of them, with their very numerous varieties, have not originated from *C. medica*. On this point

the following observations by Dr. Lindley in the *Journal of the Horticultural Society* (ix. 171), are important. He states that the above-mentioned fruits 'are all of Eastern origin, and mostly introduced into Europe in comparatively modern days, but of very ancient and general cultivation in Asia. The varieties known are very numerous and difficult to reduce according to their species, on the limits of which botanists are much divided in opinion. Those who have bestowed the most pains in the investigation of Indian botany, and in whose judgment we should place the most confidence, have come to the conclusion that the Citron, the Orange, the Lemon, the Lime, and their numerous varieties now in circulation, are all derived from one botanical species, *C. medica*, indigenous to, and still found wild in, the mountains of East India. Others, it is true, tell us that the Citron, the Orange, and the Lime are to be found as distinct types in different valleys, even in the wild state; but these observations do not appear to have been made with that accuracy and critical caution which would be necessary in the case of trees so long and so generally cultivated.'

The Citron, *C. medica*, is described by Theophrastus as abundant in Media, that is to say, in the north of Persia. Its fruit, according to Professor De Candolle, was carried to Rome in the beginning of the Christian era, or perhaps at an earlier period. The first attempts at its cultivation in Italy proved unsuccessful, and according to Gallezio, it was not established there till about the third or fourth century. The Jews cultivated the Citron at the time they were under subjection to the Romans, and used the fruit then, as at the present day, in the Feast of Tabernacles; but there is no proof of their having known this tree in the time of Moses. It is likely they found it at Babylon during their captivity, and brought it to Palestine on their return. Whatever may have been the diffusion of the species in Western Asia at that remote date, there is no evidence of its having been indigenous to Media, nor have modern travellers found it wild in Persia; but Dr. Royle found the species in the forests of Northern India. The Citron is cultivated in Cochin China, and in China, but Thunberg does not mention it as existing in Japan. Taking all the above facts into consideration, it is evident that the species is originally from the north of India, and as the habitat of every one of the Orange tribe is naturally rather limited, Professor De Candolle does not think that this extended in the case of the Citron, as far as the north of Persia. Probably the Citron was carried in that direction, and also into China at a very early period. In many countries they are easily naturalised. The seeds sow themselves in several of the colonies: for instance, in Jamaica. In its wild state the Citron grows erect with spiny branches. The flowers are purple on the outside and white inside. The fruit is large, oblong or ovate,

sometimes six inches long, the skin covered with protuberances, and of the well-known citron-yellow colour when the fruit is ripe. Of the cultivated varieties, some are oval, others round, and that called the Madras Citron has the form of an oblate sphere. In China there is a variety with its lobes separating into finger-like divisions, and hence called the Fingered Citron.

The Lemon, *C. Limonum*, of some botanists, *C. medica Limonum* of others, is, according to Dr. Royle, who found it growing wild in the North of India, named in Hindustanee Neemo, Leemo, Lechoo; in Arabic Limoun; and in Italian, Limone. Professor De Candelles states that it was unknown to the ancient Greeks and Romans; and that its culture only extended into the west with the conquests of the Arabs. On their spreading over the vast regions of Asia and Africa, they carried with them everywhere the Orange and Lemon. The latter was brought by them in the tenth century from the gardens of Oman into Palestine and Egypt. Jacques de Vitry, writing in the thirteenth century, very well describes the Lemon, which he had seen in Palestine; and doubtless it was by the crusaders first brought into Italy, but at a date which cannot be exactly ascertained. From the north of India it appears to have passed eastward into Cochinchina and China, and westward into Europe, and it has naturalised itself in the West Indies and various parts of America. Fruit oval or ovate, terminated by a small blunt nipple-like point; skin smooth, rind much thinner than that of the Citron. The varieties are numerous. Lemons are chiefly imported for their agreeably acid juice and essential oil, and also for the manufacture of citric acid.

The Orange, *C. Aurantium* of those botanists who do not consider it to be probably only a variety of *C. medica*, is associated with the latter as a native of the north of India. According to Gallesio, instead of being found in the north of Africa, Syria, or even in Media, it was not at the time of Alexander the Great in that part of India which he penetrated; for it is not mentioned by Nearchus among the productions of the country which is watered by the Indus. But the Arabs, carrying their conquests further into India than Alexander, found the Orange more in the interior; and according to Professor Targioni it was brought by them into Arabia in the ninth century. Oranges were unknown in Europe, or at all events in Italy, in the eleventh century, but were shortly afterwards carried westward by the Moors. They were in cultivation at Seville towards the end of the twelfth century, and at Palermo in the thirteenth, for it is said that St. Dominic planted an orange for the convent of St. Sabina in Rome, in the year 1200. In the course of the same thirteenth century, the crusaders found Citrons, Oranges, and Lemons, very abundant in Palestine; and in the following

or fourteenth century, both Oranges and Lemons became plentiful in several parts of Italy. It appears, however, that the original importation of Oranges from India into Arabia and Syria occurred about a century earlier than that of Lemons. Gallesio states that Oranges were brought by the Arabs from India by two routes; the sweet ones through Persia to Syria, and thence to the shores of Italy and the south of France; and the bitter, called in commerce Seville Oranges, by Arabia, Egypt, and the north of Africa to Spain. Of the numerous varieties of this esteemed fruit, our limits will only admit of our noticing some of the more important.

The Sweet Orange has the leaves ovate-oblong, acute, somewhat serrated, with the stalk more or less winged. The flowers are white. The fruit is well known. There are many varieties; that called the China Orange is the common Orange of the markets. The Blood Red or Malta Orange has the fruit round, rough red or reddish-yellow outside, with a pulp irregularly mottled with crimson. The Saint Michael's Orange has the fruit rather small, pale yellow and seedless, with a thin rind and very sweet pulp; it is one of the most delicious and productive varieties. The Noble, or Mandarin Orange is small flattened and deep orange, with a thin rind which separates spontaneously from the pulp, so that when quite ripe the latter may be shaken about inside; it is exceedingly rich and sweet. In China, where this delicious variety has been raised, the fruit is chiefly consumed in presents to the Mandarins, hence its name. It is now, however, very successfully cultivated in Malta and in the Azores. The Sweet-Skinned Orange is the Pommo d'Adam, or 'Forbidden fruit' of the shops of Paris, but not of London; its skin is smooth, deep yellow, with a thick sweet soft rind. The above are some of the principal sorts of sweet oranges; but there are many other varieties, many of which possess, however, but little merit.

The Common Seville, or Bitter Orange, or Bigarade, *C. Bigaradia*, has a round dark fruit with an uneven, rugged, extremely bitter rind. This sort is largely imported for the manufacture of bitter tincture, and the preparation of the candied orange-peel. To this section are referred the various kinds of Bigarades, among which may be named the Horned, Curled-leaved, Purple, Double-flowered, and Myrtle-leaved. These, especially the Horned and Curled-leaved, are cultivated chiefly for their flowers, which are powerfully fragrant.

Of the Bergamot Orange, *C. Bergamia*, both flowers and fruit possess a peculiar fragrance; and from each of them an essence of a delicious quality is extracted.

The Lime, *C. Limetta*, bears ovate or roundish pale yellow fruit with a boss at the point; its juice is acid and slightly bitter. There are varieties differing in form and in the thickness of their rind. Among them is one called by the Italians Pommo d'Adam, because they fancy the depre-

sions on its surface appear as if it still bore the marks of Adam's teeth.

The Shaddock, *C. decussata*, derives its common name from Captain Shaddock, by whom it was first carried from China to the West Indies, early in the eighteenth century. The shoots are pubescent; the leaves large with a winged stalk; the fruit very large, weighing sometimes ten to twenty pounds, roundish, with a smooth, pale yellow skin, and white or reddish subacid pulp. When the fruits attain their largest size they are called Pampoleons, or Pampelmousses; those of the smallest size form the 'Forbidden fruit' of all the English markets.

The Orange tribe cannot be grown in this country without protection in winter. In some parts of Devonshire, however, they require but very little, as for example, at Combe Royal, near Kingsbridge, where very fine specimens of Oranges, Citrons, and Lemons, &c., have been for many years obtained from trees planted against a wall, and protected only with a movable wooden shelter in winter. The first Oranges, it is stated, were imported into England by Sir Walter Raleigh, and reared by his relative Sir Francis Carew at Beddington in Surrey. These trees are mentioned by Bishop Gibson, in his additions to Camden's *Britannia*, as having existed for a hundred years previous to 1695; but finally they were entirely killed by the great frost in 1739-40, after they had attained the height of eighteen feet, with stems nine inches in diameter. Trees of the Orange tribe naturally live to a very great age in a soil and climate which suit them. Even under artificial treatment there are some remarkable instances of their longevity. There may be seen, in the orangery at Versailles, a tree which was sown in 1421. It is growing with its roots in a large box, and appeared very healthy when we saw it lately. The Orange tree at the convent of St. Sabina at Rome is thirty-one feet high, and said to be upwards of 600 years old. At Nice, where the tree may be considered naturalised, growing quite in the open air, there was in 1782, according to Risso, a tree which generally bore 8,000 or 9,000 oranges, and which was more than fifty feet high with a trunk which required two men to embrace it. In Cordova, the noted seat of Moorish grandeur and luxury in Spain, there are Orange trees still remaining, which are considered to be 600 or 700 years old.

Under favourable circumstances, the productiveness of the Orange is astonishing. In an account of the gardens and orange-grounds of St. Michael's in the Azores, by Mr. Wallace (*Journal of the Hort. Society*, vii. 236), we are informed by the author, who resided at St. Michael's for several years, that the orange grounds vary from one to sixty acres in extent, and are surrounded with high walls and tall-growing trees as shelter, not from the cold but from the sea-breeze. The grounds are rarely occupied wholly by Orange

trees, for Limes, Citrons, Lemons, Guavas, &c., are scattered about in them. Orange trees were first introduced to the Azores by the Portuguese. There are only two kinds of oranges cultivated at St. Michael's, viz., the Portugal and the Mandarin; many varieties of the former exist, and they are greatly improved by the genial climate of St. Michael's. The Mandarin Orange has not been many years in the island, nevertheless there are some trees of it fourteen feet high. This capital little orange has lately been exported to England, where it realises a higher price than the common St. Michael's. The largest orange tree which Mr. Wallace measured was thirty feet high, the stem being seven feet in circumference at the base; but many larger trees, destroyed by the corrus, had been cut down. The produce of the trees is almost incredible; props are always used to prevent the weight of the fruit from breaking down the branches. An orange tree in the quinta, or orange garden of the Barão das Lameijelas produced twenty large boxes of oranges, each box containing upwards of 1,000 fruit—in all 20,000 oranges from one tree. Two hundred ship-loads of oranges are annually exported from St. Michael's, being nearly 200,000 boxes. [R. T.]

CIVETTE. (Fr.) *Allium Schœnoprassum*.

CLADENCHYMA. Branched parenchyma.

CLADIUM. A genus of Cyperaceous plants belonging to the tribe *Rhynchosporæ*. The spikelets are one to two-flowered; glumes five or six; bristles wanting; nut with a thick fleshy coat, tipped with the conical base of the jointless style. Twenty-one species are mentioned in Steudel's *Plantæ Cyperaceæ*; these have an extensive geographical distribution, the majority being natives of New Holland. *C. Mariscus* is a native of Britain, and the most northerly of the species. It is a handsome aquatic plant, not of frequent occurrence, though plentiful in some districts. [D. M.]

CLADOBIUM. An obsolete name of *Scaphyglottis*.

CLADOCARPI. A small section of Mosses containing those anomalous genera in which the fruit is not truly lateral but terminates short lateral branchlets. The British genera belonging to this section are *Sphagnum*, *Mielichhoferia*, *Fissidenes*, and *Cinclidotus*; but the two latter contain species which are not truly cladocarps. [M. J. B.]

CLADOCAULON. A Brazilian Eriocaulaceous plant, an undershrub with much-branched leafy stems and flowers in heads, the male flowers being in the centre, the females at the circumference of the head. These latter present the distinguishing feature of the genus, that is to say, a double perianth, each row of three linear oblong segments adherent at the base, the outer segments reflexed, and ultimately

deciduous, the inner ones shorter, thinner, and persistent. In other particulars it does not differ from the other genera of the order. [M. T. M.]

CLADODYSTROPHIA. An affection to which oaks and other trees are subject in light soils, or when past maturity. The upper branches are less perfectly nourished than the lower, and therefore more rapidly decay. It has also been supposed that trees become stag-headed in consequence of decay of the tap root, possibly from the attacks of fungi, the terminal branches having an especial reference to it. This, however, is mere matter of speculation, though the main branches and roots have in many cases direct communication with each, some particular root more especially supplying some particular branch, as is indicated by the buttress-like spurs which connect the two. Where the tree is without leading shoots, the tips of the several branches sometimes assume a similar condition. [M. J. B.]

CLADONIA. A genus of Lecideineous Lichens which is characterised by its ultimately globose or button-shaped fruit growing at the tips of vertical hollow shrub-like or cup-shaped processes, arising from a foliaceous or crust-like thallus, to which they bear an inverse proportion. The fructifying disc is often of the brightest scarlet, but sometimes assumes other tints as pinkish-brown or black. The species are numerous even when reduced within reasonable limits, and extend into the coldest regions, while some are cosmopolites. *C. rangiferina* extends almost to the extreme limits of vegetation, and affords an abundant supply of excellent food to the reindeer, without which the inhospitable northern parts of our continent could scarcely be inhabited. *C. pyxidata*, a common species in woods and hedge-banks, is supposed to afford a good medicine in the whooping cough; while *C. sanguinea*, rubbed down with sugar and water, is successfully applied in the thrush of infants in Brazil. [M. J. B.]

C. rangiferina, the Reindeer Moss, is the badge of the clan McKenzie.

CLADOPHORA. A genus of Chlorodermis closely allied to *Conferva*, and distinguished by its branched habit. The species are numerous, and grow in various situations, but the most characteristic, as *C. glomerata* and *rupestris*, occur either in rivulets or on sea-rocks. A few of the species of warm countries attain a considerable size. *C. mirabilis* was once celebrated as affording a supposed instance of transformation from a green-spored into a rose-spored alga; but it has since been ascertained that the cladophore serves merely as a matrix to the rhodospERM which surrounds the threads with its dilated base. The reproductive bodies are minute zoospores with thong-like appendages contained in the articulations. The species are found in most parts of the globe. [M. J. B.]

CLADOPTOSIS. A name given to a singular affection to which several of our forest trees, as the oak and willow, are subject, in which the small branches snap off with a regular circular fissure, leaving a cup-shaped scar, somewhat similar to that which takes place when a leaf or fruit separates at the stalk. The branch was of course previously dead, and the separation seems to depend upon a vital process by means of which the dead are thrown off from the living tissues. After pears have fallen, a repeated separation into joint-like portions takes place, in a somewhat similar manner, between the component parts and the branch which gave them birth. After cold summers, vine branches are apt to fall off, a process which is facilitated by the peculiar formation of the stem, there being a transverse layer of cellular tissue at each bud. This is sometimes called Phriganoptosis. Larger branches occasionally fall off in a like manner in the elm, but more generally, though the line of demarcation is well-marked, the branch does not fall till it is tightly pressed by the new layers of bark destined after its disappearance to close up the cavity. [M. J. B.]

CLADOS. In Greek compounds = a branch.

CLADOSPORIUM. A genus of naked-spored Moulds of which one species, *C. herbarum*, is found in all habitable parts of the world on decaying substances, whether animal or vegetable, covering them with olive patches which when in fruit are shot with green. It consists of short brown-jointed waved threads, which bear on their sides oblong or elliptic spores with one or two transverse divisions. In damp seasons, wheat is often discoloured at the tip with this fungus, and it is then said to be tagged. Another species, *C. dendriticum*, is common on apple leaves, and when attacking the fruit causes the orbicular dark spots which are so common on apples, and which have been named by Fries *Spilocæa*. The same species, or a mere variety of it, attacks pears in a similar way, and sometimes materially affects the health of the tree by infesting the leaves and young shoots. [M. J. B.]

CLADOSTACHYS. A genus of *Amaranthaceæ* allied to *Celosia*, but having the stem free, not cohering as in that genus, and the three stigmas linear and revolute, not capitate. *C. muricata* is a much-branched Indian shrub with alternate stalked ovate-acute smooth leaves, and elongated paniculately-arranged spikes of small white flowers. [J. T. S.]

CLADOTHAMNUS. A genus of *Pyrolacææ* consisting of a shrub from Western Arctic America with much-branched stems sessile wedge-shaped oblong glabrous leaves, glaucous below, and solitary axillary shortly-stalked flowers, with a five-parted calyx, five petals, ten stamens, a thread-like style, incurved at the apex,

with a globular five-lobed stigma; capsule sub-globose, five-celled. [J. T. S.]

CLANDESTINA. A genus of *Orobanchaceae* containing a single species, a parasite on roots in damp woods in the South of Europe. It is a small plant with a short branching scaly subterranean stem, the bluish-violet flowers being seen in clusters rising from the apex of the stem as if from the earth. The four-cleft calyx is bell-shaped; the upper lip of the corolla helmet-shaped, the lower short and blind. The ovary is surrounded at the base by a half-moon-shaped hypogynous gland. The capsular fruit contains four or five seeds attached to two linear parietal placentas. This genus is nearly related to *Lathraea*, in which it was formerly included; it differs chiefly in having erect flowers, and a definite number of seeds on small placentas. [W. C.]

CLAOXYLON. A genus of *Euphorbiaceae* composed of trees or shrubs, natives of the tropical portions of the eastern hemisphere. They are nearly allied to *Mercuaria*, but differ in their arborescent habit as well as in the petal-like disc of the female flowers. The leaves are long-stalked, oval or lanceolate, and entire or toothed at the margins. The nerves of the leaves and the various parts of the flowers of many species are deeply tinged with a dark red colouring matter which is said to be used as a dye. The inconspicuous generally green flowers are arranged in slender racemes furnished with bracts, each bearing in its axil a cluster of flowers; these in the male are made up of a calyx with three or four deep divisions enclosing numerous stamens; and in the female of a similar calyx enclosing a three-lobed ovary, crowned with a three-branched style, and seated on a disc formed by three dark red petal-like glands. The capsular fruits are three-celled, about the size of a pea, and each cell contains one seed. [A. A. B.]

CLARKIA. A small genus of *Onagraceae*, indigenous to California and North Western America, contributing to our gardens two of the best known and most esteemed of popular annuals. The genus is well characterised by its clawed petals, eight stamens, of which the alternate four are shortest and sterile, four-lobed stigma with broad roundish spreading lobes, and cylindrical four-furrowed four-celled seed-vessel, opening when ripe by four valves. The species are all erect branching plants, with entire or toothed foliage, and showy reddish-purple flowers produced singly from the axils of the leaves. *C. pulchella* has the largest flowers, and is remarkable in its typical form for its petals being three-lobed with a tooth on each side of the claw, though in the variety *integripetala* of garden origin the lobes are obliterated. The leaves of this species are long and narrowly lance-shaped, quite entire, and the stem and branches are drooping at the summit before the expansion of

the flowers. *C. elegans* is a taller plant with slender twiggy shoots, quite erect in all stages of their growth, ovate toothed foliage, the flower-buds drooping before expansion, and the bluntly rhomboidal petals quite undivided. [W. T.]

CLARY. *Salvia Sclarea*. *Horminum* Clary is *Salvia Horminum*, and *Vervain* Clary, *Salvia Verbenaca*.

CLATHERUS. A genus of gasteromycetous *Fungi* belonging to the phalloid group, remarkable at once for the beauty of their colour and elegance of form, combined with the most abominable odour. The receptacle to which the deliquescent fruit-bearing cells are attached, forms a scarlet network, which bursts forth from a gelatinous volva. In *C. crispus*, which occurs in warmer climates, the edge of the meshes is beautifully crisped. The closely-allied *Iloodictyon cibarium* is known to the New Zealanders by a name implying Thunder-dirt, and forms a coarse article of food. *C. cancellatus* is common in the south of Europe, and occurs occasionally in the southern parts of England, as at Torquay and the Isle of Wight, also in Ireland. [M. J. B.]

CLATHERUS (*adj.* **CLATHERATUS**). A lattice; a membrane pierced with holes and forming a kind of grating, as in the *Ouvivandra fenestralis*.

CLAUDEA. The most beautiful genus of rose-spored *Algae*. It is named after Claude Lamouroux, a distinguished French algologist. Three species only are known, of which two occur on the coasts of Australia and Tasmania, and the third on those of Ceylon. The frond proceeds from a thread-shaped stem, which is continued into the marginal rib of a flat unilateral open net-work formed of several series of anastomosing slender mid-ribbed leaflets. Each net-work, when fully formed, is ten to twelve inches long, and about an inch broad, and is elegantly recurved like a scimitar. The capsules are in the mid-rib of metamorphosed primary and secondary leaflets, and contain at the base a dense tuft of pedicellate pyriform spores. The tetrasperms are contained in the swollen bars of the second series of network in transverse rows. *C. elegans* sometimes grows at the mouth of rivers where the saltiness is much modified, and then assumes a large size with increased delicacy. The above account is taken from Dr. Harvey's *Phycologia Australasica*, a work which ought to be in the hands of every lover of seaweeds. [M. J. B.]

CLAUDINETTE. (Fr.) *Narcissus poeticus*.

CLAUSILE. A name given by Richard to his macropodal embryo, when its radicle is united by the edges and entirely incloses all the rest of it.

CLAVALIER. (Fr.) *Xanthoxylon Clava Herouli*.

CLAVARIA. A genus of the clavate division, *Clavariet*, of hymenomycetous

Fungi, distinguished by their fleshy substance and confluent stem. The species are either simple or branched, and are extremely numerous, and from the great difference of form, colour, and division assumed under different circumstances, often extremely difficult to recognise. The surface is mostly smooth, but sometimes wrinkled longitudinally. Many of them afford excellent articles of food, but they are not much used in this country, probably from the scarceness of the larger species. *C. vernicularis*, which comes up frequently on our lawns, looking like little bundles of candles, is sometimes very abundant, and extremely delicate when dressed. We have seen *C. rufescens* exposed for sale in Hanover, where it is much esteemed. [M. J. B.]

CLAVARIÆ. A natural order of hymenomycetous *Fungi* distinguished by their vertical growth and superior hymenium, which extends to the very apex, and is distributed equally on all sides (amphigenous). The species generally grow on the ground amongst leaves, a few appear on rotten wood, and some of the lower kind on decaying herbaceous stems. We believe all the species which produce white spores are wholesome; some, moreover, with yellow spores are osculant, though one or two are doubtful. [M. J. B.]

CLAVATUS, CLAVIFORMIS. Gradually thickening upwards, from a very taper base; as the spadix of *Arum maculatum*.

CLAVICULA. A tendril.

CLAVIGERA. The name applied by the elder De Candoille to three Mexican plants of the Composite family, since shown by Dr. A. A. Gray to differ in no way from *Brickellia*, and therefore placed in that genus which numbers about thirty species, mostly Mexican, and is distinguished from *Eupatorium* by the many-atriate instead of five-angled achenes. [A. A. B.]

CLAVIJA. A genus of the Myrsine family, comprising a number of shrubs or small trees, confined to the tropical parts of South America. Their unbranched rod-like stems are furnished at the top with a crown of large alternate coriaceous leaves, often two feet in length, quite smooth, oblong in form, and entire or spinously-toothed at the margin. The waxy white or orange-coloured flowers are small and disposed in erect or drooping racemes which are shorter than the leaves, and either proceed from their axils or from the bare stem where the leaves have fallen. The tube of the corolla being very short, and the five stamens having five roundish fleshy scales alternating with them, are characters which distinguish the genus from the others in the family. The fruits are fleshy and contain numerous seeds embedded in a pulp which is said to be eatable. In size they vary, but are seldom larger than a pigeon's egg. The genus bears the name of J. Clavijo Faxardo, a Spanish naturalist.

C. ornata, a native of Brazil and Guiana, is frequently to be met with in plant stores, where it is always a prominent object from its straight unbranched stems, bearing on their apex a cluster of large handsome leaves often a foot or more in length. Its starry wax-like flowers, of a bright orange colour, are produced in great abundance, and are disposed in erect racemes. The root of some of the species is said to be emetic. [A. A. B.]

CLAVULA. The receptacle, or sporocase of certain fungi.

CLAVUS. The disease which produces ergot in grasses; so called because it causes the young grain to grow into the form of a nail or club.

CLAW. The long narrow base of the petals of some flowers; the analogue of the petiole.

CLAYTONIA. A genus of Purslanes, chiefly North American consisting of dwarf annual or tuberous-rooted perennial plants with entire leaves, and small white or flesh-coloured flowers in terminal racemes. Generically they are distinguished by a calyx of two oval permanent sepals, five petals usually with short claws coloring at the base, five stamens inserted on the claws, one style with its apex three-cleft, and an ovary ripening into a one-celled capsule, opening by three valves, and containing from three to six seeds. *C. perfoliata*, which is naturalised in some places in England, is a weedy little species with fibrous roots, broadly ovate veinless radical leaves on long foot-stalks, and numerous simple naked flower-stems, bearing at the summit a roundish leafy bract formed by the cohesion of two opposite leaves, from which arise one or more short racemes of small white flowers with notched petals. The leaves of this plant are used like those of the common purslane, *Portulaca oleracea*. The perennial *Claytonias* have for the most part small tuberous or spindle-shaped roots, from which arise a few simple stems a foot high, bearing about the middle a single pair of opposite linear or lanceolate leaves, and being terminated by a loose drooping raceme of pink flowers veined with red. The species are rare in cultivation, but *C. virginica* is sometimes met with. They are popularly known in America by the name of Spring Beauty, from the early season at which they flower. [W. T.]

CLEARING NUT. An Indian name for the nut of *Strychnos potatorum*.

CLEARWEED. An American name for *Pilea pumila*.

CLEAVERS. *Galium Aparine*.

CLEGHORNIA. A Cingalese and Indian genus of Apocynaceæ, the plants of which have small white flowers with a calyx of five lobes alternating with five glands; a salver-shaped corolla with oblique lobes and without scales in its throat; included anthers, arrow-shaped and sharply-pointed

at the top; two ovaries, with a short style and large stigma; the fruit consisting of two large follicles. [M. T. M.]

CLEISTOSTOMA. A genus of caulescent Orchids, with leathery narrow distichous leaves, and long tough roots by which they cling to the bark of trees in various parts of the East Indies. They have the pouch-like lip and fleshy flowers of *Sarcobium* and *Sarcanthus*, differing from the former in having the orifice of the pouch closed by a large projecting tooth, and from the latter in the pouch being absolutely one-celled. Sixteen or seventeen species are known, all having small flowers of little beauty.

CLEISTES. A genus of terrestrial leafy-stemmed Orchids inhabiting tropical America. In habit they resemble *Arethusa*. The flowers are terminal and nearly solitary, of some purple tint. *C. rosea*, with large nodding flowers, is one of the finest; *C. paludosa* is quite insignificant.

CLEMATIS. An extensive genus of twining shrubs with variously-cut opposite leaves, belonging to the *Ranunculaceae*, among which they are distinguished by their single perianth (a coloured calyx but no petals), and by the long feathery tail attached to their one-seeded carpels. The only English species, *C. Vitalba*, Virgil's Bower, is so called on account of its being used for covering bowers; another name, Traveller's-Joy, was probably given to it because of its being, in winter, among the most conspicuous and ornamental of wayside plants, often covering hedges for a considerable distance with its feathery seed-vessels, from the resemblance of which to grey hair the plants sometimes called Old-Man's Beard. The flowers are greenish-white, and destitute of perfume. French *Herbe aux gueux*, from its ragged appearance. *C. Flammula* is the sweet-scented species common in gardens, a native of Southern Europe and Northern Africa; a variety of this is known, having larger flowers tinged with rose-colour, expanding in October. Other ornamental species are *C. Florida*, of which a variety with large double white flowers is to be preferred as being the handsomest and remaining the longest in bloom; *C. Viticella*, of which there are several varieties with single or double flowers, blue, purple, or red; and *C. azurea* and *C. lanuginosa*, insignificant blue-flowered Japanese species. *C. tubulosa* is a showy perennial with large blue flowers. [Many garden hybrids remarkable for their profuse blooming properties have been raised, and of which *C. Jackmanni* is the type.] [C. A. J.]

CLEMATITE COMMUNE. (Fr.) *Clematis Vitalba*. — **ODORANTE.** *Clematis Flammula*.

CLEMATITIS. *Aristolochia Clematidis*.

CLEONE. A genus of Capparids chiefly found in the tropical regions of the New World, and presenting, in common with the other genera of the order, some in-

teresting features. It is distinguished by the possession of a calyx of four pieces; a corolla of four erect petals, usually with long claws; six stamens having long distinct filaments; and a many-seeded pod-like fruit borne on a stipe or stalk of varying length. Most of the species are annual plants of erect habit, with digitate leaves of from three to seven lanceolate leaflets, and flowers in terminal bracted corymbs lengthening into racemes. One of the commonest species is *C. pungens*, a robust clammy plant, attaining a height of four or five feet, with spiny stipules, foot-stalks as well as under side of midribs armed with sharp prickles, and racemes of rose-purple flowers; the anthers of this species are yellow, by which it may be known from *C. spinosa*. *C. rosea* resembles *pungens* in general habit, but is quite free from prickles, is less robust, and its leaves consist of but five leaflets, the uppermost and lowest of three only. *C. speciosissima* has handsome rose-coloured flowers, leaves with five to seven leaflets, petals as long as the flower-stalk, and a pod on a stipe longer than itself. The species are chiefly remarkable for their beauty, but are reputed to possess a pungent taste like that of mustard. [W. T.]

CLEOMELLA. A small genus of annual *Capparidaceae*, the leaves of which are trifoliate, and the flowers have four somewhat spatulate petals with short claws and six separate stamens attached to the stalk supporting the ovary, which latter is gourd-shaped and one-celled, becoming a pod-like capsule. The plant is a native of Mexico and N. America. [M. T. M.]

CLERODENDRON. A considerable genus of *Verbenaceae*, natives of tropical districts chiefly in Asia, but found also in Africa and America. They are shrubs or trees with opposite or ternate simple leaves, and loosely cymose or capitate flowers in terminal panicles or thyrses, more rarely axillary. The calyx is campanulate or inflated, and five-toothed or five-lobed. The corolla-tube is slender, the limb spreading and nearly equally five-lobed. There are four stamens inserted in the tube of the corolla, and usually much exerted; the anthers have two parallel cells, opening longitudinally. The ovary is four-celled, with a single pendulous or laterally attached ovule in each cell. The slender exerted style has two acute stigmatic lobes. The fruit is a drupe surrounded by the calyx, its kernel usually large, separating into two two-celled or four one-celled nuts. This genus is nearly related to *Volkameria* and *Agaphila*, but is separated from the former by its fruit, and from the latter by its pentamerous flower. Nearly eighty species have been described. They have been arranged under two sections:—1. *Eucleodendron*, in which the corolla is salver-shaped with a short tube scarcely longer than the calyx; and 2. *Siphonanthus*, in which the corolla is funnel-shaped with a very long tube. The plants have slightly bitter sub-nutritive properties, and on

this account some of them are used in Indian medicine. [W. G.]

CLESTINES. Large cells of parenchyma, in which raphides are often deposited.

CLETHRA. A genus of *Ericaceae*, consisting of shrubs or trees, with alternate serrate deciduous leaves, and bearing white flowers in terminal hoary racemes. They are natives of North and tropical America. The calyx is five-parted; the corolla has five distinct obovate-oblong petals. There are ten hypogynous stamens, with inversely arrow-shaped anthers, which open by terminal pores or short alita. The ovary is three-celled with many ovules in each cell. The style is slender with a three-cleft stigma. The capsule is three-celled, with many seeds in each cell, three-valved, and enclosed in the calyx. [W. G.]

CLEYERA. A genus of *Ternstroemiaceae*, comprising a few Indian and Japanese evergreen bushes with camellia-like leaves, and small axillary white or yellowish flowers, sometimes sweet-scented. These flowers are stalked, and have a calyx of five leaves, five petals, numerous stamens in two or three series, and an ovary surmounted by a style which is three-parted at the top. The five free petals, and the numerous stamens slightly adhering to their base, are the chief distinguishing features of the genus. [A. A. B.]

CLIANTHUS. A genus of *Leguminosae* in New Zealand, Norfolk Island, New Holland. It is nearly related to *suaverlandia*, a Cape genus which has bladder pods, while the pods in the present are coriaceous. The plants are herbaceous or woody branching shrubs, with unequally-pinnate leaves made up of eight to sixteen pairs of linear or elliptical leaflets half an inch long. The large handsome flowers are in terminal or axillary racemes. The calyx is bell-shaped and five-toothed. The upper petal or standard is oval, pointed, and bent backwards, much larger than the wings and shorter than the keel, which is skirt-shaped. The pod is stalked, somewhat woolly inside, and contains a number of seeds. The name of the genus is derived from the Greek, and signifies Glory Flower, a name peculiarly applicable to the plants. The best known species is *C. puniceus*, called Parrot's-Bill in New Zealand, from the resemblance of the keeled petal to the bill of that bird. This plant was introduced in 1831, and is often to be met with in greenhouses, or on open walls with a southern aspect, where it flowers freely if protected in winter. It seldom attains more than six feet in height, although in Ireland, where the climate seems to suit it better, it is sometimes to be seen covering on a wall a surface of twelve or fourteen feet square. The pinnate-leaves are about six inches long, and the leaflets, about half an inch in length, are smooth above and slightly pubescent underneath. The flowers grow in oval clusters hanging from the leaf-axils, each flower more than

three inches from the tip of the standard to the tip of the keel, and of a deep blood colour.

C. Dampieri is a native of the desert regions of Australia, and is also in cultivation. In habit it is much like the former, but it does not grow to such dimensions. The whole plant is of a pale green colour, and is thickly covered with long white hairs. The peduncles proceed from the axils of the leaves, and bear on their apex four or five scarlet flowers, larger and of a much brighter colour than those of the former, the standard having also a large black-purple boss at its base. This plant has the most beautiful flowers in the genus, but is unfortunately difficult of cultivation. *C. carnosus*, a climbing species, native of Norfolk Island, is better referred to *Stereblorhiza*; it has flesh-coloured flowers, and although a pretty plant, is not to be compared with the others for beauty, the flowers being much smaller. [A. A. B.]

CLIDEMIA. A genus of *Melastomaceae* from tropical America, containing hairy branched shrubs with opposite stalked leaves, generally unequal in size, with three to seven ribs, and white or rose-coloured flowers, often silky. The calyx is adherent to the ovary at the base; petals five or six, rarely four; stamens twice as many as the petals; ovary hairy, with as many cells as there are petals; berry fleshy, often edible. [J. T. S.]

CLIFFORTIA. A genus of small apetalous South African bushes, belonging to the Rosaceae family, whose principal distinction lies in the three-toothed calyx and very numerous stamens. The leaves are alternate, small, and composed of two or three leaflets; when the latter is the case, the two lateral ones are small, and more or less united to the central one, so that the leaves appear to be simple. The flowers are small, and seated in the axils of the leaves. In the males the calyx tube is contracted at the top, and bears about thirty stamens. In the females the calyx is similar to that of the male, and encloses one or two achenes, each furnished with a lateral bearded or feathery style. The holly-like leaves of *C. thicifolia* are used by the Boers as an emollient and expectorant in coughs. *C. ornata* is remarkable for the form and arrangement of the leaves, which are composed of two orbicular leaflets with notched margins, and are so closely set on the stems that they lap over each other in the manner of the scales of a fish. [A. A. B.]

CLIFFORTIACEAE. A name given sometimes to *Rosaceae* proper, including *Sanguisorbeae*, as distinguished from *Amygdaleae* and *Pomaceae*.

CLINANDRIUM. The bed of the anther of orchids; an excavation of the top of the column, in or on which the anther is seated.

CLINANTHIUM. A flat or broad space, on which flowers are packed closely; the

receptacle of composites; a shortened widened axis.

OLINANTHUS. A name given to a group of Peruvian *Amaryllidæ*; subsequently changed to *Oltanthus*, and now merged in *Coburgia*. [T. M.]

OLINIUM. In Greek compounds = receptacle. Also an accessory part of certain fungi, consisting of very small long simple or branched cells, bearing a spore at their end.

OLINOPODIUM. One of the names of the Wild Basil, now referred to *Ocimum*.

OLINTONIA. A small genus of Lobeliads, consisting of dwarf annuals with the aspect and habit of *Lobelia*, but differing from that genus in the corolla being without a tube, and in the character of the seed-vessel, which, instead of being a half egg-shaped two-celled capsule opening when ripe by pores at the summit, is a long slender three-angled pod of one cell only, with seeds attached to two parietal placentas, and splitting when ripe into three narrow thong-like valves. Of the several species composing the genus, but two are known in British gardens, *O. pulchella* and *O. elegans*, both natives of California. The former is an elegant little plant, with slender prostrate branched stems, sparingly clothed with linear blunt foliage, and producing from its upper axils numerous flowers, with the upper lip of two spreading deep blue segments, and the lower lip very broadly wedge-shaped, three-lobed, blue at the margin, the centre being white and yellow with several deep purple spots. The pod is so long and slender that it presents the appearance of a foot-stalk rather than that of a seed-vessel. *O. elegans* is distinguished by its leaves being ovate instead of linear, and its flowers of a pale blue colour. The name of this genus has also been applied by Rafinesque to a small group of plants belonging to the lily tribe. [W. T.]

OLIOCARPUS. A genus of Brazilian shrubs of the family *Atropaceæ*, remarkable for being densely covered with small star-shaped hairs. The flowers are stalked, and are set in the axils of the leaves. The calyx is hairy, platter-shaped at its base, with five small pouches near its junction with the flower-stalk, the upper portion divided into five lance-shaped spreading segments, which increase in size as the fruit ripens, and become erect; their margins also are everted and touch those of the adjacent segments, so that a kind of tube is formed. The corolla is wheel-shaped, hairy, its divisions with a prominent nerve. The five stamens arise from a thickened rim at the base of the corolla, and have short wavy filaments, and large four-celled anthers. The fruit is a many-seeded berry included within the calyx. [M. T. M.]

OLIOOOOOA. A genus of *Linaceæ* from South Australia, scarcely distinct from *Linum*, the only differential characters being the imbricated, not contorted, aestiva-

tion of the corolla, and the capsule splitting into ten cocci. [J. T. S.]

OLITANTHES. A name proposed for a group of *Amaryllidæ*, since referred to *Coburgia*. [T. M.]

OLITOCYBE. A sub-genus of white-spored *Agarics* with strongly decurrent, or acutely-adenate gills, the stem elastic with a fibrous outer coat, and the pileus convex when young, though depressed when old. It contains a great many species, some of which are excellent articles of food. *Agaricus nebularis*, for example, which occurs in woods with a compact obtuse pileus, clouded with grey, is one of the most delicate of mushrooms; and *A. geotropus*, especially the form called *subinvolutus*, is not to be despised. [M. J. B.]

OLITOPILUS. A sub-genus of rose-spored Mushrooms with decurrent gills, and the pileus confluent with the fleshy or fibrous stem. *Agaricus prunulus*, which is a frequent inhabitant of our woods, and readily recognised by its primrose-whitish depressed pileus, narrow rose-coloured decurrent gills, and mealy scent, belongs to this sub-genus, and is excellent either stewed or pickled. It must not be confounded with *A. gambosus* (see TRICHOLOMA) which sometimes bears the same name. Most of the species are too small to be of much value. [M. J. B.]

OLITORIA. A large genus of Pea-flowered plants belonging to the Leguminous family, and nearly related to *Centrosema*, but differing in the standard having no spur-like appendage near its base. The genus is widely distributed, being found in tropical Asia, Africa, and America: in the latter country in the greatest numbers, and almost exclusively on the eastern side of the Andes. The greater portion of the species are large climbers, scrambling over trees to a great height; some few are erect, and several are twiners among bushes. The alternate pinnate leaves are made up of one or many pairs of opposite leaflets, and a terminal odd one. The peduncles arise from the axils of the leaves, and bear one or many large purple blue white or red flowers, often two to three inches long. The tubular five-toothed calyx is furnished with two bracts at its base; the standard is large and oval, notched or bird at the apex, and narrowed into a claw at the base, the wings are much smaller than the standard, and the keel smaller than the wings and sometimes almost hidden by them. The straight pod is sometimes winged, and contains a number of seeds.

C. Ternatea, so called because the seeds were first brought from the island of Ternate, one of the Moluccas, is a very common plant in most tropical countries, and has long been in cultivation in England. In habit it is much like the common pea. Its leaves have two to four pairs of oval leaflets and a terminal odd one. The large handsome flowers grow in the axils of the leaves, and are of a beautiful blue colour,

the standard with a white or yellow blotch at its base. They sometimes occur double, and a variety with white flowers also exists. The corollas of the blue variety are said to afford a blue dye in Cochinchina, but it is not permanent, and Rumphius says that they are used for colouring boiled rice in Amboyna. The root is reputed to be as powerfully purgative as jalap; and in India, where it is sold in the bazaars in pieces about the thickness of two quills, it is given to children to promote sickness and vomiting. The Butterfly Pea, *C. Maritima*, has a curious distribution, being found in the Southern American States and Mexico, and appearing again in the Khasia Mountains in India without being found in any intervening place. It is a slender twining plant with leaves made up of three oval or lanceolate thin leaflets, about two inches long, and axillary peduncles bearing one or three flowers of a light blue colour. *C. arborescens*, a native of the West Indies and the adjoining mainland, is the only one of the numerous large scandent species peculiar to South America, which are in cultivation. Its leaves are pinnate and more than a foot in length, and the leaflets sometimes eight inches long and four broad. The large pale-blue flowers are numerous and in racemes, which are shorter than the leaves. Some of the species were formerly known under the names *Neurocarpum* and *Ternstroemia*. [A. A. B.]

CLIVERS, or CLEAVERS. *Galium Aparine*.

CLIVIA. A beautiful genus of Amaryllids, to which the name *Imantophyllum* has also been applied. The latter, however, corrected to *Imantophyllum*, Sir W. J. Hooker now proposes to apply to a distinct though allied plant of South Africa called *I. miniatum*. The *Clivias* consist of herbs with fasciculate fleshy roots, and distichous lorate radical persistent dark-green leaves, from among which springs a plano-convex scape, bearing at top a crowded umbel of drooping flowers. These are formed of a six-leaved cylindrically funnel-like perianth curved on the upper side, the divisions having fourfold diversity, and being connivent into the form of a tube, overlapping and partially united at the base; the three exterior ones are the shortest; there are six equal slightly protruded stamens affixed to the base of the segments, a three-lobed stigma, and an inferior three-celled ovary containing many ovules and seeds, the cells, according to Herbert, being three-seeded. The species are of South African origin. *C. nobilis* is a very handsome plant, often seen in green-houses, remarkable for its sturdy-looking harsh evergreen retuse two-ranked leaves, and producing a large head of numerous (forty to fifty) pendulous, club-shaped, orange-scarlet flowers tipped with green. *C. Gardenii* is a similar plant from Natal. *C. cyrtanthiflora*, a plant raised in the Belgian gardens, and known under the name of *Imantophyllum cyrtanthiflorum*, is said

to be a hybrid between *C. nobilis* and the *Imantophyllum miniatum* above referred to. It has distichous lorate leaves, and an erect flower-scape, bearing numerous drooping slender funnel-shaped flowers, of a pale flame-colour with green tips. [T. M.]

CLOCHETTE DES CHAMPS. (Fr.) *Convolvulus arvensis*. — D'HIVER. *Galanthus nivalis*.

CLOSTERANDRA. An imperfectly known plant, now referred to *Papaver*. The filaments of the stamens are dilated in the middle. The ovary is obovate, one-celled, and surmounted by five radiating stigmas which fall off when the capsular fruit is ripe. It comes from Persia. [M. T. M.]

CLOT-BURR. *Xanthium*.

CLOUDBERRY. *Rubus Chamamorus*.

CLOUDED. When colours are unequally blended together.

CLOVE BARK. The bark of *Cinnamomum Cullavan*.

CLOVE CASSIA. The bark of *Dicypellum Caryophyllatum*.

CLOVE GILLIFLOWER. The aromatic-scented double-flowered whole-coloured varieties of *Dianthus Caryophyllus*.

CLOVE NUTMEG. The fruit of *Agathophyllum aromaticum*.

CLOVE TREE. *Caryophyllus aromaticus*. The cloves of commerce are the dried aromatic flower-buds. —, WILD *Eugenia acris*.

CLOVER. The common name for *Trifolium*, especially applied to the sorts cultivated for fodder. —, AL-SIKE. *Trifolium hybridum*. —, BOKHARA. *Melilotus leucantha*, a fodder plant, very grateful to bees. —, BUSH. An American name for *Lespedeza*. —, PRAIRIE. An American name for *Petalostemon*. —, SOOLA. *Bedyscrum coronarium*. —, SWEET. An American name for *Melilotus*.

CLOVES. The small bulbs formed within the mother-bulb of certain plants; such as garlic.

CLOVEWORTS. A name sometimes used for the caryophyllaceous family to which the clove gilliflower belongs.

CLOWESIA *rosea*. A very rare orchid, with the habit of *Catasetum*, said to be a native of Brazil. It has erect racemes of concave white flowers delicately edged with rose-colour, broad fringed petals, and a saccate three-lobed lip the edge of which is broken up into innumerable thread-shaped glands. The anther lies at the bottom of an upright toothed hood. The caudicle resembles an hour-glass slit at the back.

CLOWN'S ALLHEAL. *Stachys palustris*.

CLUBBING. A peculiar condition or hypertrophy affecting the roots of cabbages and other allied parts, in which the

whole force of vegetation is carried downwards to the destruction of the leaf and stem. The main root is mostly affected, but the disease sometimes affects the laterals. The structure of the root is much altered, so that on division it looks marbled like a traffic, and many of the cells gorged with highly nitrogenous matter. The disease is local, or where not local, capricious, and probably depends upon peculiar chemical conditions of the soil. In districts which are subject to it, the most effectual remedy appears to consist in putting a small quantity of wood-ashes, which contain several salts of potash, into the hole in which the root of each plant is placed. [M. J. B.]

CLUB-GRASS. A common name for *Corynephorus*.

CLUB-MOSS. A common name for *Lycopodium*.

CLUB-RUSH. A common name for *Scirpus*.

CLUB-SHAPED. The same as Clavate.

CLUSIA. A large genus taken as the type of the *Clusiaceæ* or *Guttifera*, the latter name referring to the fact that the greater portion of the plants secrete in more or less quantity a milk-like or yellow resin. *Clusia* is chiefly distinguished by its capsular five or ten-celled fruit, which splits when ripe, each cell having many seeds; and by the numerous stamens, whose anthers open along their whole length, and not by a small pore or slit at the apex. All are trees or shrubs peculiar to Tropical America, and grow in very humid hot places. A great portion of them are parasitical on other trees, and a few send down stout root-supports from their thick branches similar to those of the banyan tree. The leaves are opposite, entire, very leathery in texture, mostly obovate in form, and furnished with numerous parallel nerves which are very evident in dried specimens, but almost imperceptible in the living plants. The greater portion have roseate flowers, but in a few they are white or yellow; in the larger-flowered species there are seldom more than two or three together in the axils of the upper leaves, but in the smaller-flowered ones they are numerous and disposed in a sort of panicle. In the males the calyx is of four to six leaves, the petals four to eight, and the stamens very numerous. In the females, which have a calyx and corolla like the male, a few abortive stamens surround the ovary, which is crowned by a flat radiating stigma. The fruit is a dry or fleshy capsule splitting up when ripe into five or ten portions.

The genus bears the name of Charles de l'Écluse or Clusius, a celebrated botanist of the sixteenth century. The leaves vary little in form throughout the genus; those of *C. grandiflora*, a native of Surinam, are from seven inches to a foot long, and its beautiful white flowers from five to six inches in diameter. Nearly allied to this,

but smaller in all its parts, is *C. insignis*, a Brazilian plant, whose flowers 'weep a considerable quantity of resin from the disc and stamens, so much so indeed, that Von Martius says he obtained an ounce from two flowers; this resin rubbed down with the butter of the chocolate-nut, the Brazilian women employ to alleviate the pain of a sore breast.' Other large flowered species, such as *C. alba*, *C. rosea*, and *C. flava* in the West Indies, yield an abundant tenacious resin from their stems, which is largely used for the same purposes as pitch; it is at first of a green colour, but when exposed to the air assumes a brown or reddish tint. The Caribs use it for painting the bottoms of their boats.

Among the smaller-flowered species the most interesting is the *C. Galactodendron*, a native of Venezuela. This plant, according to M. Desvieux, is one of the Palo de Vaca or Cow-trees of South America. Its leaves are about three inches long, oboval in form, and narrowed towards the base. The bark is thick, covered with rough tubercles, and its internal tissue becomes red when exposed to the air. In extracting the milk from this tree the inhabitants make incisions through the bark till they reach the wood, these incisions are said to be made only before the moon is full, as they imagine the milk flows more freely then than at any other time. One tree is said to yield a quart in an hour. When the inhabitants find themselves at a distance from their homes, they make use of the milk for themselves and their children; its use is accompanied by a sensation of astringence in the lips and palate, which is said to be characteristic of all edible vegetable milks.

C. Duca yields a resin known in Columbia by the name of Duca, and burnt for the sake of its pleasant odour. Upwards of thirty species are enumerated. [A. A. B.]

CLU-VACEÆ The Gamboge family, a natural order belonging to the Thalamifloral Dicotyledons, usually called *Guttifera*; which see. [J. H. B.]

CLUSTERED. Collected in parcels, each of which has a roundish figure; as the flowers of *Cuscuta*.

CLUYTIA. A genus of *Euphorbiaceæ* composed of numerous dioecious bushes, confined to Africa and found in the greatest number at the Cape. The double disc of the male flowers readily serves to distinguish the genus from its allies. The alternate stalked leaves are destitute of stipules and vary in form from oval to linear; in some they are evergreen, but in others they fade in the autumn, whilst a few are charged, as well as the young branches, with glandular dots. The small, generally green flowers are in cymes in the axils of the leaves, numerous in the males, and few or single in the females. In the former they are made up of a five-leaved calyx, five petals, and five stamens supported on a central column and arranged like the branches of a chandelier; the base of the

column is surrounded by two rows of glands, five of them large and two or three-lobed, and five smaller, each of them entire or two-lobed. In the female flower the calyx and corolla is the same as in the male, but the disc is made up of five blind glands only, and the three-lobed ovary is crowned by a three-branched style, each branch blind at the point and bent back on the ovary. The fruit is a three-celled capsule with three seeds. The only reported useful species is *C. lanceolata*, a native of Abyssinia, where it is said to be used for stopping dysentery in cattle. [A. A. B.]

CLYPEA. A name which has been given to certain *Menispermaceæ*, now referred to *Stephania*. [M. T. M.]

CLYPEATE. Having the form of an ancient buckler; the same as *Scutate*.

CLYPEOLA. A genus of small annual herbs, belonging to *Crucifera*, natives of Southern Europe and temperate Asia. They have the habit of the annual species of *Alyssum*, but differ in having an indehiscent orbicular, flattened and margined pouch containing a single seed. [J. T. S.]

CNEMIDIA. If to the flowers of a large *Phyturus* are added the foliage and habit of some herbaceous-leaved *Cypripedium*, the reader will form some idea of this singular genus of *Urchida*. The few species known are all Indian. *C. angulosa* has also been called *Govindovia nervosa*, and *Dacinea angulosa*.

CNEMIDOSTACHYS. A genus of *Euphorbiaceæ*, known also as *Microstachys*, and composed of herbs seldom more than two feet high, with twiggy branches, and alternate, linear, entire or serrate leaves. The inconspicuous flowers are male and female on the same plant; the males in slender spikes, have a three-parted calyx and three free stamens; the females, single in the axils of the leaves, have a calyx like the males, and a three-lobed ovary, crowned with a three-parted style. The capsule, about the size of a pea when ripe, is either smooth or covered with rough points, and is three-celled, each cell with a single seed. The greater portion of the species are Brazilian. One (*C. Chamelæa*) is common to India and Africa, and another, which has been called *Elachocroton aspericoccum*, is found in Tropical Australia. [A. A. B.]

CNEORUM. A genus of uncertain position, but closely allied to the *Rutaceæ*. It consists of small shrubs inhabiting the Mediterranean region, the Canary Isles, etc. They have narrow, entire leaves; yellow flowers with three or four sessile equal petals, larger than the sepals, inserted beneath the disc; three or four stamens attached to the stalk bearing the three or four-lobed ovary, which has two ovules in each of its three or four compartments. The fruit when ripe consists of three or four segments, which separate one from the other, and are fleshy externally, bony internally, and divided into two cavities

by a spurious transverse partition. The species will grow in the south of England in sheltered situations. [M. T. M.]

CNEORUM. (Fr.) *Daphne Cneorum*.

CNESTIDIUM. Dr. Planchon has described under this name a Central American tree of the order *Connaraceæ*. It has compound leaves covered with thick red down; clustered flowers, which have a calyx consisting of five parts, adhering together for a time, but at length breaking irregularly into two or three divisions; ten stamens, five of which are shorter than the rest, and confluent in a ring at their base; and five ovaries with as many thread-shaped styles. The fruit consists of a single follicle from the suppression of the remaining four, covered with red down, and containing a single seed. [M. T. M.]

CNESTIS. A name derived from the Greek word signifying to scratch, in allusion to the hairs on the fruit, which irritate the skin. It is applied to a genus of *Connaraceæ* consisting of shrubs frequently of climbing habit, with alternate compound thick leaves, and clusters of five-parted flowers; which bear ten stamens, five shorter than the remainder, and five sessile ovaries, with two ascending ovules. The fruit consists of five or fewer follicles, covered with stinging hairs, and containing but one seed. Two or three species are in cultivation, natives of Guinea, the Mauritius, etc. [M. T. M.]

CNICUS. A thistle-like genus of *Compositæ*, known by the following characters:—Bracts of the involucre leathery, extended into a long hard pinnated spine; fruits furrowed, marked with a broad scar on one side; pappus in three rows, the outer horny, short, the next composed of ten long bristles, the third of ten short bristles. The English plume thistles, formerly included in a genus of the same name, but differing from the above, are now referred to *Carduus*. Of the true genus *Cnicus* the most remarkable is *C. benedictus*, a native of the Levant and Persia, but now widely distributed. The plant was formerly esteemed as a tonic, diaphoretic, etc., but is now little used. [M. T. M.]

CNIDOSCOLUS. A genus of *Euphorbiaceæ*, composed of a few shrubs or herbaceous plants, all of them confined to tropical America. On the one hand they are nearly related to *Jatropha*, on the other to *Mauhiot*, but differ from the former in having no petals, and from the latter in the filaments of their stamens being united into a central column, not free. Their stems are often fleshy and gouty, and are furnished with stalked leaves, which in most cases are armed with straight hairs, which sting most virulently; the blades are sometimes entire, but mostly palmately-lobed. The small white flowers are arranged in terminal or axillary cymes, the females few and occupying the central portion of the cyme; the males more numerous and occupying

the lateral parts. In both males and females the calyx is tubular with a five-lobed limb, and encloses in the former ten stamens united into a column and arranged in two tiers; and in the latter a three-lobed ovary crowned with three stigmas torn at the apex. The three-celled capsular-fruit is about the size of a large pea, and covered with sharp hairs, each cell containing but one seed.

C. stimulans is a plant of the Southern American states, and has palmately-lobed leaves from four to eight inches long. The lacerated segments are covered with spreading hairs, which sting fearfully the bare feet of the negroes when they tread on them; it is sometimes called on this account 'Tread Softly.' Its tuberous roots are said to be eatable like those of the cassava or manihot. *C. quinquelobus* has been in cultivation, but it stings so terribly that few people care to keep it. The effects of the sting are various on different constitutions. Some on being stung fall down and are quite unconscious for a length of time; but others are not so affected. In both cases an excruciating pain is felt, which lasts for some days, and the parts swell and sometimes continue swollen, accompanied with an itching sensation for months. [A. A. B.]

COACERVATE. The same as Clustured.

COADNATE, COADUNATE. The same as Connate.

COALITIO. The growing of one thing to another; as that of petals, which produces a monopetalous corolla, &c.

COARCTATE. Contracted; drawn close together.

COARCTURE. The neck of a plant. See Collum.

COBÆA. This small genus of Phlox-worts consists of climbing tendrilled plants, with pinnate foliage, and large bell-shaped flowers produced singly from the leaf axils. Although at first sight they appear to have little in common with the other plants of this order, and really differ essentially in habit, they yet agree with them in their most important structural features. The genus is distinguished by its large leafy permanent five-parted calyx; declinate stamens and style; three-celled ovary surrounded at its base by a fleshy annular disc; and large flat winged seeds, imbricated in a double row. *C. scandens*, the most interesting species, is a well-known summer climber of very rapid growth. Its leaves are composed of three pairs of elliptic leaflets, the midrib being terminated by a branched tendril; it has large bell-shaped flowers, which are at first green, but ultimately assume a deep violet hue. *C. macrostema* has smaller yellowish-green flowers, with stamens twice as long as the corolla, and the segments of the calyx lanceolate. [W. T.]

COB-NUT. A variety of the Hazel, *Cory-*

lus Avellana. —, JAMAICA. The seeds of *Omphalea triandra*.

COBURGIA. A genus of ornamental *Amaryllidaceæ*, having tunicated bulbs, lorately linear glaucous leaves, and a two-edged scape supporting a terminal umbel of few showy flowers. The perianth is funnel-shaped, with an elongated angular incurved tube, swollen towards the top, a regular six-parted imbricated somewhat spreading limb, and a short campanulate cup, bearing on its margin the six stamens and six intermediate bidentate lobes; the ovary is three-celled with numerous ovules. There are eight or ten species known, and these are natives of Peru. The type of the genus, *C. incarnata*, is a very handsome plant, with bulbs like those of the Jacobean lily, five or six oblong linear bluish, slightly glaucous leaves, and a scape two and a half feet high, supporting a four-flowered umbel of pendent flowers, about five inches in length, of a brilliant salmon-orange colour, the tube of which is bluntly three-cornered, very slender at the base, widened upwards and dividing into a moderately-spreading limb of six ovate-elliptic segments an inch long, lighter in colour and more pinky than the tube, and with a green central stripe. The crown is short and erect, with six green bifid lobes between the stamens, which about equal the limb in length and are shorter than the style. *C. trichroma*, a species with a five-flowered umbel and flowers three inches long, the tube light red, the limb white within, green without, and with green-tipped teeth to the cup, is said to be cultivated in pots with great care in Mexico, where it flowers at various seasons. *C. variegata* has four-flowered umbels, the tube of the flowers yellow and red, and the limb yellow outside, white within, margined with rose, and tipped with green. *C. lutea*, formerly named *Clinanthus*, and subsequently *Clitanthus*, has a two-flowered scape, the flowers yellow and about two inches long. The genus was named in honour of the Prince of Saxe Coburg, now king of the Belgians, who, when resident at Claremont, was a great patron of horticultural and botanical science. The name has also been applied to another group of amaryllide, now merged in *Hippeastrum*. It is written *Coburgia* by Dr. Herbert. [T. M.]

COBWEBBED. Covered with loose, white, entangled, thin hairs, resembling the web of a spider.

COCA. *Erythroxylon Coca*, the leaves of which are used as stimulants by the Peruvian Indians.

COCALLERA. A Brazilian name for a decoction of *Ocotea perdicipes*.

COCARDEAU. (Fr.) *Mathiola fenestralis*.

COCCIDIA. A name applied to that form of the conceptacles in the rose-spored *Alga*, which consists of globular tubercles

with a cellular wall continued from the substance of the frond, whether partly confluent with it or free, and not opening in general by a terminal pore. Examples are afforded by *Rhodomenia* and *Gracilaria*. The elongated processes in such algae as *Gigartina mamillata* are simply called tubercles. In this species, at least, there is a pore for the exit of the spores. [M. J. B.]

COCBIGROLE. (Fr.) *Fritillaria Meleagris*.

COCCEINEUS. Pure carmine colour, slightly tinged with yell.

COCCEINIA. A climbing shrub of the Gourd family, common in the hedges of India, where it grows like our bryony. *C. indica*, the only species, has large white dioecious flowers, with five stamens united together by their filaments into a column bearing three parcels of wavy anthers. The female flower has three sterile stamens, united in three parcels; and the style is short and trifid. The fruit is oblong, marked with ten white lines; when ripe it is of a red colour, bursting irregularly, and having several seeds provided with a gelatinous covering. The ripe fruit is used by the natives in their curries; the leaves and other portions are also used medicinally. [M. T. M.]

COCOCORYON. A South African climbing shrub of the Pepper family has been made the type of a genus with the above name. The flowers are perfect, in densely crowded stalked spikes placed opposite to the leaves, and each flower protected by stalked peltate roundish bracts; there are two stamens, and sometimes a third; and the ovary is sessile, the style short. The fruit is a berry, crowned by the persistent style. *C. capense* possesses stomachic properties. [M. T. M.]

COCOCYPSELUM. A genus of *Cinchonaceae* with a four-parted calyx; a funnel-shaped inflated corolla; a funnel-shaped, many-seeded berry; and a style partly divided into two. The name refers to the vase-like form of the fruit. *C. repens*, a West Indian creeping plant, is in cultivation, and is interesting from its blue-purple berries. [M. T. M.]

COCODES. Resembling pills; consisting of spheroidal granulations.

COCOLOBIA. A genus of Polygonaceous plants, one of which, *C. uvifera*, is known in the West Indies as the Seaside Grape, from the peculiarity of the perianth, which becomes pulpy, and of a violet colour, and surrounds the ripe fruit. By this character also the genus is distinguished among its fellows. The pulpy perianth has an agreeable acid flavour. An extract is prepared from the plant, which is so astringent as to rival kino in its effects. [M. T. M.]

COCULUS. This name is liable to mislead the general reader, who might suppose it to apply to the plant producing the poisonous berries called *Cocculus indicus*.

These, however, are the produce of an allied genus *Anamirta*: which see. *Cocculus* belongs to the same family, *Menispermaceae*, and consists of climbing shrubs, with unisexual flowers having six sepals, six petals, and six stamens; the female flowers have three ovaries placed on a short stalk, the styles erect, cylindrical. The fruit is a drupe with a bony shell, containing a curved seed. *C. laurifolia* forms an exception to the general rule in this genus, inasmuch as its stems are erect, not climbing. The plant producing Calumba root was formerly referred to this genus, but is now included in *Jateorhiza*. The root of *C. villosus*, an Indian species, is used in decoction in cases of rheumatism, &c., while the fruits furnish a kind of ink. See also *Tinospora*. [M. T. M.]

COCCLUS. A shell; a carpel, which separates with elasticity from an axis common to itself and others.

COCE DOLCE. The Italian name for the seeds of Sweet Fennel, *Feniculum dulce*.

COCHÈNE. (Fr.) *Pyrrus Aucuparia*.

COCHINEAL-FIG. *Opuntia cochiniifera*.

COCHLEAR. A term used in describing aestivation; when one piece, being larger than the others, and hollowed like a helmet or bowl, covers all the others; as in *Aconitum*.

COCHLEARIA. A genus of *Cruciferae*, represented in this country by the dissimilar-looking Horse-radish and the Scurvy-grass, in the essential parts of whose flowers, however, the correspondence is close. The points of distinction between this genus and its allies are the entire white petals, the stamens not being toothed, and especially the roundish pod or silicle, the valves of which are very convex, the partition between them very broad. The embryo is so folded up that the young root or radicle lies along the edge of the two flat cotyledons or seed leaves.

C. Armoracia is the common Horse-radish whose large coarsely-toothed rough leaves, and tall stem bearing a profusion of white flowers, are well known. The lowest leaves are frequently deeply and irregularly divided like the teeth of a comb, the upper ones become smaller and narrower. The root-stock is the part used for culinary purposes for its pungent taste. Dreadful accidents have occurred from mistaking the root of acornite for Horse-radish, as mentioned under *Aconitum*. The plant very rarely perfects its fruit in this country. *C. officinalis*, the Scurvy-grass, is a small low growing plant, with thick egg-shaped cordate leaves, the upper of which clasp the stem; unlike the preceding species, the pods have a very prominent rib in the centre of each valve. This plant was formerly used as an antiscorbutic, and is still used in salads, as watercress is. It is common in some parts of Scotland. *C. danica* and *C. anglica* are probably only varieties of this species. [M. T. M.]

COCHLEARIFORM. Spoon-shaped.

COCHLEATE. Twisted in a short spiral, so as to resemble the convolutions of a snail-shell; as the pod of *Medicago cochleata*, or the seed of *Salicornia*.

COCHLIA violacea. A small orchid-accous epiphyte from Java, with fleshy leaves, and small purple flowers growing in heads.

COCHLIDIOSPERMATE. Seeds which are convex on one side, and concave on the other, owing to unequal growth, or anomalous structure, as in *Veronica*.

COCHLIDIUM. A synonym of *Mono-gramma*, a genus of curious small tropical ferns. [T.M.]

COCHLIODA densiflora. A handsome Peruvian epiphytal orchid, with thin pseudobulbs and parchment-like leaves. The flowers appear in dense spikes, and have the lip adnate to the column as in *Epidendrum*; but the pollen apparatus is that of the *Vandee*. A second unpublished species of the genus has been sent from the Quitinian Alps by Dr. Jameson.

COCHLOSPERMUM. A genus of small trees or shrubs, natives of Tropical India, Africa, and America, as well as in North Australia. They are sometimes placed among the *Cutaceae*, or among the *Fernatromiaceae*, but Bentham and Hooker include them in *Flacous tucosae* (*Bizineae*). They are easily recognised by their palmately-lobed leaves, which are alternate, furnished with long stalks, and bear much resemblance to those of some of the maples. The large yellow flowers are in terminal panicles, and generally open and wither before the leaves make their appearance. They are composed of a five-divided calyx, five large nearly round petals, and very numerous stamens surrounding a one-celled ovary crowned by a single unbranched style. The capsular fruit when ripe is in size and form like a pear, and opens with three or five valves. The seeds are small, very numerous, and covered with a cottony down.

C. Gossypium is a shrub or small tree found in the peninsula of India. Its five-lobed leaves are smooth above and downy underneath, and, including the stalk, more than a foot long. The numerous yellow flowers in terminal panicles are about four inches across. From the stem of this plant a gum called Kuteera is obtained, and it is used as a substitute for gum tragacanth because of its viscosity. The cottony substance which adheres to the seeds is sometimes used for stuffing pillows and cushions. Much like this is *C. insigne*, a native of Brazil, but its leaves are smaller and have serrate lobes. The Brazilians make use of a decoction of the roots of this plant against internal pains, and principally against those which are the result of falls and other accidents; they also affirm that this decoction cures abscesses which have already formed.

C. Planchoni, a native of Western Africa,

is a shrub about five feet high, with alternate three or five-lobed leaves which are pubescent underneath. According to Mr. Barter, who gathered the plant, 'each shoot rises from a stool, is unbranched, and bears on the apex a cluster of yellow flowers three to four inches across. The roots are large and succulent, and yield the only yellow dye with which the people are acquainted. It is a common plant on the river Quorra.' Another species, *C. timotorium*, a native of Senegambia, is said to have a thick tuberous root-stock, which furnishes a yellow dye, known to the natives as Fayar, and used for dying cotton stuffs, as well as in medicine in cases of amenorrhœa. The flowers of this only are known, and very likely it is not different from the last-mentioned species. The woolly covering of the seeds gives rise to the name of the genus. [A. A. B.]

COCKLE-BURR. An American name for *Xanthium*.

COCKSCOMB. *Celosia cristata*.

COCK'S-HEAD. *Onobrychis Caput-galli*.

COCK'S-SPUR THORN. *Cratægus Crus-galli*.

COCOA or CACAO. The seeds of *Theobroma Cacao*.

COCOA-NUT. The nut of *Cocos nucifera*. —, **DOUBLE** or **SEA.** The nut of *Lodoicea sechellarum*.

COCOA-PLUM. The fruit of *Chrysobalanus Icaco*.

COCOA-ROOT or **COCO.** The root of *Colocasia antiquorum*, used as an esculent in tropical countries.

COCO, LE PETIT. *Theophrasta Jussia*.

COCOS. The well-known Cocoa-nut tree is the type of this genus of palms, to which, in addition, about a dozen other species belong. They mostly form tall graceful trees, and the majority of them are natives of the tropical regions of America, one only, the common Cocoa-nut, being found in Asia or Africa. Their leaves are very large and pinnate. Their flowers are of separate sexes produced on the same spike, both having a calyx consisting of three sepals, and a corolla of three petals, the males containing six stamens united at the base, and the females an egg-shaped ovary, with a short style and three stigmas, and sometimes six barren stamens. The fruit is either elliptical, or egg-shaped and three-sided, and contains a single seed enclosed in a hard bony shell, which has three round holes at its base, and is surrounded by a dry fibrous husk.

The Cocoa-nut Palm, *C. nucifera*, is now so extensively cultivated throughout the tropics, that it is impossible to ascertain its native country; there can be no doubt, however, that it is indigenous to some part of Asia, probably Southern India. It exists in vast quantities on the Malabar and Coromandel coasts, and adjacent islands,

growing in the greatest luxuriance upon sandy or rocky sea-shores, and evidently preferring the vicinity of the sea, although it sometimes occurs a considerable distance inland. It is also common in Africa, America, and the West Indies. Its extensive geographical distribution is accounted for by the fact of the tree growing in such close proximity to the sea, that the ripe fruits, falling on the beach, are washed away by the waves, and afterwards cast upon some far-distant shores, where they readily vegetate. It is in this way that the coral islands of the Indian Ocean have become covered with these palms. It is also worthy of remark, that the triangular form of the fruit facilitates its progress through the waves.

The Cocoa-nut Palm has a cylindrical trunk, sometimes as much as two feet in diameter, and rising to the height of sixty or one hundred feet, its outside being marked with scars, indicating the places from which leaves have fallen away. It is surmounted by a crown of gracefully curved feathery or pinnate leaves, each of which is from eighteen to twenty feet in length, and composed of a strong tough central footstalk, with numerous narrow long and sharp-pointed leaflets arranged along both sides of it, giving the entire leaf the appearance of a gigantic feather; the base of the stalk spreads out so as to clasp the stem, and is surrounded by a kind of fibrous network of a light-brown colour. The flowers are arranged on branching spikes five or six feet long, and enclosed in a strong tough pointed sheath (spathe), which splits open on the under side, displaying the delicately white but inconspicuous flowers. They are succeeded by branches containing from twelve to twenty fruits, each of which is about a foot long by six or eight inches wide, of a three-sided form, and covered by a thick fibrous rind or husk, enclosing a single seed contained in a hard shell, which is what is commonly called the Cocoa-nut in this country.

The uses of this palm are so numerous that space will only allow us to give a brief outline of them. In this country we know comparatively little of its value. It is true that we are indebted to it for several very useful articles, such as cocoa-nut fibre, cocoa-nut oil, and the cocoa-nuts themselves; but they are all articles that we might contrive to do without. In tropical countries, however, such as Southern India and the adjacent islands, the case is very different; there the Cocoa-nut Palm furnishes the chief necessities of life, and its culture and the preparation of its various products afford employment to a large part of the population. Every part of the tree is put to some useful purpose. The outside rind or husk of the fruit yields the fibre from which the well-known cocoa-nut matting is manufactured. In order to obtain it the husks are soaked in salt water for six or twelve months, when the fibre is easily separated by beating, and is made up into a coarse kind of yarn called *covr*. In 1858 we imported 81,138 cwts. of this fibre.

Besides its use for matting, it is extensively employed in the manufacture of cordage, being greatly valued for ships' cables, and although these cables are rough to handle and not so neat-looking as those made of hemp, their greater elasticity renders them superior for some purposes. Other articles of minor importance are now made of this fibre, such as clothes- and other brushes, brooms, hats, &c.; and when curled and dyed it is used for stuffing cushions, mattresses, &c., as a substitute for horse-hair.

The next important product of the fruit is the oil procured by boiling and pressing the white kernel of the nut (albumen). It is liquid at the ordinary temperature in tropical countries, and while fresh is used in cookery; but in this country it is semi-solid, and has generally a somewhat rancid smell and taste. By pressure it is separated into two parts—one, called stearine, is solid, and is used in the manufacture of stearine candles; the other, being liquid, is burned in lamps. As an article of food the kernel is of great importance to the inhabitants of the tropics. In the Laccadives it forms the chief food, each person consuming four nuts per day, and the fluid, commonly called milk, which it contains, affords them an agreeable beverage. While young they yield a delicious substance resembling blanc-mange. The hard shells of the nut are made into spoons, drinking cups, lamps, &c.; reduced to charcoal and pulverised they afford an excellent tooth-powder, and very good lamp-black is made from them.

Amongst other products of this palm may be mentioned 'toddy,' which is obtained by the same process as that described under *Borassus flabelliformis*. When fermented it is intoxicating, and strong arrack is distilled from it, besides which it yields vinegar and 'jaggery' or sugar.

The leaves are greatly used for thatching houses, for plating into mats, baskets, hats, and similar articles; and from strips of the hard footstalk very neat combs for the hair are made. The unexpanded leaves cut out of the heart of the tree are used in the same way that we use cabbages. The brown fibrous network from the base of the leaves is substituted for sieves, and also made into fishermen's garments. And the extremely hard wood obtained from the outer portion of the trunk is used in the construction of both houses and their furniture. In this country, under the name of Porcupine wood, it is made into work-boxes, and other fancy articles. Finally, we may mention that the natives attribute various medicinal qualities to this palm. The flowers they employ as an astringent, the roots as a febrifuge, the milk in opthalmia, &c.

Few of the other species of this genus present particular features of interest. *O. butyracea*, a native of New Grenada, yields toddy, but the manner of extracting it is very different to the process employed in Eastern countries. The tree is cut down, and a long cavity excavated in its trunk near the top; in three days' time this cavity

is found to be full of toddy, which, it must be borne in mind, is the sap of the tree. Its seeds yield a semi-solid oil. *C. coronata*, a small Brazilian species not more than thirty feet high, has a pithy substance in the interior of its stem, which is used as food; its seeds also yield oil. The Cocoa-nut Palm is represented in Plate 7, fig. 4. [A. S.]

COCOTIER. (Fr.) *Cocos nucifera*.

COCRISTE. (Fr.) *Rhinanthus major*.

CODACANTHUS. A small genus of Indian herbaceous plants, belonging to *Acanthaceæ*, and having the habit of *Campanula rapunculoides*. The drooping blue flowers are in compound one-sided racemes at the ends of the stem or branches; they are furnished with small bracts and bracteoles. The calyx is equally five-parted; the corolla has a short campanulate tube, and a five-cleft limb; there are only two included stamens owing to the non-development of the other pair; the style is free. The racemose inflorescence of this genus obviously separates it from the allied genera *Phlebophyllum* and *Endopogon*, which have their flowers in spikes. [W. C.]

CODAZZIA. A name given by Karsten and Triana to *Delostoma integrifolium*.

CODDA-PANNA. *Bentinkia Codda payna*.

CODESO DEL PICO. A name applied in Tenerife to *Adenocarpus frankenwides*.

CODIA. A synonyme of *Pisonia*.

CODIÆUM. A genus of the spurgewort family found in the Moluccas, and the islands to the north of Australia. It is composed of shrubs which have much the appearance of *Aucuba*. They differ from *Croton*, to which they are most nearly allied, in having very numerous stamens in the male flowers, and in the females being destitute of petals. Their beautiful painted leaves, which are shortly stalked and collected principally at the apex of the branches, vary much in form in the same species, being either linear or broadly oval, generally about six inches long, and quite smooth with entire margins. The green inconspicuous flowers are male and female on different racemes on the same plant: the males with a calyx of five divisions, five small petals, and very numerous stamens, and the females with a similar but smaller calyx, no petals, and a three-lobed ovary crowned with a trifid style. The fruit is a three-celled capsule about the size of a pea; each cell with a single seed.

C. pictum is a shrub often met with in stoves, where it is cultivated for the sake of its beautiful leaves, which are of a deep-red colour, or sometimes yellow mottled and variegated with green. In the Moluccas, its native country, it is cultivated about the houses, and used for fences. The inhabitants also decorate their triumphal arches with its leaves, and strew them about on occasions of festivity. The bark and root excite a burning sensation

in the mouth when chewed. This is the plant so often found in gardens under the names of *Croton variegatum* and *Croton pictum*. The two other known species are plants of very similar appearance. [A.A.B.]

CODIUM. The most highly organised of the siphonaceous division of green-spored *Algae* which occurs upon our coasts. The species resemble sponges. The frond is composed of branching filaments without any partitions, having on their lateral branchlets little cysts containing numberless minute zoospores. *C. tomentosum* has a more or less cylindrical or compressed forked green frond, and is found from the equator almost to the polar basin, but is scarcely found on the eastern coasts of North America, though common on the north. It extends also southward to Cape Horn, Australia, &c., without any essential change. [M. J. B.]

CODLIN. A variety of the Apple, *Pyrus Malus*.

CODLINS AND CREAM. *Epilobium hirsutum*.

CODON. A genus containing a single species from the Cape of Good Hope. It is an annual herb, covered over with white spines, and having alternate petiolate leaves and large flowers in terminal racemes. The calyx is ten to twelve-parted; the corolla is campanulate with as many lobes as the calyx, and like the sepals long and short alternately; there are ten to twelve stamens inserted at the base of the corolla tube; the ovary is sub-two-celled, free, and ovoid-acute with two parietal placentas, to which are attached numerous ovules. The capsule is surrounded by the persistent calyx, and surmounted by the style, and contains numerous angular tuberculated seeds; it deliquesces loculicidally.

This genus has a very uncertain position. It has been most generally referred to *Solanaceæ* or to *Hydrophyllaceæ*, though by some to *Scrophulariaceæ* and even to *Boraginaceæ*. Its one-celled multiovalar ovary, and parietal placentas separate it from *Boraginaceæ*. Its ten to twelve-lobed regular corolla, ten to twelve equal stamens, and one-celled ovary separate it from *Scrophulariaceæ*. Its habit and structure approach nearer to *Solanaceæ*, but it can scarcely be united to this order on account of its one-celled ovary and loculicidal dehiscence. In most characters, and in its whole habit, it is more nearly related to *Hydrophyllaceæ*, though differing remarkably from any other genus of the order. [W. C.]

CODONANTHEMUM. A genus of *Eriacaceæ*, consisting of several species of heath-like plants, with ternate whorled or scattered leaves, and the flowers crowded together at the end of very short branches. It has a four-toothed calyx, and a hypogynous persistent corolla, both campanulate: the four stamens are inserted below the hypogynous disc, and have lateral exerted anthers: the ovary is one-celled with a single pendulous ovule, and the stig-

ma is obtuse. This genus scarcely differs from *Syndesmanthus*, except in having lateral and not terminal anthers. [W. C.]

CODONANTHUS. The name formerly

vestea africana. It is a branching tree of middling stature, with alternate oblong leaves narrowed at both ends, having entire margins and about six inches in length. Three or four white flowers grow in the axils of the leaves; the two exterior calyx leaves are large and heart-shaped, the others small and narrow; the corolla, which is bell-shaped, with a slightly recurved five-toothed margin, encloses five stamens, and an ovary surmounted by a bifid style, each of whose branches is furnished with a shield-shaped stigma. [A. A. B.]

CODONOCALYX. Small Brazilian hairy plants with dioecious flowers, constituting a genus of *Euphorbiaceæ*. The male flowers have a calyx with five deep divisions, a corolla of five overlapping segments, a disc of five free glands alternating with the petals, and ten stamens longer than the rest. [M. T. M.]

CODONOCARPUS. A genus of *Grossenoneæ* containing small shrubs from South Western Australia, with branched stems, alternate linear subulate leaves, and solitary axillary stalked flowers, which are dioecious, with a six or seven-lobed calyx and no petals. The male flowers have numerous sessile anthers; and the female flowers numerous carpels combined around a central column into a many-celled ovary; styles short recurved. The fruit is obovate, depressed, separating into numerous one-seeded cocci. [J. T. S.]

CODONOPSIS. A genus of *Campanulaceæ*, natives of the mountains of Northern India. They are glabrous herbs, often twining, with stalked crenate leaves whitish below, and axillary or terminal stalked flowers, which are yellow, bluish, or purple. Calyx-tub five-lobed; corolla slightly fleshy, bell-shaped, five-lobed at the apex; stamens five; style with three stigmas; capsule hemi-spherical, three-celled, three-valved at the apex. [J. T. S.]

CODONORCHIS, literally Bell-orchis, in allusion to its campanulate flowers, is a small terrestrial genus, occurring in the southernmost parts of South America. The best known form, *C. Loxson*, a simple-stemmed plant with two three or four verticillate leaves near the base of a

supposed second form, called *C. Papp* is regarded by Hooker, fl., as a mere variety.

CODONOSTIGMA A genus of *Ericaceæ*, containing a single species from South Africa, a heath-like shrub with ternate

verticillate leaves, and flowers in terminal buds. It has a four-toothed campanulate calyx; a persistent globular cup-shaped corolla; four exserted stamens, attached below the hypogynous disc, with hairy

Its one-celled ovary allies it to the genus *Omphalocaryon*, but it has the calyx of *Colostigma*. [W. C.]

CELANTHIUM. A genus of *Caryophyllaceæ*, of the tribe *Mollugineæ*, consisting of glabrous annuals from the Cape of Good Hope, with obovate stalked radical leaves in rosettes, while those of the stem are thread-like and verticillate, with fringed stipules. The stems are forked at the top; the flowers racemose with a funnel-shaped five-cleft calyx, having petaloid lobes; petals none; stamens five; stigmas three; capsule three-valved. [J. T. S.]

CELEBOGYNE. A genus of *Euphorbiaceæ*, found in the eastern tropical portion of New Holland, and represented by *C. ilicifolia*, a bush which in everything but its flowers is very like the common holly, or still more like the Japanese *Osmanthus*. The inconspicuous green flowers are male and female on different plants. The males, in the axils of the leaves, are arranged in short-bracted spikes, each bract toothed and supporting a number of



Celebogyne ilicifolia.

flowers, which have a calyx of four divisions enclosing from four to eight stamens. In the female plant the flowers are arranged in a stular manner, or in little

with a three-lobed stigma, whose branches are large and lie flat on its summit. The fruit is a three-lobed capsule, about the size of a pea, with three cells, each of which contains a seed. The genus is nearly allied to *Conocircoba*, and differs only in the number of the calyx divisions.

This plant has excited much interest because it is said to ripen its seeds without the aid of pollen. Female plants (and females only) were sent to Kew by Allan Cunningham in 1839, where they flowered and perfected their seeds apparently without the aid of pollen. The circumstance was noticed by Mr. Smith, who made it the subject of a communication to the Linnean Society. This led to careful examinations by Klotzsch, Radlkofer, and A. Braun, besides other continental botanists. The former of these demonstrated from the formation of the seed that it contained no embryo but a bud; while the other two came to the opposite conclusion; and A. Braun made 'a most important observation, still unexplained by him, namely, that he found a pollen grain on the stigma of *Coleogyne*.' Naudin and Decaisne, in France, made experiments on *Hemp*, *Mercurials*, and *Bryony*, as well as some other plants, and came to the conclusion that female plants of any of these, when sufficiently guarded against the accidental influence of pollen from the male flowers, produce perfectly ripe seeds. More lately, Regel in Russia has made extensive experiments on these plants, and affirms that no plant with evident sexual organs can produce perfect seeds without the aid of pollen. This is the opinion held by most botanists. [A. A. B.]

CELESTINA. A genus of erect annual Mexican plants of the composite family, seldom more than two feet in height. Their leaves are opposite, shortly-stalked, and generally heart-shaped in form with notched margins, and often clad with short rough hairs. The blue flower-heads are about the size of a pea, and disposed in terminal corymbs. The florets are all tubular and perfect, and their pappus is cup-shaped and slightly toothed. In this latter character only does the genus differ from *Ageratum*, which has a pappus of from five to ten awned scales. The species are plants of little beauty. [A. A. B.]

CELIA. A genus of terrestrial orchids with long grassy leaves, and dense spikes of rather small flowers supported by linear acuminate bracts. Three or four species are said to be known, but the genus has been little examined. *C. Baueriana*, with fragrant white flowers, from the West Indies, is that on which the genus was founded. It has a spurless lip, a three-winged ovary, and eight pollen masses without a gland.

CELOGLOSSUM. An obscure genus of Indian terrestrial orchids with the habit and general structure of *Platanthera* or *Peristylus*, but with a concave lip, and a pair of adnate processes arising from the orifice of the spur. All have small green flowers.

CELOGYNE. There occurs in the tropical and sub-tropical regions of Asia a race of pseudobulbous orchids, conspicuous for large coloured membranous flowers,

with converging and slightly-spreading sepals, petals of like nature but narrower, a great cucullate lip usually bearing fringes on its veins, and a broad membranous column. The pollen masses are four in number, waxy, and cohering by a granular substance; the stigma is prominent, deeply hollowed out (whence the name), and two-lipped. Most of the species are beautiful objects, and therefore favourites in cultivation. Some have tough persistent leaves and loose racemes of flowers; others have flowers peeping up from the soil in the absence of the leaves, in the same way as the crocuses of Europe; to the latter the name of *Pleione* has been given. Between forty and fifty species are known, the finest of which are *C. cristata*, with ivory-white flowers, whose velvety are fringed with yellow; *C. odoratissima*, unsurpassed for fragrance; and *C. præcox* (a *Pleione*), an Alpine plant, ornamenting with its large rich rose-coloured flowers the branches of oaks, at the elevation of 7,500 feet above the sea in lat. 30° N.

CELOSPERMITES. Hollow-seeded; when the seed, or seed-like fruit, is hemispherical, and excavated on the flat side, as in coriander.

CENANTHIUM. The receptacle of flowers in the inflorescence called a Capitulum; same as *Chnanthium*.

CENOBIO. The same as *Carcerulus*.

CENOCLADIA. A name applied to the natural grafting which is so common in the beech in our own country and in many tropical trees. Both branches and roots, when growing so close together that there is no room for their proper development, become intimately united, and form a sort of network. Amongst herbaceous plants, as in *Asparagus*, *Hieracium*, &c., union often takes place between two contiguous stems, which in this case are generally flatter than usual. Some cases of wide-flattened stems arise from this cause, but others apparently from the attack of insects. If two or more buds concur in the formation of such a stem, and they have different rates of growth, we have curled fasciated branches such as not uncommonly appear on the ash. Similar branches are produced in the elder by a species of *Acidium*. The roots of contiguous firs sometimes unite, so that when one of the trees is cut down, the stump still increases in diameter, in consequence of receiving nutriment from the tree with which it is united. [M. J. B.]

COENTRILHO. A Brazilian name for *Xanthoxylum hiemale*.

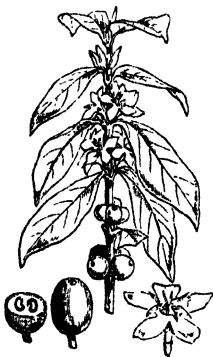
CERULEUS. Blue; a pale indigo colour.

CESIUS. Lavender colour.

COFFEA. A genus of *Rubiaceæ* or *Cinchonaceæ*, composed of between fifty and sixty species, one of which yields the well-known article coffee. All are shrubs or small trees, seldom more than

twenty feet high, and inhabit the tropics of both hemispheres, the greatest number, however, being found in the Western. Their flowers have a small egg-shaped globular or top-shaped calyx, divided at the summit into four or five short teeth, and a tubular corolla, shaped like a funnel, with four or five spreading divisions; the stamens agreeing in number with the divisions of the corolla, and being either fixed to the top of its tube and protruded beyond it, or about half-way down on its inside, and entirely included within it. The fruit is a small fleshy berry, sometimes crowned by the remains of the calyx, and contains two seeds enclosed in a thin parchment-like shell, each seed being convex on the outside, but flat and marked by a longitudinal furrow on the inside.

The most interesting species is the Coffee shrub, *C. arabica*. This, when allowed to grow freely, will attain a height of twenty feet, with a stem three or four inches thick, but in a cultivated state it is seldom permitted to grow higher than ten or twelve feet, in order to facilitate the gathering of the berries. Its leaves are smooth and shining, and of a dark green on the upper surface,



Coffea arabica.

but paler beneath, about six inches long by two and a half wide, and of an oblong somewhat oval shape, with wavy edges, and terminated by a long narrow point. The flowers are produced in dense clusters at the bases of the leaves, and, being of a snowy white colour, they give the shrub a beautiful appearance, but are of ephemeral duration; their corolla is cut into five divisions, bearing the stamens fixed round the top of the tube, and protruded beyond it. They are succeeded by numerous little red fleshy berries resembling small cherries, each of which contains two of the seeds commonly called coffee.

At the present day the Coffee shrub is

cultivated throughout the tropics, but its native country is the mountainous regions at the extreme south-west point of Abyssinia, the word Coffee being derived from that country. From Abyssinia the Coffee shrub was first introduced into Arabia by the Arabs, and cultivated in Yemen, or Arabia Felix as it was anciently called, and for upwards of two centuries Arabia supplied all the coffee then used. Towards the end of the seventeenth century, however, the Dutch succeeded in transporting it to Batavia, and from thence a plant was sent to the Botanic Garden at Amsterdam, where it was propagated, and in 1714 one was presented to Louis XIV. The credit of introducing the Coffee shrub into the Western Hemisphere is a disputed point. One story asserts that the French introduced it into Martinique in 1717; while, on the other hand, the Dutch are said to have previously taken it to Surinam. In either case, it is certain that we are indebted to the progeny of a single plant for all the coffee now imported from Brazil and the West Indies.

The early history of the use of coffee is enveloped in obscurity, and consequently there are many fables regarding its origin. According to the best accounts, the custom of drinking coffee originated with the Abyssinians, by whom the plant has been cultivated from time immemorial; and it was not introduced into Arabia until the early part of the fifteenth century, when a learned and pious Scheikh, named Ijmal-eddin-Ebn-Abou-Alfaggar, returning from Abyssinia, brought a quantity of coffee with him to Aden, where it soon superseded the beverage made from the leaves of the *kāt* (*Catha edulis*), and its use gradually spread over the rest of Arabia. It, however, met with great opposition from the priests, who classed it among the intoxicating beverages forbidden by the Koran, and therefore prohibited its use, but the most learned physicians having declared it to be harmless, the prohibition was removed. The European use of coffee dates from the middle of the sixteenth century, when it was introduced into Constantinople; and a century later, namely, in 1652, the first coffee-shop was established in London. Since then its use has become so general, that the consumption of this article in Europe and the United States is now estimated to be not far short of nine hundred million pounds, nearly half of which is the produce of Brazil. Ceylon, however, supplies the greatest portion of that consumed in this country. In 1858 the total quantity imported into the United Kingdom was 60,697,265 lbs., of which 35,208,932 lbs. was retained for home consumption, and the remainder re-exported. The import duty, being three pence per pound on raw, and four pence on roasted, yielded a revenue of 440,475*l*.

When ripe, the coffee berries are gathered, and the soft outer pulp removed by a machine called the pulper; they are then steeped in water for twenty-four hours to

remove all mucilaginous matter, after which they are carefully dried, and the parchment-like covering of the seeds removed by means of a mill and a winnowing machine. In Brazil, however, the berries as gathered are simply dried in the sun, and afterwards passed through a mill which crushes the shells and allows the separation of the seeds.

Before being used for the preparation of the well-known beverage, coffee undergoes the process of roasting. By this means it gains nearly one half in bulk, and loses about a fifth in weight; besides which its essential qualities are greatly changed, the heat causing the development of the volatile oil and peculiar acid to which the aroma and flavour are due. Coffee acts upon the brain as a stimulant, inciting it to increased activity, and producing sleeplessness; hence it is of great value as an antidote to narcotic poisons. It is also said to exert a soothing action upon the vascular system, preventing the too rapid waste in the tissues of the body, and by that means enabling it to support life upon a smaller quantity of food than would be otherwise required. These effects are due to the volatile oil, and also to the presence of a peculiar crystallisable nitrogenous principle termed *caffeine*; and it is not a little remarkable that closely allied, if not identical, principles exist in many similar beverages used by mankind, such for instance as tea, cocoa, Paraguay tea, and others. The leaves of the Coffee shrub likewise contain caffeine, and in the island of Sumatra the natives prefer an infusion of them to that of the berries. A patent has been taken out for the introduction of Coffee-tea into this country, but it has not been successful. A Javanese Coffee-plantation is shown in Plate 3.

[A. S.]

COFFEE. *Coffea arabica*, the roasted seeds of which form the Coffee of the shops. —, SWEDISH. The seeds of *Astragalus beticus*.

COFFEE-BEAN TREE. *Gymnocladus canadensis*.

COGWOOD. *Ceanothus Chloroxylon*. —, JAMAICA. *Hernandia sonora*.

COHESION. The union or superficial incorporation of one organ with another.

COHNIA. An obscure genus of orchids, related to *Oncidium*, whose terete-leaved species it resembles in habit. The only knowledge of it is derived from a solitary specimen from Guatemala in the Vienna Herbarium, and from Reichenbach's description and figure in his *Xenia Orchidacea*.

COHOSH. An American name for *Actea* and *Leontice*. —, BLUE. *Leontice thalictrifolia*.

COHUNE OIL. An oil obtained from the fruit of *Attalea Cohune*.

COIGNASSIER. (Fr.) *Oydonia vulgaris*.

COIGNASSIER DU JAPON. (Fr.) *Oydonia japonica*.

COILOSTIGMA. A genus of Cape Ericaceae, containing several heath-like shrubs, with ternate verticillate leaves, and flowers clustered at the end of the branches. The calyx has four divisions, generally equal, though sometimes with one larger than the others; the persistent corolla is small and ovate; the four stamens are inserted below the hypogynous disc, and have hairy anthers; the ovary has from two to four cells with a single ovule in each, and a cyathiform stigma. The members of this genus have the habit of *Simochilus*. They are separated from the allied genus *Codonanthemum* by the shape of the stigma, and from *Codonostigma* by the several-celled ovary. [W. C.]

COIR. Cocoa-nut fibre.

COIX. A genus of grasses belonging to the tribe *Phalarideae*. The flowers are monocious. The males grow in lax spikes; glumes two, membranaceous; pales two; stamens three. The females grow in two-flowered spikelets, the inferior flower being neuter with one pale, while the perfect flower has two fleshy pales, of which the superior is two-nerved. The best known species is *C. Lacryma*, commonly called Job's Tears, a native of the East Indies and Japan. This is frequently cultivated, but requires the shelter of a conservatory. The large round shining fruit have, when young, some resemblance to heavy drops of tears, hence the fanciful specific name. Its medicinal qualities are said to be strengthening and diuretic, and for these qualities it is sometimes used in the countries where it grows. [D. M.]

COLA. A genus of *Eurculiaceae*, containing eleven species. They are trees, with entire, lobed, or digitate leaves, and inhabit Tropical Africa. The flowers are unisexual or polygamous, in axillary clusters, and are destitute of a corolla. The calyx is coloured, and four- or five-cleft. The staminal column is often very short, bearing ten to twelve anthers, disposed in a single row, the anther-cells being parallel or superposed. The ovary is five to ten-celled, with numerous ovules. The fruit consists of four or five leathery or woody oblong capsules, ultimately splitting lengthwise. The seeds are large, numerous, obovoid, and exalbuminous, with thick sometimes two-parted cotyledons. [J. Br.]

C. acuminata grows about forty feet high, and bears pale yellow flowers spotted with purple; its leaves are about six or eight inches long, and pointed at both ends. Under the name of Cola, or Kola, or Goora nuts, the seeds of this tree are extensively used as a sort of condiment by the natives of western and central tropical Africa; and likewise by the negroes in the West Indies and Brazil, by whom the tree has been introduced into those countries. In Western Africa the trees grow mostly in the vicinity of the coast, and an exten-

sive trade is carried on in Cola nuts with the natives of the interior; the practice of eating Cola extending as far as Fezzan and Tripoli. A small piece of one of these seeds is chewed before each meal as a promoter of digestion; it is also supposed to improve the flavour of anything eaten after it, and even to render half-putrid water drinkable. There are several varieties of Cola nuts; the common kind has an astringent taste. [The Bitter Cola of Fernando Po is the produce of some guttiferous tree, as yet not identified.] Powdered Cola is applied to cuts. [A. S.]

COLAX. A small genus of epiphytall orchids, near *Maxillaria*, under which name some have been published. It is especially remarkable for the condition of its caudicle, which seems to have no distinct gland, but consists of a thin wavy membrane gradually narrowing to the point where a gland usually occurs. *Maxillaria viridis* and *placantha* are the best known species.

COLBERTIA. A genus of *Dilleniaceae*, the type of which is a tree from tropical Asia with oblong or obovate shortly stalked serrated leaves, and large yellow flowers on one-flowered peduncles, several of which arise from the same scaly bud. It differs from *Dillenia* by the greater separation of its ovaries, which are generally fewer than in that genus. [J. T. S.]

COLCHICUM. The well-known Meadow Saffron, or, as it is erroneously called, Autumn Crocus. The genus appertains to *Melanthaceae*, and is known by its bell-shaped coloured perianth, with a long tube; six stamens inserted into the upper part of the tube; a three-celled ovary placed at the bottom of the tube, and surmounted by three long thread-shaped styles; and a three-celled capsule which bursts by as many openings. The appearance of the flower is so like that of the crocus, that it is frequently mistaken for it; but in the crocus there are three stamens only, and the ovary is placed below the tube of the perianth, not within it, as in the *Colchicum*; or, more correctly speaking, in the latter the ovary is free, while in the former it is united to the lower part of the tube of the perianth. *C. autumnale*, the Meadow Saffron, found wild in some parts of England, has a subterranean bulb-like stem, called a corm, from which in autumn the light purplish mottled flowers arise. The leaves do not appear till afterwards; they are fully developed in the following spring, in the shape of loose green sword-shaped blades, among which the ripened fruit may be found raised from below the surface of the ground by the lengthening of the flower-stalk.

The *Colchicum* is valued not only for its appearance, but more particularly for its medicinal properties. The dried corms and the seeds are the parts employed, the former have much of the appearance of tulip bulbs, but are not scaly like them, but solid in the interior. The active prin-

ciple is said to be an alkaline substance of a very poisonous nature called *colchicine*. *Colchicum* is principally used in medicine for the alleviation or cure of gonæ. In some cases its use is very beneficial, but, like other remedies, it has no claim to be considered infallible. It is acrid, sedative, and acts upon all the secreting organs, particularly the bowels and the kidneys. It is apt to cause undue depression, and in large doses acts as an irritant poison. Dr. Lindley relates the case of a woman who was poisoned by the sprouts of *Colchicum*, which had been thrown away in Covent Garden Market, and which she mistook for onions.

The Hermodactyls of the Arabians, formerly celebrated for soothing pains in the joints, are said by Dr. Royle to belong to *C. variegatum*. [M. T. M.]

COLDENIA. A genus of *Ehretiaceae*, consisting of herbs from India and Ceylon, with wedge-shaped stalked plicate serrated leaves, which are often more developed on one side of the mid-rib than on the other. Flowers small, white, axillary, solitary; calyx five-parted; corolla funnel-shaped. The nuts have a somewhat fleshy covering, and are rugose. *C. procumbens* is used in India for promoting supuration, for which purpose it is dried and powdered, and mixed with the seeds of the fennel-greek. [J. T. S.]

COLD-SEEDS. In the old materia medica the seeds of the cucumber, gourd, pumpkin, &c.

COLEA. A genus of *Crotonaceae*, natives of Madagascar, Mauritius, and the neighbouring islands. They consist of glabrous shrubs or small trees, with impari-pinnate bi- or many-jugate leaves. The calyx is sub-campanulate and five-toothed; the corolla is funnel-shaped, and the limb is cleft into five spreading lobes. The four didynamous stamens are inserted on the corolla, and have two-celled anthers. The fruit is oblong, fleshy, and indehiscent, with two cells containing many imbricated wingless seeds. [W. C.]

COLEBROOKIA. An East Indian genus of shrubs, belonging to the family of labiates. They are covered with reddish down. The flowers are clustered, of a white colour, with a bell-shaped equally five-parted calyx, the segments of which are feathery, and whose tube becomes confluent with the ripe fruits; a short-limbed corolla divided into four nearly equal divisions, the upper lobe notched, and four stamens equidistant one from the other; the anthers with two parallel cells. *C. oppositifolia* and *C. ternifolia* are in cultivation as greenhouse shrubs. [M. T. M.]

COLEONEMA. A beautiful genus of Cape *Rutaceae*, related to *Diosma*, and consisting of evergreen shrubs with sharp linear leaves, and white flowers, consisting of five petals attached to the base of a five-lobed disc, which is adherent to the tube of the calyx, and having a broad stalk or claw which is furrowed

longitudinally. There are ten stamens, five sterile, concealed in the furrows of the claws of the petals and adherent to their base, and five fertile, opposite to the lobes of the disc, longer than the sterile ones, and having their anthers tipped with a minute sessile gland. The fruit is a capsule of five carpels, each provided with a small horn-like process at the top and opening by two valves. *C. album* is the best known species. [M. T. M.]

COLEOPHORA. The name given to a tree of the Sapine family found in Brazil, the leaves of which are not known. From the little scaly buds, which are scattered over the trunk of the tree, the flowers proceed. They are small, yellow and brown, and borne on short racemes. The tubular calyx has a four or five-toothed border fringed with hairs, and inside of it, and surrounding the stalked ovary, is a little four-toothed petal-like cup, about half the length of the calyx tube. The stalked ovary, surrounded by the peculiar cup, serves to distinguish the genus. [A. A. B.]

COLEOPHYLL, or COLEOPTILE. The first leaf which follows the cotyledon in eudogens, and ensheaths the succeeding leaves.

COLEORHIZA: The sheath formed at the base of an endogenous embryo, where it is pierced by the true radicle.

COLEOSTYLIS. Herbaceous plants covered with glandular hairs, natives of New Holland, and closely allied to *Stylidium*, but distinguishable from it by the following characters:—The limb of the corolla is divided into five segments, four of like form, stalked; the fifth or lip is unlike, jointed to the tube of the corolla, stalked, its blade boat-shaped, notched at the point or prolonged; and the column, which consists of the stamens and style united together, is shorter than the lip, erect, and passing through a kind of sheath. [M. T. M.]

COLESFED, or COLLARD. The Rape, *Brassica Napus*.

COLESULA. The small bag which contains the spore-case of liverworts.

COLEWORT, or COLLET. The Cabbage, *Brassica oleracea*.

COLEUS. A considerable genus of Labiate, found in Asia and Africa. It consists of herbs, annual or sometimes perennial, rarely shrubs. The flowers are in loose or dense verticillasters. The calyx is ovate-campanulate, bending back when in fruit, the limb five-toothed or bilabiate. The corolla-tube is longer than the calyx, the limb bilabiate with the upper lip obtusely three to four-cleft, and the lower entire, lengthened, and concave, often curved and enclosing the four stamens. The style is bifid with imbricate lobes. The nectary is compressed and smooth. [*C. Blumei* and *C. Verschaffeltii* have yielded in gardens some beautiful hybrid forms, many of them with highly coloured yellow and red leaves.] [W. C.]

COLICODENDRON. A genus of *Cappariaceae*, consisting of tropical American trees or shrubs, covered with small star-shaped hairs, and having clusters of flowers, with a cup-shaped calyx, divided into four or five segments, provided internally and at their base with a petaloid scale. The four or five petals are inserted on to the calyx; the stamens are from eight to twenty, inserted on a stalk, and united at the base into a shallow cup; the ovary is also on a long stalk. The fruit is a roundish or elongated berry, knotted and containing several kidney-shaped seeds. The genus possesses an acrid principle, which, according to Martius, is so potent in *C. Yeo* as to be dangerous to mules and horses. [M. T. M.]

COLIC ROOT. *Aletris farinosa*.

COLIGNONTA. A genus of Peruvian herbs or undershrubs belonging to the order *Nyctaginaceae*, and having flowers arranged in an umbellate manner, surrounded by deciduous bracts. The perianth is coloured, bell-shaped, with a five-cleft limb from which the five stamens protrude; the style is simple; the stigma is fringed. The fruit is hardened, pentagonal, crowned by the upper part of the perianth. [M. T. M.]

COLLABIUM nebulosum. A terrestrial orchid, with a slender creeping rhizome, known only by a brief description of Blume, who says it has distant stalked membranous radical leaves clouded with purple, and small nodding spiked flowers, whose sepals are reflexed.

COLLANIA. A genus of amaryllids allied to *Ailstromeria*, from which it differs in having a pulpy fruit, and in 'the great prominence of the operculum of the germen, making it at least half superior instead of inferior.' The species are natives of Peru, and are very ornamental plants. They have rigid erect stems curved at the summit, bearing simple rigid leaves, and a pendulous umbel of flowers, of which the six-leaved perianth is tube-formed and not at all spreading. *C. dulcis* has stems about a foot high, erect with a little tortuosity but not prehensile, clothed with oblong obtuse glaucous leaves, which are narrowed at the base, and terminating in a four-flowered umbel of cylindraceous purple flowers tipped with green, the three petaloid segments longer and bright green. This plant is called 'Campanillas coloradas' in its native country, and the fruit is sweet and agreeable to the taste, and much sought by children, the seeds being enveloped in a reddish gelatinous substance. *C. andimarcona* is a much larger plant, with a stem terminating in a fine umbel of leafy racemes of large pendulous sub-cylindraceous flowers, upwards of two inches long, of which the sepals are orange red tipped with black, and the petals yellow tipped with green. The name *Collantia* has also been applied to

another genus of the same order, now called *Urceolina*. [T. M.]

COLLAR. The ring upon the stipe of an agave; see also Collum.

COLLARE. The ligule, or transverse membrane that stands in grasses at the junction of the blade and sheath of the leaf.

COLLATERAL. Standing side by side.

COLLECTORS. The hairs found on the style of such plants as the *Campanula*, and which collect or brush out the pollen from the anthers.

COLLEMACEÆ. A natural order of lichens, distinguished principally by their gelatinous substance and the green globules or gonidia, which are so distinctive a mark of lichens in general, forming necklace-like threads. They are found in various parts of the world, and though in general attracting little notice when dry, a few hours rain swells them out and exhibits often extremely beautiful forms. One of the most curious genera is *Myrianogium*, which occurs in the southern part of England, Algeria, Australia, and the United States, on the trunks of living trees, and is remarkable for the high development of the sacs or asci in which the sporidia are contained. These plants have been considered as a distinct group from lichens, but such a notion is at present received with little favour. The resemblance of the young plant to *Noctua* is so striking, both in appearance and structure, that the one has been supposed to be the infant state of the other, but without sufficient grounds. The species grow on trees, rocks, and the bare ground, and, if *Lichina* be included, in situations exposed to frequent immersion in the sea. One at least of the species has a very fetid smell. A species of *Noctua*, found in running streams in China, is used as an ingredient in soup. [M. J. B.]

COLLENCHYMA. The cellular matter in which the pollen is generated; usually absorbed, but remaining and assuming a definite form in some plants, as in orchids, or delicate threads, as in *Eriothera*.

COLLETIA. A genus of American *Ehmanniaceæ* inhabiting Chili, Peru, and Mexico. They are much-branched shrubs, scantily furnished with minute leaves, and having spines which stand at right angles with the stem in alternate pairs. The flowers, which are yellowish or white, are either solitary or in tufts in the axils of the leaves, or rise from beneath the base of the spines. Two or three species are known in gardens. [C. A. J.]

COLLINIA. A genus of dwarf annuals belonging to *Scrophulariaceæ*, all indigenous to North America, chiefly of the north-western regions, and including several showy border plants. Its most important features are a deeply five-cleft calyx; a two-lipped irregular corolla, with the tube bulging at the base on the upper side, the upper lip two-cleft with its lobes

erect, the lower lip three-cleft, the middle lobe forming a pouch-like cavity in which the stamens and style are enclosed; and a globose two-celled many-seeded capsule. All the species are of branching habit, and furnished with opposite leaves, and flowers in erect whorled racemes. *C. bicolor*, one of the best known, grows twelve to eighteen inches high, and has sessile ovate-lanceolate toothed leaves, either opposite or in threes, and strongly nerved, the flowers, which are in whorls of five or six blossoms, having their upper lip very pale lilac or whitish, and the lower one deep lilac-purple. *C. heterophylla* has rather larger and deeper coloured flowers, with the calyx clothed with coarse hairs, and the lower leaves three-lobed and stalked. In *C. multicolor* the upper lip has a broad white central spot speckled with crimson, and the leaves beneath the whorls are tinged with purple. These characters are, however, somewhat inconstant under cultivation, and it is doubtful whether this plant, as well as *C. heterophylla*, may not be a mere variety of *C. bicolor*. *C. verna* is a very pretty little species scarcely known in this country, though the first discovered; it differs from the preceding in its flowers having longer pedicels, as well as in their colour, which is pure white in the upper lip, and blue, of variable intensity, in the lower one. *C. grandiflora*, a species common in our gardens, is sometimes confounded with *verna*, but has shorter pedicels, and the upper lip of flower is lilac. [W. T.]

COLLINSONIA. A genus of *Labiata*, containing a few species of strong-scented perennial herbs, natives of North America. They have large ovate leaves, and yellowish flowers on slender pedicels in loose and panicle terminal racemes. The calyx is ovate and two-lipped, with the upper lip truncate and three-toothed, and the lower two-toothed; it is declined in fruit. The corolla is elongated, expanded at the throat, and somewhat two-lipped, with the four upper lobes nearly equal, but the lower larger, longer and pendent, toothed or lacerate-fringed. There are two, sometimes four, much exerted diverging stamens, with divergent anther cells; the apex of the style is subequally bifid; and the nectary is smooth. [W. G.]

COLLINUS. Growing on low hills.

COLLOMIA. A small genus of *Polemoniaceæ*, having a five-cleft campanulate calyx, a corolla with salver-shaped limb and slender tube, five stamens inserted in the middle of the tube, and a three-celled capsule, each cell containing one or two seeds. It is nearly related to *Gilia*, from which it differs chiefly in habit, colour of flowers, and form of corolla. The species are all dwarf annuals with red or buff-coloured flowers, natives of the Western Hemisphere, and chiefly of California. With one or two exceptions they are quite devoid of interest as ornamental plants, their flowers being small and without effect. C

coodinea or *Cavanillesii* grows nearly a foot high, with a branched stem, linear-lanceolate leaves, and terminal clusters of brick-red flowers each nearly half an inch across, the tube and under side of corolla being a buff-yellow, and the calyx glandular. *C. grandiflora*, the only other species worth cultivating, is taller, and more robust, with shining lanceolate leaves, and large mauve-coloured flowers. The species have no known properties, but their seeds are remarkable for the quantity of mucus existing in their testa or outer covering—whence the name of the genus from *kolla*, glue,—which gives rise, under certain conditions, to a singular and interesting phenomenon. When these seeds are thrown into water the mucous matter is dissolved and forms a cloud around them. [Dr. As. Gray states that this mucilage consists of innumerable and most delicate diaphanous tubes, which lengthen wonderfully when wetted. The spiral thread which they contain (on which account they were confounded with spiral vessels, and which uncoils as the tube softens or dissolves into jelly) is wanting in *C. gracilis*. In this the mucilage cells are beneath a more or less evident pellicle or epidermis, which is not obvious in the typical species, composed of fragile tubular cells which are thrown off when the former develop, and protrude under moisture.] [W. T.]

COLLOPHORA. The name of a little-known Brazilian tree, mentioned by Von Martius, as abounding in a milky juice furnishing caoutchouc. The genus belongs to the *Apocynaceæ*. It has a salver-shaped corolla, without scales in the throat of its tube; and the stigma is cylindrical. The fruit is a berry containing several seeds embedded in pulp. [M. T. M.]

COLLUM. The point of junction between the radicle and plumule; the point of departure of the ascending and descending axes, that is to say, of the root and stem, which is often called the collar. Also the lengthened orifice of the ostiolum of a lichen; *Colliform* is sometimes applied to an ostiolum, whose orifice is lengthened into a neck.

COLLYBIA. A sub-genus of white-spored agarics with the outer coat of the stem cartilaginous, the margin of the pileus at first involute, and the gills not decurrent. *Agaricus fusus*, which is not uncommon at the foot of old oaks, growing in dense tufts of a more or less decided rufous tint, though too tough for stewing, is excellent when pickled. *A. saculentus* also, which, though small, is brought abundantly into the German markets under the name of Nagelachwämme, belongs to the same sub-genus. One of the best known species of the group is *A. velutipes*, which grows on almost every decayed tree, conspicuous for its velvety stem and rich yellow shining pileus. Few plants are more patient of cold than this, for the severe Christmas frost of 1860 did not destroy it, specimens after the thaw being as vigorous as ever. [M. J. B.]

COLOCASIA. A genus of *Araceæ*, very closely allied to *Caladium*, but differing from it in the spadix having a club-shaped or pointed top destitute of stamens. The middle portion of the spadix is provided with stamens, above and below, which latter are rudimentary organs. The anthers are two-celled, opening by pores, and having a broad wedge-shaped connective. The ovaries, at the base of the spadix, are one-celled, with six erect ovules. The plants are Indian herbs, with tuberous or stem-like rootstocks, and peltate leaves. *C. antiquorum*, the *Arum Colocasia* of Linnaeus, is cultivated in most tropical countries, Egypt, India, &c., for the sake of its leaves, which when uncooked are acrid, but by boiling, the water being changed, lose their acridity, and may be eaten as spinach. *C. indica* is cultivated in Brazil for its esculent stems and small pendulous tubers. *C. esculenta*, *C. macrorrhiza*, and many varieties of these species, are cultivated in the Sandwich Islands under the name of Tara; and their rootstocks being filled with starch, furnish a staple article of diet among the natives. The leaves are likewise used as a vegetable. [M. T. M.]

COLOCYNTH. *Citrullus* or *Cucumis Colocynthis*. — HIMALAYAN. *Citrullus* or *Cucumis Pseudo-colocynthis*.

COLOMBINE PLUMEUSE. (Fr.) *Thalictrum aquilegifolium*.

COLOQUINTE. (Fr.) *Citrullus Colocynthis*.

COLOMBO or **CALOMBA.** The Calumba root, *Alchorhiza* (formerly *Cocculus*) *palmata*. — AMERICAN. *Fraxea Walleri*.

COLOUR (adj. **COLOURED**, **COLORATED**). Any colour except green. In technical botany white is regarded as a colour, and green is not.

COLPENCHYMA. Sinuous cellular tissue

COLPOON TREE. *Cassine Colpoon*.

COLQUHOUNIA. A genus of *Labiata*, containing three species of climbing or erect shrubs, natives of India, with petiolate ovate acuminate leaves, and scarlet flowers scattered in axillary verticillasters or crowded in a terminal spike, and having small bracts. The calyx is tubular, campanulate, ten-nerved, and unequally five-toothed; the corolla tube is longer than the calyx, its throat dilated, and its limb bilabiate, with the upper lip entire, and the lower with three small ovate lobes; the stamens are covered by the galea or helmet; the apex of the style is subequally bifid, with subulate lobes; the nucule is oblong, dry and smooth, with a membranaceous apex. [W. C.]

COLTSFOOT. The common name for *Tussilago*. — SWEET. An American name for *Nardosma*.

COLUBRINA. Snake-wood, so called from the twisted wood of one species, which inhabits the forests of Martinique. A family of plants belonging to the order

Rhamnaceæ, comprising small trees and shrubs, some of which are climbing, natives of South America and the warmer regions of Asia and Africa. They are closely allied to *Coccolobus*, but possess no properties which render them worthy of cultivation. [C. A. J.]

COLUM. An obsolete term for the placenta.

COLUMBINE. The common name for *Aquilegia*.

COLUMELLA. A little column; the firm centre of the spore-case of an urn-moss, from which the spores separate. The long axis round which the parts of a fruit are united; in reality, the ripened growing point. A slender axis, over which the spore-cases of such ferns as *Trichomanes* are arranged.

COLUMELLIA. A genus of epigynous exogens having a monopetalous corolla, the structure of which, and especially of the anthers, is so remarkable that it has been separated as a distinct order under the name of *Columelliaceæ*. It consists of a few evergreen shrubs or trees, natives of Mexico and Peru, having opposite entire or slightly serrated leaves, and small yellow flowers. The calyx is superior, five-cleft; the corolla five-lobed; the stamens two only, attached to the tube of the corolla, and the anthers are as usual only two-celled, but each cell is elongated, more so than in any other plants comparatively with the size of the anther, but being doubled and redoubled on themselves they form a globular mass. The anther of *C. oblonga* has the shortest cells of any of the species. The ovary is two-celled, each cell containing numerous ovules, and the seed has a large quantity of albumen. The station of *Columelliaceæ* in the natural system is near *Styidiaceæ*, the stamens in the latter being only two, although differently attached. (See *Ann. and Mag. Nat. Hist.* ser. 3. 1. 109.) [B. C.]

COLUMELLIACEÆ. *Columellia*, which consists of two or perhaps three species from the Andes of America, having no immediate affinity with any of the orders with which it has been compared, has therefore been considered as forming a family of itself. It consists of evergreen shrubs or small trees with opposite serrate leaves without stipules; a superior five-cleft calyx; a five-lobed spreading corolla bearing in its short tube two stamens, each with three waved anthers. The ovary is inferior, two-celled, with numerous ovules; the fruit capsular; the seeds numerous, with the embryo in the axis of a fleshy albumen. These characters, as well as the habit, remove the genus from the generality of *Monopetalæ*, and indicate several points of connection with *Saxifragæ* and their allies, amongst which *Columellia* may possibly take its place as a gamopetalous form.

COLUMN. The combined stamens and

styles forming a solid central body, as in orchids.

COLUMNARIS. Having the form of a column, as the stamens of a mallow.

COLUMNEA. A genus of erect or climbing slender herbaceous plants or under-shrubs, with opposite fleshy and hairy leaves, and solitary or crowded axillary peduncles bearing scarlet flowers. They are natives of tropical America, and belong to the order of *Gesneraceæ*. The calyx is free and five-parted. The corolla is tubular, with the limb two-lipped, the upper one entire, erect or overarching, the lower trifid and patent; the four didynamous stamens are inserted in the tube of the corolla, and with them the rudiment of a fifth; the ovate anthers have two cells. The one-celled ovary is free, surrounded by a five-lobed disc, and contains two two-lobed parietal placentæ with anatropal ovules. The fruit is a berry containing many obovate seeds, and two fleshy placentæ. The genus is near to *Besleria*, differing chiefly in the form of the corolla. [W. C.]

COLURIA. A genus of the rose family, very nearly allied to *Geum*, but differing in the styles being jointed and falling from the achenes when mature, while in *Geum* they remain attached and become feathery. *C. geoides*, the only species of the genus, is a plant about six inches high with pinnatifid leaves having cut segments, and a peduncle bearing one to three little yellow flowers. Altogether it bears much resemblance to the silver-weed, *Potentilla anserina*, but its leaves although pubescent are not clothed with silvery hairs. It is found on the less elevated mountains in Siberia, growing in rocky places. [A. A. B.]

COLUTEA. The technical name of a genus of *Leguminosæ* consisting of certain shrubs, indigenous to the south of Europe and the Mediterranean region in general, and especially characterised by having, with the ordinary papilionaceous flowers, membranous bladder-like pods. The leaflets of *C. arborescens* and other species have purgative properties like those of senna, and are sometimes mixed with senna leaves. The distended pods, when pressed suddenly, burst with a loud noise, hence the common name, Bladder-senna. Two or three species are cultivated as deciduous plants in this country, but they seem to be more abundantly used on the Continent than with us. *C. arborescens* is said to grow on the crater of Vesuvius, where there is little other vegetation. [M. T. M.]

COLVILLEA. The name given to a tree of Madagascar belonging to the leguminous family. The genus is nearly related to *Cassia*, but is readily distinguished by the form of its calyx, which is two-lipped, the upper lip convex and four-toothed, and the lower linear in form and entire. *C. racemosa* is a beautiful tree, which attains a height of forty or fifty feet, and is furnished with elegant fern-like twic-pinnate leaves about three feet long; these

are made up of from twenty to thirty pairs of pinnae, each pinna with a like number of opposite leaflets, which are nearly linear in form, and about half an inch long. The beautiful scarlet flowers are in dense racemes, which arise from the axils of the upper leaves, and are either simple or branched, and about a foot and a half in length. The calyx, like the petals, is of a scarlet colour; the petals are five in number, the standard the smallest and nearly hidden by the others, the two oblong wings next in size, and the two free petals, which form the keel, the largest; the ten free stamens are of unequal length. The pod is straight, about six inches long, containing a number of seeds. The genus bears the name of Sir Charles Colville, once governor of the Mauritius. [A. A. B.]

COLZA. (Fr.) *Brassica Napus oleifera*.

COMA (adj. **COMOSE**). The hairs at the end of some seeds; the empty leaves or bracts at the end of the spike of such flowers as those of the pine-apple.

COMANDRA. The generic name of plants belonging to the sandalwood order; having the calyx adherent to the seed-vessel, its upper part with an adherent disk whose border is five-lobed, on which the stamens are inserted between its lobes and opposite those of the calyx, the anthers being connected with the calyx by a tuft of hair-like threads. The fruit is nut-like and filled with the globular seed. The name is derived from the Greek words signifying 'hair' and 'stamen,' indicating a character above mentioned. The plants are low perennials with herbaceous stems springing from a woody base; the leaves alternate, stalkless, oblong; flowers greenish-white in small clusters. One species, *C. umbellata*, is common in North America, and attaches itself as a parasite to the roots of trees. [G. D.]

COMAROSTAPHYLIS. A genus of *Eriocaceae*, containing fourteen species of small trees or shrubs, with the habit of *Arbutus*, natives of Mexico and Guatemala. They have coriaceous oblong evergreen leaves, and flowers in terminal bracteate racemes or panicles. The hypogynous calyx is five-parted; the corolla is inserted on the calyx, is campanulate, enlarged below, and has the limb five-lobed. The ten stamens are inserted on the base of the calyx; the filaments are short, and the anthers oval and compressed. The ovary is placed on a ten-angled hypogynous disk, and has five cells, with a single ovule in each. The style is simple, and the stigma obscurely five-toothed. The drupe is globose and fleshy, containing a single stone (pyrena), which has five rarely more cells, with a single seed in each. [W. C.]

COMARUM. A Rosaceous marsh herb, with a stout creeping stem, rather large and handsome leaves composed of seven, five, or three deeply-serrated leaflets, and slightly-branched panicles of dingy-purple

flowers. The fruit somewhat resembles that of the strawberry, but is spongy instead of juicy, and does not fall off when ripe. It is of frequent occurrence in marshes and boggy meadows in most parts of England, and extends over a great part of Europe and North America. The roots and stems have been used to dye wool of a dirty-red colour, and are sufficiently astringent to be employed in tanning. In some parts of Scotland the fruits are called Cow-berries, on account, it is said, of their being used to rub the inside of milk-pails for the purpose of thickening milk. The Marsh Cinquefoil, *C. palustre*, is rarely cultivated, though Gerard says with some pride that he brought some plants from Bourne Ponds, half a mile from Colchester, for his garden, and that they there flourished and prospered well. French Comaret; German Fünfbblatt. [C. A. J.]

COMBESIA. A genus proposed by Richard for an Abyssinian species of *Tilia*, having pentamerous flowers, and a gamopetalous corolla. One or two other species have since been referred to it; but there are no sufficient grounds for regarding it as a distinct genus. *T. (C.) pharnacoides*, upon which the genus was founded, occurs also in S. Africa, and the Himalayas. [J. Br.]

COMBIMATE-VEBOSE. When the lateral veins of a leaf unite before they reach the margin.

COMBRETACEÆ (*Myrobaleae*). A natural order of polypetalous calyciflorous dicotyledons, belonging to Lindley's myrtal alliance. Trees or shrubs, with alternate or opposite entire leaves having no stipules. Sometimes the flowers are imperfect, some having stamens only, others pistils only, and occasionally the petals are wanting. Calyx adherent, its limb four to five-lobed, falling off. Petals arising from the orifice of the calyx, alternate with the lobes. Stamens often eight or ten. Ovary one-celled, with two to four suspended ovules. Fruit succulent or dry, one-celled, and one-seeded. Seeds without albumen; cotyledons of the embryo rolled up. Natives of the tropical parts of Asia, Africa, and America. The plants of the order have astringent qualities; some are cultivated for ornament, others yield timber. The astringent fruit, known by the name of Myrobalan, is produced by *Terminalia Bellerica* and *T. Chebula*. The bark of *Bucida Buceras* is used for tanning. There are twenty-three known genera, and upwards of 200 species. Illustrative genera: *Terminalia*, *Combretum*, *Gyrocarpum*. [J. H. B.]

COMBRETUM. The typical genus of *Combretaceae*, inhabiting tropical regions of both hemispheres, and consisting of trees or shrubs, often trailing or climbing by the indurated leaf-stalks, which are persistent and act as hooks to support the plant. The leaves are opposite, rarely alternate, entire, exstipulate. The flowers, which grow in spikes, axillary or sometimes terminal, solitary or arranged in

a panicle, are polygamous; calyx-tube adhering to the ovary, above which it is constricted, the limb bell-shaped; petals four; stamens eight. The fruit is leathery, with four membranous wings, indehiscent and one-seeded by the abortion of several of the ovules. Many of the species are very handsome. [J. T. B.]

COMB-SHAPED. The same as Pectinate.

COMESPERMA. A genus of *Polygalaceae*, consisting of erect or twining plants found in Australia and Tasmania, and numbering about twenty species. It is nearly related to the South American genus *Catocoma*, but differs in the corolla being composed of three united petals, instead of five. The stems, which are not much thicker than a crow-quill, are furnished with alternate leaves, mostly linear in form. The flowers, disposed in axillary or terminal racemes, either yellow, white, blue or purple, the three latter colours sometimes found in the same species, as they are in our own common milkwort, *Polygala vulgaris*, to whose flowers those of the plants of this genus bear much resemblance, but are generally larger. The calyx is five-lobed; the corolla three-lobed, the middle lobe largest; the stamens eight; the ovary two-celled, crowned with a curved style. The fruit is a wedge-shaped capsule with two seeds, each furnished with a tuft of silky hairs. This latter circumstance gives rise to the name of the genus.

C. volubilis, the Blue-creeper of Tasmania, is a graceful little plant, twining among other bushes and covering them with its great abundance of beautiful blue flowers. Its thin twining stems are furnished with leaves which are between linear and lance-shaped in form. This plant grows in various parts of Australia, as well as in Tasmania, and is universally admired. It has been in cultivation in England under the name *Comesperma gracilis*. [A. A. B.]

COMFREY. *Symphytum officinale*.

COMIN. (Fr.) *Ervum Bretilia*.

COMMELYNACEÆ. (*Spiderworts*.) A natural order of hypogynous monocotyledons, belonging to Lindley's xyridal alliance. Herbs with flat leaves, usually sheathing at the base. Outer perianth (calyx) of three parts, herbaceous; inner (corolla) also of three, coloured; stamens six or three, the anthers opening on the side next the pistil. Ovary three-celled with a central placenta; style one. Fruit a two to three-celled capsule, opening by two or three valves, which bear the dissepiments (partitions) on the middle; seeds with a linear hilum; embryo pulley-shaped. Natives of the East and West Indies, New Holland, and Africa. A few are found in North America, but none in Northern Asia or Europe. The underground stems of many of the plants yield starch, and are used for food. The filaments of the *Tradescantias*

have jointed hairs, in which a granular movement is seen under the microscope. There are sixteen known genera, and 380 species. The best known are *Commelyna*, *Tradescantia*, and *Cyanotis*. [J. H. B.]

COMMELYNA. The typical genus of the order of spiderworts, distinguished by having usually three petals, dropping early, one of the three different in form from the others, or wanting; the filaments or stalks of the anthers smooth and naked; the style or appendage on the seed vessel thread-like, and entire at the end. The species are herbs, natives of tropical and Northern America, East India, and New Holland, having ovate or lance-shaped leaves, and the flowers in groups, either issuing from an involucre or sheath-like body, or destitute of such covering, the former constituting *Commelyna* proper, the latter *Aneilema*. The genus was named in honour of J. and G. Commelyn, well-known Dutch botanists. The species are numerous, and several have been long known in our collections. They require various modes of treatment, some being hardy, others requiring a high temperature. *C. caelestis*, notable for the delicate blue of the flower, has oblong lanceolate leaves, and the sheaths ciliated; it is a half hardy species, which under proper treatment displays a succession of azure flowers from July to September. One of more recent introduction is *C. scabra*, a half hardy perennial from Northern Mexico, having straggling reddish stems, the leaves lance-shaped, waved and hard at the margin, and the flowers of a dull purple brown. Dr. Lindley, in his *Vegetable Kingdom*, states that 'the fleshy rhizomes of *C. caelestis*, *tuberosa*, *angustifolia*, and *striata*, contain a good deal of starch mixed with mucilage, and are therefore fit for food when cooked. The Chinese employ those of *C. medica* as a remedy in cough,' &c. [G.D.]

COMMIA. A genus from Cochinchina, so named by Loureiro, but now referred to *Excoecaria agallocha*, one of the *Euphorbiaceae*. Loureiro describes it as a tree from which a white tenacious gum exudes, said to be of a purgative and emetic nature, and valuable in dropsy, but requiring careful administration. The leaves are stalked, lance-shaped, entire and smooth. The inconspicuous flowers are male and female on different plants: the males in short axillary bracted spikes, having neither calyx nor corolla, and the stamens united into a column which bears on its summit a number of anthers; the females in terminal racemes having a three-leaved calyx enclosing a three-lobed ovary, crowned by three short recurved styles. The fruit a three-celled capsule with three seeds. [A. A. B.]

COMMISSURE. The face by which two carpels come together or cohere, as in umbellifers.

COMMON PETIOLE. The first and principal leaf-stalk in compound leaves; the secondary petioles are called partial.

COMOLIA. A genus of *Melastomaceae*, consisting of Brazilian trees or shrubs, with four-sided branches and obovate three-nerved leaves clothed with adpressed hairs; flowers axillary, solitary, sessile, white; tube of calyx adhering to the base of ovary, its limb four-lobed; petals four; anthers one-celled curved; ovary glabrous; capsule two-celled. [J. T. B.]

COMPAGNON BLANC. (Fr.) *Lychnis dioica*.

COMPARETTIA. A small genus of epiphytal orchids inhabiting tropical America. Four species are known, all with small pseudobulbs, coriaceous leaves, and gracefully bending racemes of long spurred rose-coloured purple or scarlet flowers.

COMPASS PLANT. *Silphium laciniatum*, which is said to present the faces of its leaves uniformly north and south.

COMPLEXUS. Tissue: *C. cellulosus*, cellular tissue; *C. membranaceus*, the thin membrane, which is the foundation of all tissue—elementary membrane; *C. tubularis* tubular tissue, or woody fibre; *C. utricularis*, angular cellular tissue; *C. vascularis*, spiral vessels, properly so-called: often, however, extended to all sorts of tubes with markings on the side, thus losing precision, and with it its value as a scientific term.

COMPLICATE. Folded up upon itself.

COMPOSITE. The more familiar name of the *Asteraceae*, a large natural order of gamopetalous acaule floral dicotyledons belonging to Lindley's campanal alliance, consisting of herbs and shrubs with alternate or opposite leaves having no stipules; the stamens and pistils either in the same or in separate flowers, which are collected into a head on a common receptacle (hence the name Composite or compound flowers), and surrounded by a set of floral leaves or bracts, called an involucre. The fruit is single-seeded, crowned with the limb of the calyx. The plants are found in all parts of the world, in warm countries sometimes assuming arborescent forms. They were included by Linneus in his class *Syngenesia*. The properties of the order are various; but bitterness seems to prevail in it, and this is accompanied with tonic, stimulant, aromatic, and sometimes even narcotic qualities. *Lactuca sativa*, the common lettuce, and *L. virosa*, supply lactucarium, a substance used like opium. [J. H. B.]

COMPOSITION. The arrangement of organs, or their order of development, or their manner of branching, &c.

COMPOUND, COMPOSITE. When formed of several parts united in one common whole: as pinnated leaves, and all kinds of inflorescence beyond that of the solitary flower.

COMPRESSED. Flattened lengthwise; as the pod of a pea.

COMPTONIA. A deciduous bushy shrub

belonging to the order *Myricaceae*, bearing both male and female flowers in catkins, and on the same plant. A native of North America in moist peaty soils. The leaves are long and narrow, alternately arranged and cut on each side into rounded and numerous lobes, so as to resemble the fronds of *Ceterach* (hence the name *C. asplenifolia*), downy and sprinkled with golden resinous transparent dots, which, as well as the rest of the plant, have an aromatic scent. It was introduced in 1714 by the Duchess of Beaufort, and was named in honour of Henry Compton, Bishop of London, the introducer and cultivator of many curious exotic plants, and a great patron of botany and horticulture. It is hardy, but requires a peat soil and shade. In America it is called the Sweet Fern Bush; in France *Comptonia*, or *Liquidambar à feuilles de Ceterach*: but it must not be confounded with *Liquidambar styraciflua*, Sweet Gum. [C. A. J.]

CONANTHERA. A genus of *Liliaceae* containing a few small Chilian bulbous plants, with linear leaves, and a scape supporting paniculate blue flowers. Perianth six-parted, adhering to the base of the ovary, and breaking away by a transverse split as the fruit ripens; stamens six, united into a cone. [J. T. B.]

CONCEPTACLE. A term sometimes applied to the capsular fruit of red-spored *Algae*, in contradistinction to the fruit in which the reproductive mass is ultimately divided into four bodies, and hence called tetrasperma. Modifications have received the names of ceramidia, cystocarpa, faville, nuclei, &c. The explanation of these terms belongs rather to a treatise on *Algae* than to the present work. [M. J. B.]

Also, a special organ, developed in some fungals on the surface, or in the interior of a receptacle, and containing the organs of reproduction as well as their accessories; it differs from a spore-case in the latter being itself one of the accessories, and only containing spores.

CONCHIDIUM. *Eria*.

CONCHIFORM. Shaped like one valve of a common bivalve shell.

CONCHOCYLUS. *Appendicula*.

CONCOLOR. Of the same colour as some other thing compared with it.

CONCOMBRE D'ÂNE, or SAUVAGE. (Fr.) *Ecbatium agreste*, the *Momordica Elaterium* of some.

CONDAMINEA. The name of a genus of *Cinchonaceae*, consisting of Peruvian shrubs, some of which have similar tonic properties to those contained in the true *Cinchona*, while others are used for dyeing purposes. The genus is known by the cup-shaped tube of the calyx, whose limb is five-toothed, and separates from the tube by a circular line. The corolla is tubular, concealing the stamens, which are attached near to the middle of its tube

The fruit is a top-shaped truncated capsule, opening by two valves, and containing several wingless seeds. [M. T. M.]

CONDUPLICANT. Doubling up; as when the leaflets of a compound leaf rise up and apply themselves to each other's faces.

CONDUPLICATE, CONDUPLICATION. A term of ostivation; when the sides of an organ are applied to each other by their faces.

CONDYLIUM. The antherid of a *Chara*.

CONE. The strobilus or conical arrangement of scales in the fruit of a *Pinus* or fir-tree.

CONE-FLOWER. An American name for *Rudbeckia*. — **PURPLE.** An American name for *Echinacea*.

CONE-HEAD. A garden name for *Strobilanthes*.

CONENCHYMA. The conical cells which constitute hairs.

CONFERRUMINATE. Glued together.

CONFERTUS. When parts are pressed closely round about each other; packed close.

CONFERVA. The typical genus of *Conferraceae*, the species of which are either attached to various bodies or float in dense masses on ponds swollen up with bubbles of gas, from whence the genus takes its name. The branched *Conferva* are now separated under the name of *Cladophora*. *Conferva*, when dried, were once used as a packing instead of tow, to support fractured limbs, a use which is now quite obsolete. The name was also applied to a vast heterogeneous mass of plants, as may be seen in *Dillen's History of British Conferva*. [M. J. B.]

CONFERVACEÆ. A division of the green-spored *Algae* characterised by their simple or branched articulated threads, diffused endochrome, and small zoospores. The articulations are mostly as long as, or longer than, their diameter, which forms one of the main technical distinctions between them and the *Oscillatoria*, which have, however, a very distinct habit. The genera are numerous, and in some cases, as in *Charophora*, the threads are compacted into a solid mass by means of gelatine. The zoospores sometimes occur in the ordinary cells of the threads, but sometimes in distinct cysts, and sometimes privileged cells are multiplied by cell-division for their production, as in *Stygoclonium*. They are found in all parts of the world, but are most plentiful in temperate regions. They are sometimes so abundant that, after floods, they form a thick coat, like paper, on the ground, to which the name of meteoric paper has been given. *Chroolepus* differs from the rest in its being developed in the air and not in water, and in its golden colour when fresh, but the species when dry become green. The fruit, however, like that

of *Callithamnion*, externally contains zoospores. [M. J. B.]

CONFLUENT. The fastening together of homogeneous parts. Gradually uniting organically.

CONFORM. Of the same form as some other thing.

CONGELATIO. In countries where frost is severe, most forest trees exhibit marks of serious injury, either in formidable fissures caused by differences of temperature in the different parts of the trunk, or in the death of portions of the bark and wood. Trees thus become accurate registers of severe winters. While, however, some plants give way at once under a slight degree of frost, others may be turned into a solid mass of ice without losing their vital powers, especially if the mass is thawed gradually, and in the dark. The outward parts of plants sometimes escape, when more delicate and protected parts are destroyed. Pear blossom, for instance, may be apparently unaffected by frost and expand as usual, when the pistils are completely destroyed. The effect of frost on plants depends greatly upon the condition of soil. The wetter the soil, and the more saturated the plants with moisture, the more destructive is it. A degree of cold, which is quite harmless when the cells are comparatively empty, is positively destructive under other circumstances. [M. J. B.]

CONGESTED. Crowded very closely.

CONGLOBATE. Collected into a ball, as the florets of *Echinops*.

CONGLOMERATE. The same as Clustered.

CONGLUTINATE. Glued together, not organically united.

CONIDIA. Many *Fungi*, besides their true fruit, produce little reproductive cells in different parts, especially on the spawn or mycelium which are known by the name of conidia. The substance called ergot is a good example, the conidia appearing some months before the perfect fungus. When these conidia are contained in distinct cysts or perithecia, they are called stylospores. In some cases undoubtedly, as in *Erysiphe*, the conidia are reproductive, but in others it is possible that they may perform the functions of male organs. The subject of impregnation, in *Fungi*, is so imperfectly known that it is not possible to speak with certainty about it. [M. J. B.]

CONIDIUM. The gonidium of a lichen.

CONIFERÆ. (*Conaceae*, *Pinaceae*, *Coniferae*, the *Pine* family.) A considerable and important family, constituting with the smaller groups of *Cycadaceae* and *Gnetaceae* the sub-class gymnosperms of dicotyledons. It consists of trees or shrubs, mostly with resinous secretions. The leaves are stiff, sometimes linear or needle-like, sometimes short and scale-like, or more rarely broad, lobed, or divided. The flowers are unisexual, either in cylindrical

or short catkins with closely packed scales, or the females are solitary. There is no perianth. The stamens in the males are either inserted on the axis of the catkin under the scales, or the anther-cells are sessile on the inside of the scales themselves, which then form part of the stamens. The ovules and seeds are naked, that is, without ovary, style, or pericarp, although sometimes more or less enclosed in two bracts, or in a fleshy or hardened disk. The seeds are albuminous, with one or sometimes several embryos in the centre, each embryo having sometimes more than two cotyledons. There are probably nearly two hundred species known, dispersed over a great part of the globe, several of them forming large forests in temperate climates, or more rarely within the tropics; while some of them extend almost to the utmost limits of woody vegetation in high latitudes, or at great elevations. They are distributed into about twenty-five genera, forming three tribes or sub-orders: 1. *Abietine*, with the fruits collected in cones, and inverted ovules; of this the principal genera are *Pinus* (including *Abies*), *Araucaria*, *Cunninghamia*, *Sequoia*, &c. 2. *Cupressine*, with the fruits collected in cones, and erect ovules; including *Juniperus*, *Callitris*, *Thuja*, *Cupressus*, *Taxodium*, *Cryptomeria*, &c. 3. *Taxacee*, sometimes considered as a distinct family, with the fruits solitary or loosely spiked, including *Podocarpus*, *Dacrydium*, *Phyllocladus*, *Salisburia*, *Taxus*, &c.

The woody tissue of the trees of this family is seen to be marked with peculiar circular dots or punctations when examined under the microscope. The ovules at the base of each cone-scale are generally held to be naked, each ovule having a large opening at its apex, to which the pollen from the stamens is applied directly. But some say that the ovules are not naked, but are contained in a proper ovary which is closely applied to the seed; that the outer membranous scales are modified leaves; and that the hard scales are altered branches bearing the pistillate flowers.

Some botanists look upon Conifers as the highest type of true dicotyledons. They are most abundant in temperate regions, both in the northern and southern hemispheres. In Europe, Siberia, and China, and in the temperate parts of North America, we meet with species of pine, spruce, larch, cedar, and juniper. In the southern hemisphere they are replaced by *Araucaria*, *Eutassa*, *Dammara*, *Podocarpus*, and *Dacrydium*.

Conifers are of great importance to mankind. They supply valuable timber, and yield resin, oil, pitch, and turpentine. Some attain a great size. Thus *Wellingtonia gigantea* has been known to attain in Oregon, a height of 450 feet, with a circumference of 116 feet at the base. *Taxodium sempervirens* also attains an enormous size. The various species of *Pinus* have their leaves in clusters of two, three, four, five, or six, surrounded by a membranous sheath at

the base. *Pinus sylvestris* is the common Scotch fir, which abounds in cold climates, and which supplies timber, turpentine, and pitch, as well as a hemp-like fibre from its leaves, which is used for stuffing pillows and cushions under the name of pine wool. *Pinus Pinaster*, the Bordeaux pine, thrives well on the sea-shore. *Abies* includes different species of fir and spruce, in all of which the leaves come off from the stem and branches singly. *Abies cecelsa* is the Norway spruce; *A. balsamea* the balsam of Gilead fir; *A. canadensis* the hemlock spruce; and *A. pectinata* the silver fir. *Cedrus* comprises those cedars which have clustered persistent leaves. *Cedrus Libani* is the cedar of Lebanon, the Eres of the Bible; while *Cedrus Deodara*, a local variety, is the sacred cedar of India. *Larix* includes the species of larch, which have clustered deciduous leaves. *Larix europæa* is the common larch; *L. Griffithii* the Himalayan larch. The *Araucarias* have single-seeded scales, with adherent seeds and many-celled anthers; *Araucaria imbricata* is a Chilian species; *A. Bidwellii* is from Moreton Bay: both have edible seeds. *Eutassa excelsa* is the Norfolk Island pine, which yields valuable wood. *Cryptomeria japonica* is the Japan cedar. *Cupressus sempervirens* is the common cypress. The Junipers have a peculiar succulent fruit. *Juniperus Bernandiana* furnishes the cedar for pencils. The species of *Thuja* are known by the name of Arbor Vita. [J. H. B.]

CONIMA. The fragrant gum resin of the incense tree, *Ischa leptophylla*.

CONIOCYSTS. Closed spore-cases resembling tubercles, and containing a mass of spores.

CONIOGRAMMA. A name given by Fée to the species of *Gymnogramma* represented by *G. javanica*. [T. M.]

CONIOMYCETES. A family of *Fungi* distinguished by the predominance of the spores over the receptacle. The spores are simple or articulated, solitary or chained together, and sometimes fasciculate, naked or enclosed in a distinct cyst. The plants, however, in which this last structure obtains are probably, for the most part, mere conditions of *Sphæria* and other pyrenomycetous *Fungi*. The most important members of the family, are the numerous parasitic species which affect the living organs of plants, and cause great mischief, especially amongst our corn crops, by exhausting the energies of the mother plant, and preventing the full development of the seed. One or two of these, which grow on different species of Juniper, approach *Tremella* in outward appearance, as all do in some peculiarities of structure. In most of these the spores exhibit bright colours, while in other divisions they are as generally black. The dark soot-like patches which are so common on old rails and dead wood are formed mostly by these dingy *Coniomyces*, which notwithstanding their unpromising appearance, are often full of interest when closely examined. [M. J. B.]

CONIOSELIUM. A genus of four species belonging to the *Umbelliferae*, and found in mountain districts in Central Europe, Siberia and North-west America. *C. Fischeri*, the best known species, and one which has long been cultivated in botanic gardens, is a biennial herb one to three feet high, with much the appearance of the hemlock, and having its small white flowers disposed in many-rayed umbels, without common, but with partial involucre of five to seven narrow linear leaves, which are equal in length to the flower-stalks.

The principal distinguishing features of the genus are found in the fruit, which is elliptical, dorsally compressed and about one-third of an inch long; each of the carpels has five winged ribs, the marginal ones twice the breadth of the others; and in the lateral furrows, there are three oil tubes (*vittæ*), seen in the form of dots when the fruit is cut across, usually two in the dorsal furrows, and four to eight on the inner face. [A. A. B.]

CONIOTHECÆ. The cells of an anther.

CONIUM. A genus of *Umbelliferae*, containing the well-known Hemlock. The botanical name has been given under the notion that this is the plant mentioned by the Greeks, under the same name, and which was administered, as a judicial means of execution, to Socrates and Phocion. The distinguishing characters reside in the fruit, which is somewhat globular in shape, and each half is marked with five wavy ridges. There are no *vittæ* or channels for oil, and the albumen is deeply furrowed on its inner surface. Such are the botanical characteristics, but the poisonous nature of *C. maculatum*, the common Hemlock, and

nial plant, with a tap-shaped root, a smooth shining hollow stem, two to five feet in height, frequently marked with purple spots, though these vary very much in number and intensity of colour. The leaves are much divided, with numerous small egg-shaped or lance-shaped deeply cut segments; the upper leaves are smaller. When bruised they emit a peculiarly nauseous odour, not at all aromatic, as is usually the case in our native umbelliferous plants. The inflorescence is a compound umbel, with ten or more rays, surrounded by a general involucre of three to seven leaflets; the partial umbels or umbellules, have at their base a small involucre of three bracts, which are all turned to one side, and do not surround the umbel, as in the case of the general involucre. The flowers are white or greenish white, and the fruits have the important characteristics before mentioned. In attempting the discrimination of this plant, all the above points must be attended to, as there are many plants possessing some of the characteristics of the true Hemlock, and which are in consequence frequently mistaken for it.

The active principle of Hemlock is a peculiar oily-looking fluid, lighter than water, and called *coniæ*. It exists in all parts of the plant, but especially in the fruits. It acts first as an irritant poison, but speedily causes paralysis of all the muscles, convulsions and death. The plant is of course much less dangerous than its extract, but in poisonous doses it produces similar symptoms, and sometimes coma, and other effects like those produced by opium. Medicinally *Conium* has been used for promoting the absorption of tumors, and glandular swellings, and as an antispasmodic and anodyne. [M. T. M.]



Conium maculatum.

its frequent growth in hedges and by roadsides in this country, demand a more full description.

The Hemlock is an erect branching biennial

CONJUGATÆ. A tribe of green-spored *Algae* distinguished from *Conferveæ* by their endochrome being spiral, stellate, or otherwise disposed, and not equally diffused, or simply denser in the centre; and by the large zoospores formed by the union of the endochromes of two contiguous cells, or one divided into two for the purposes of fructification in the same or in two different plants. In a few, impregnation is effected, in the manner described under *Bulbochete*, by means of free antheridia, which ultimately fix themselves near the spore-bearing cell. In some instances the bodies perfected by impregnation undergo cell-division, and the component parts become so many zoospores. The species are either attached or float freely in the water. Almost all are fresh-water plants, and are found in various parts of the globe, but especially in temperate regions.

The term *Conjugatæ* does not strictly apply to all. In *Edopontium* there is no conjugation, but fructification takes place by the division of a cell, one of the two divisions only proving fertile. In this genus, as also in some others, the spores are often of a brilliant scarlet or vermillion. The same spore, however, may be, in different stages

of growth, either green or red, a phenomenon not very uncommon amongst the green-spored *Alga*. Conjugation takes place also in *Desmidiaceae* and *Diatomaceae*, and also amongst moulds, as in *Synzygites*, so common on decaying toadstools. [M. J. B.]

CONJUGATE. Paired; when the petiole of a leaf bears one pair only of leaflets.

CONJUGATO-PALMATE. When a leaf divides into two arms, each of which is palmate.

CONJUGATO-PINNATE. When a leaf divides into two arms, each of which is pinnate.

CONJUNCTORIUM. The operculum of the spore-case of an urn-moss.

CONJURER OF CHALGRAVE'S FERN. A name assigned by Relhan in his Flora of Cambridgeshire to *Puccinia anomones*; but whether a popular name or not we are unable to say. It is derived from the external resemblance of its little heaps of protospores to the fructification of Ferns. *P. anomones* is 'filiis lobata, globulis pulverulentis undique aspersa' of Ray's Synopsis, where it is figured, and named after a specimen in Bobart's Herbarium marked by his own hand—'This capillary was gathered by the Conjuror of Chalgrave.' The elder Bobart, it may be observed, died in 1680, and his son, who succeeded him, in 1719. [M. J. B.]

CONNARACEÆ (Connaraceæ). A family of calycifloral dicotyledons, closely allied on the one hand to *Xanthoxylæ*, and on the other to *Leguminosæ*, differing from the former chiefly in the more completely apocarpous ovary, and from the latter in the perfectly regular flowers, and in the seed in which the radicle is always at a distance from the hilum. They are trees or shrubs, sometimes climbing, with alternate usually pinnate leaves; the stipules either small and deciduous, or wanting; the flowers small, in terminal or axillary racemes or panicles. There are five sepals and petals, ten stamens, and one to five carpels, with two ovules in each, and distinct terminal styles. There are about forty species, natives of the tropics of the New and Old World, and distributed into six or seven genera, of which the principal are *Rourea*, *Connarus*, and *Cnestis*. The aril in some species of *Omphalobium* is entire. Zebra-wood is obtained from *Omphalobium Lambertii*. They belong to Lindley's Rutal Alliance.

CONNARUS. A genus of shrubs or trees, forming the type of the order *Connaraceæ*. The leaves are compound, without stipules; the flowers regular, with ten stamens united by their filaments at the base, the five which are opposite to the petals shorter than the rest. Of the five ovaries, four are generally abortive, and reduced to the condition of styles, while the fifth contains two ascending ovules; the stigma is dilated. The fruit is a kind of pod, but it does not open, and contains only one seed, the other being suppressed. The trees are

natives of India, and tropical South America. [M. T. M.]

CONNATE. When the bases of two opposite leaves are united together. Also when any parts, originally distinct, become united in after-growth.

CONNECTIVAL. Of or belonging to the connective.

CONNECTIVE. The part which intervenes between the two lobes of an anther and holds them together; it is subject to great diversity of form. It appears to be analogous to the midrib of a leaf, and is only absent when an anther is strictly one-celled; that is to say, when the whole of the interior of the end of the stamen is converted into pollen.

CONNEMON. The fruit of *Ocumis Conomon*, cultivated everywhere in Japan.

CONNIVENT. Having a gradually inward direction, as many petals; converging.

CONOCARP. A fruit consisting of a collection of carpels arranged upon a conical centre, as the strawberry.

CONOCARPUS. A genus of *Combretaceæ*, consisting of trees and shrubs from tropical America (one species extending northwards as far as Florida) and Western Africa, with alternate leathery entire leaves, and densely aggregated stalked heads of flowers on globular or oblong receptacles. Calyx about the length of the ovary to which it adheres; petals none; stamens five to ten exerted; ovary compressed, two-ovuled. The fruit is leathery, scale-like, forming imbricated cone-like heads. The Indian species, which were formerly placed in this genus, are now separated under the name of *Anogeissus*, having the calyx tube prolonged upwards far above the ovary. They produce very valuable timber, nearly as durable as teak, if kept dry. [J. T. B.]

CONOCLINIUM. The name given to a genus of the composite family, composed of a number of tropical American weeds, rarely exceeding three feet in height. It is characterised by a setose pappus, conical naked receptacle, and bell-shaped involucre, made up of two or three series of linear scales. The species, of which about ten are enumerated, bear much resemblance to each other. *C. caelestinum* is a common plant in thickets and waste places in the Southern and Western United States. It is a smooth or slightly hairy herb with opposite stalked leaves, which are oval in form, with notched margins. The flower-heads, in terminal corymbs, are very numerous, and about the size of a pea; the florets, of a bright blue or purple colour, are all tubular, and have a fragrant odour. The genus differs from *Eupatorium* only in the conical receptacle. [A. A. B.]

CONOIDAL. Resembling a conical figure, but not truly one, as the calyx of *Silene conoidea*.

CONOMORPHA. A genus of small ever-

green trees of the *Myrsine* family, found in the tropical parts of South America. The species have alternate stalked entire leaves of a leathery texture and full of dots, oblong or elliptical in form, and varying from three to seven inches in length. The small white or green flowers are borne on short stiff racemes, and have a calyx of four divisions; a funnel-shaped corolla with a four-parted border, enclosing four stamens; and a one-celled ovary, which is crowned with a short style. The fruit is a berry about the size of a pea, and contains few seeds. [A. A. B.]

CONOPHOLIS. A genus of *Orobanchaceæ*, containing a single species, a native of South America. It is a singular plant growing in clusters among fallen leaves, in oak woods. The stem is crowded with scales, which are at first fleshy, then dry and hard. The upper scales form bracts to the flowers, the lower are closely and regularly imbricated. The flowers are in a thick scaly spike, and have an unequally four to five cleft calyx, a bilabiate slightly curved corolla swollen at the base, protruded stamens, and a depressed stigma. The fruit is an ovoid pod, with four placentæ approximated in the middle of each valve. The genus is nearly related to *Orobanche*, differing chiefly in having a bibracteolate calyx, and exserted stamens. [W. C.]

CONOPSIDIUM. *Platanthera*.

CONOSPERMUM. A genus of *Proteaceæ*, containing about forty species. It is distinguished by having a tubular four-cleft calyx, one of the segments of which is occasionally much larger than the others. There are four stamens on short filaments (one of which is sterile), inserted at the base of the calyx segments: the three anthers cohere together; style filiform, with a free oblique stigma. The fruit is a nut, containing a single silky seed. The inflorescence is either in spikes or panicles. The habit of the different species varies considerably; some are tall erect shrubs, while others are of much humbler growth. The foliage is very variable: in *C. imbricatum* the leaves are oval, scarcely a quarter of an inch in length; in *C. filiforme* and *C. ericifolium* they are narrow and sharp-pointed; in *C. cœruleum* they are spatulate, on very long footstalks; in *C. longifolium* and *C. flexuosum* they are nearly a foot in length, and not more than a quarter of an inch in width; while in *C. teretifolium* and *C. tenuifolium* they are filiform and a foot in length. A few species, as *C. phedroides*, *C. polycephalum*, are nearly leafless. This genus is confined to the extra-tropical portions of Australia: one species (*C. taxifolium*) is likewise found in Tasmania. [R. H.]

CONOSTEPHIUM. A genus of *Epacridaceæ*, containing five S. W. Australian species, branched erect shrubs, with scattered leaves, and solitary recurved axillary flowers. The calyx is five-parted, and is surrounded with four or more bracts; the corolla is five-toothed; the oblong anthers

are included; the ovary is five-celled, with a single pendulous ovule in each cell. The hard indehiscent drupe is one-celled from the abortion of the other cells. [W. C.]

CONOSTYLIS. A genus of New Holland *Hæmodoraceæ*, consisting of perennial herbs with distichous ensiform radical leaves, partially sheathing and equitant at the base, and corymbose or subsapiculate heads of flowers at the top of a simple scape. The perianth is lanately woolly outside, its tube connate with the ovary, and the limb regular, persistent, and half expanded in a bell-shaped form; it has six stamens with short erect filaments, and a conically dilated hollow persistent tripartite style. There are about half-a-dozen described species. [T. M.]

CONOTHAMNUS. Two Myrtaceous shrubs, natives of Western Australia, having linear lance-shaped leaves, and flowers in heads, surrounded by ovate hairy bracts. The calyx is hairy and four-toothed at the margin: the stamens are numerous, united into five parcels, opposite to the petals; ovary three-celled; fruit a capsule included within the tube of the calyx united at the base with the branch, and containing one seed in each of its three compartments. [M. T. M.]

CONRADIA. A genus of *Gesneraceæ*, containing several species of shrubs or herbaceous plants, natives of the West Indies, and reaching into the southern districts of North America. They are shrubs, or rarely herbs, with petiolate generally dentate leaves, and axillary peduncles with a single flower or sometimes with many-flowered cymes. The calyx tube is adherent to the ovary, the limb five-cleft, or more or less deeply five-parted; the corolla is tubular or campanulate, and its limb nearly equally five-cleft. There are four didynamous stamens, with the rudiment of a fifth, but neither hypogynous disc nor gland. The capsule is two-valved, and has two-parietal placentæ with numerous minute seeds. This genus can readily be separated from its allies, by the absence of disc or glands around the ovary. [W. C.]

CONSOLEA. A name proposed for a genus of *Cactaceæ* in honour of M. Michel-Angelo Console, assistant-director of the Botanic Garden at Palermo, by whom the peculiar feature which serves to distinguish it from *Opuntia* was first observed in 1860. This essentially consists in the

species, which include both unarmed and prickly plants, are shrubby, with tall simple continuous and inarticulated stems, bearing a few lateral-apical branches, which fall off as the stem increases in height. The flowers resemble those of *Opuntia*, and are produced near the apices of the branches; they are succeeded by oblong compressed berries. *C. rubescens* is an example of the unarmed species; and *C. ferax* and *spinossima* of the aculeate series. [T. M.]

CONSOLIDA. A section of the ranunculaceous genus *Delphinium*, containing annual species with only one carpel. *D. orientale* and *D. Ajacis*, the rocket larkspurs, are often cultivated; and the blue variety of the latter occurs in Cambridgeshire as a corn-field weed, though it is usually considered as *D. Consolida* by British authors. The true *D. Consolida* differs by having glabrous carpels, and a corymbose inflorescence, not racemose or paniculate, as in *D. Ajacis*. It has been found in Jersey, but perhaps not truly wild. [J. T. S.]

CONSOUDE GRANDE. (Fr.) *Symphytum officinale*. — **HE'RUSSE'E.** *Symphytum echinatum*. — **MOYENNE.** *Ajuga reptans*.

CONTINUOUS. The reverse of articulated. A stem is said to be continuous which has no joints.

CONTORTED. An arrangement of petals or corolline lobes, when each piece, being oblique in figure, and overlapping its neighbour by one margin, has its other margin in like manner overlapped by that which stands next it, as in oleander.

CONTORTULICATUS. Twisted back upon itself.

CONTRAYERVA. *Dorstenia Contrayerva*.

CONULEUM. The name given to a West African bush of the elæagnus family, with opposite entire leaves, which are oboval in form and pointed, while both surfaces are covered with scurfy scales. The small flowers are not known. The females, arranged in forked racemes, have a calyx with a cylindrical tube and a conical limb, and are provided with a little opening at the top through which the style protrudes. The fruit is not known. [A. A. B.]

CONVALLARIA. The Lily of the Valley is a plant so well known, and one which is so universally a favourite, that little need be said by way of description. A slender irregular stalk, a few inches high and slightly curved, bears from eight to twelve small bell-shaped milk-white flowers, arranged one above another, each on a stalk of its own, all bending towards the ground, symmetrically elegant in form, and of a delicate perfume. This stalk rises from the base of a pair of broadly-lanceolate leaves, tapering towards each extremity of a somewhat glaucous hue, clasped together at the base by sheathing scales, and scarcely unfolded by the time the flowers are in perfection. Without poetical or fanciful conventionalities, the Lily of the Valley is as perfect an emblem of purity, modesty, and humility, as the floral world can afford. It may seem idle to observe that a flower of this description cannot be that referred to in the Sermon on the Mount; but as that opinion is frequently broached in popular works, it may simply be observed, that it never grows in the open fields, and that there is nothing in its array to which the term 'glory' is applicable. Not a little unprofitable commentary might have been spared if the same

general meaning had been attached to the term 'Lilies of the Field,' which has by common consent been ascribed to the parallel phrase, 'Fowls of the Air,' while the passage itself would have gained in force and dignity by being kept clear from botanical disquisitions. The Lily of the Valley is an inhabitant of the woods in many parts of England, and has long been admitted into every garden. A variety with double flowers, and another of a reddish hue, are also cultivated; but these are far inferior to the wild form of the plant. Notwithstanding the fragrance of the flowers, they have a narcotic odour when dried, and if reduced to powder excite sneezing. An extract prepared from the flowers or roots partakes of the properties of aloes. A beautiful and durable green colour may be prepared from the leaves with lime. The genus belongs to the *Liliaceæ*. *C. majalis* is the only species retained, some others which were formerly included being now referred to *Polygonatum* and *Silene*. French, *Muguet de Mai*, *Lis de Mai*, or *des Vallées*. German, *Mayblume*. [C. A. J.]

CONVERGENTI-NERVOSE. When simple veins diverge from the midrib of a leaf, and converge towards the margin.

CONVERGINERVED. When the ribs of a leaf describe a curve and meet at the point, as in *Plantago lanceolata*.

CONVOLUTE, CONVOLUTIVE. When one part is wholly rolled up in another, as in the petals of the wallflower.

CONVOLVULACEÆ. (*Bindweeds*.) A natural order of corollifloral dicotyledons, included in Lindley's solanal alliance. Herbs or shrubs, usually twining, and with a milky juice, having alternate leaves without stipules, and regular flowers; the flower-stalks (peduncles) bear one or many flowers. Calyx five-divided, imbricated, persistent; corolla plaited; stamens five, alternate with the corolline lobes; ovary free, two to four-celled; ovules one to two in each cell; styles united, often divided at the top. Fruit a two to four-celled capsule, rarely one-celled, valves breaking off and leaving the dissepiments and placentas in the middle of the fruit; seeds large with mucilaginous albumen; embryo curved. Abundant in tropical countries, and rare in cold climates; they twine around other plants and creep among weeds on the sea-shore. The plants are characterised chiefly by their purgative qualities, and many of them are used medicinally. Jalap is procured from the root, or rather underground stem of *Ezogonium* (*Ipomœa*) *Purga*, while the gum-resin called scammony is produced by *Convolvulus Scammonia*. *Ipomœa Bona nox* is the moonflower of Ceylon and other warm countries. *Batatas edulis*, sweet potato or Batatas, is cultivated in Carolina, Japan, and China, and succeeds within an annual isotherm of 59°. It is cultivated also in Spain and Portugal. In

the Philippine Islands the batatas or camotes are used for making soup, as well as roasted. There are forty-six known genera, and nearly 700 species. Illustrative genera: *Calystegia*, *Convolvulus*, *Excozonium*, *Ipomoea*, *Batatas*, *Pharbitis*. [J. H. B.]

CONVOLVULUS. An extensive and widely-distributed genus, typical of the order of bindweeds, consisting of twining or trailing annual and perennial plants, mostly with showy flowers expanding during the early part of the day. Among the allied genera of the order it is distinguished by its naked bractless calyx, funnel-shaped corolla, two linear often revolute stigmas, and two-celled capsule, each cell containing two seeds. The species share largely in the medicinal properties found in some other genera of the family; qualities which depend on the presence of a peculiar resin with purgative properties. *C. Scammonia* furnishes the scammony of the druggist; and in most of the perennial species, including the indigenous *C. arvensis* and *C. Soldanella*, the same principle occurs. *C. dissectus* abounds in hydrocyanic acid, and is said to be one of the plants from which the liqueur noyau is prepared. Some of the species are popular ornaments of the flower-garden, and with one at least everybody is familiar; viz. *C. tricolor* or Minor *Convolvulus* of the seedsman, a dwarf Mediterranean species with large flowers of a beautiful violet blue, the centre white and yellow. Of the perennial climbing species, *C. althæoides* with silky deeply-cleft ovate foliage and rose-coloured flowers is an example. *C. bryoniaefolius*, *C. italicus*, and *C. Subhorptii* are closely related to it, and not easily distinguished. *C. lineatus* with very narrow entire foliage, and flesh-coloured flowers, is occasionally met with in gardens; it is dwarfer and less showy than the preceding. A very distinct species is the *C. Oneorum*, indigenous to the south of Europe, of shrubby habit with persistent lanceolate foliage clothed with silvery hairs, and whitish flowers produced in terminal bunches in spring. *C. mauritanicus* is a pretty dwarf trailing species with oval wavy foliage, and numerous axillary flowers of a pleasing violet colour. [W. T.]

CONYZA. A genus of herbaceous or shrubby plants belonging to the radiate group of compound flowers, among which it is discriminated by its naked receptacle, its three-cleft outer-florets, and the rough pappus which crowns its fruit. The species possess no properties to render them attractive. They were formerly supposed to have the power, when suspended in a room, of driving away fleas; hence the English name Flea-bane, given also to an allied genus. *C. camphorata* and *marilandica* give out a strong smell of camphor. *C. carolinensis* is an evergreen shrub, a native of Carolina, growing to the height of five feet, and producing purple flowers from July to October. *Baccharis halimifolia*, a shrubby species with insignificant

white flowers is by some authors placed in this genus. French, *Herbe aux Puces*; German, *Dürrwurz*. [C. A. J.]

COOKIA. A genus of *Aurantiaceæ*, named in honour of the famous circumnavigator. It consists of small trees with compound leaves; whose leaflets are unequal at the base. The flowers have four to five concave petals; eight to ten stamens, distinct one from the other; the ovary on a very short stalk, four to five-celled, with two ovules in each compartment; and the style short and surmounted by a four to five-toothed stigma. The fruit is a globular berry, with five, or by suppression, fewer compartments, filled with juice. The fruit of one species, *C. punctata*, is esteemed in China and the Indian Archipelago, where it is known under the name of Wampee. [M. T. M.]

COONDA OIL. The oil of *Carapa guianensis*.

COOPERIA. A genus of *Amaryllidaceæ*, allied to *Zephyranthes*. They are bulbous plants with linear tortuous leaves, and one-flowered scapes. The perianth consists of a long erect slender cylindrical tube widened at the mouth, and a stellate limb of six regular equal segments; the filaments are nearly equal, erect, inserted in the mouth of the tube; the style erect with a three-lobed fimbriated stigma. The species, of which but few are known, are natives of Texas. The typical one, *C. Drummondiana*, has narrow tortuous leaves, twelve to eighteen inches long, and a scape of six inches to a foot high, bearing at the end a single flower, of which the tube is four and a-half inches long, greenish, often fading red, and the limb, rather over an inch long, and white. The flower always expands in the evening, and is not usually perfect after the first night, the limb becoming less stellate, and its margins curled, but it lasts three or four days in that state. 'The nocturnal flowering of this plant is an anomaly in the order, and the more remarkable because its nearest kin, *Zephyranthes*, requires a powerful sun to make it expand. The flower is fragrant, smelling like a primrose.'—Herbert. *C. pedunculata*, called also *Sceptranthus*, is also a nocturnal blooming fragrant plant. [T. M.]

COOPER'S WOOD. *Alphitonia excelsa*.

COPAIVA TREE. *Copaifera officinalis*, which, with other species of *Copaifera*, yields Copaiivi balsam.

COPAI YÉ. The wood of *Fochys guianensis*.

COPAL. A name applied to a gum resinous product of various tropical trees. —, **BRAZILIAN**, obtained from several species of *Hymenæa*, and from *Trachytobium Martianum*. —, **INDIAN**, produced by *Vateria indica*. —, **MADAGASCAR**, produced by *Hymenæa verrucosa*. —, **MEXICAN**, supposed to be the produce of some *Hymenæa*. —, **SANZIBAR**. The product of *Trachytobium Hornemannianum*.

COPALCHE PLANT. *Strychnos pseudoquina*, which furnishes the Brazilian copalche bark; also *Ocotea pseudo-china*, the bark of which is called copalche bark in Mexico.

COPALM BALSAM, or COPALME D'AMÉRIQUE. (Fr.) A liquid balsam obtained from *Liquidambar styraciflua*.

COPERNICIA. A genus of palms named in honour of the celebrated Copernicus. It comprises six species, inhabiting tropical America, but three of them are almost unknown. They grow twenty, thirty, rarely forty feet high, their trunks being covered by the remains of leaf-stalks, and surmounted by tufts of fan-shaped leaves, from amongst which the branching spikes of small greenish flowers are produced, each spike having several sheathing bracts scattered along its stalk. The flowers are either perfect or imperfect, and have a cup-shaped calyx with three small teeth, a bell-shaped corolla with the upper part cut into three divisions, six stamens fixed to the inside of the corolla, and three ovaries more or less cohering together. The fruit is yellowish, of an elliptical form, and contains a single seed.

The Carnaúba or Wax-Palm of Brazil, *C. cerifera*, grows about forty feet high, and has a trunk six or eight inches thick, composed of very hard wood, which is commonly employed in Brazil for building and other purposes, and is sometimes sent to this country and used for veneering. The upper part of the young stems, however, is soft, and yields a kind of sago; and the bitter fruits are eaten by the Indians. The young leaves are coated with wax, called carnaúba wax, which is detached by shaking them, and then melted and run into cakes; it is harder than bees' wax, and has been used by Price and Co. for making candles, but as no process of bleaching has been discovered, they retain the lemon-coloured tint of the raw wax. The leaves are also used for thatching, making hats, &c., and while young as fodder for horses. [A. S.]

COPPERY. Brownish red, with a metallic lustre.

COPRINUS. A genus of gill-bearing fungi remarkable for their dark spores and deliquescent pileus. The gills moreover adhere together in consequence of the great projection of the transparent processes supposed to be antheridia. The species are numerous, of extremely rapid growth, and are developed for the most part on dung hotbeds or very rich manured soil. They have even been found on the dressings of fractured limbs. A few hours is often sufficient for their complete development and decay. *C. atramentarius* yields a very dark juice which has sometimes been used for ink, and both that and some other species are mixed with other fungi to make ketchup. *C. comatus* is sometimes eaten when young and is said to be both delicate and wholesome. *C. bolbitis* is distinguished by its salmon-coloured spores.

[M. J. B.]

COPROSMA. A genus of cinchonaceous shrubs, owing their name to their fetid smell. The flowers are polygamous, each whorl of from four to nine divisions; the stamens project from the somewhat bell-shaped corolla; the ovary has two to three compartments, and is surmounted by an epigynous disc. The fruit is a berry with two or three seeds. The leaves of *C. fastidissima* are used by the New Zealand priests to discover the will of the gods. The leaves are attached with a cord of flax to sticks, which are laid on the ground, each stick representing a separate party. The priests retire to pray, and after a time the chiefs are summoned to examine the sticks, which are found to have been moved, and some have disappeared entirely; this is considered a certain sign that one of the party will be destroyed. Others are found turned over. If the leaf be turned down, the omen is bad, but if the reverse should occur, it is a sign that the party represented by the stick will prosper in their undertakings. See Bennett's *Gatherings of a Naturalist in Australia*. [M. T. M.]

COPTIS, Gold Thread. A genus of *Ranunculaceæ* containing a few North American and North-east Asian herbs (one of which extends into Russia) with creeping rootstocks and trifoliate or bipinnate radical leaves and simple or branched scapes with small white flowers, with five or six petaloid deciduous sepals and as many petals; fifteen to twenty-five stamens, and five to ten foliaceous stalked carpels diverging in the form of a star, with four to eight seeds in each. The bitter rhizomes are used in America as a tonic, and also yield a yellow dye. [J. T. S.]

COPTOPHYLLUM. The name of a section or group of *Anemia* in which the caudex produces distinct sterile and fertile fronds. It contains one or two beautiful dwarf species, as *A. buntifolia* and *A. millefolia*. [T. M.]

COQUARDEAU. (Fr.) *Chetranthus feneestralis*.

COQUE. (Fr.) *Cocculus*.

COQUELIOT. (Fr.) *Papaver Rhæas*.

COQUELOURDE. (Fr.) *Anemone Pulsatilla*; also *Lycnis coronaria*.

COQUELUCHIOLE. (Fr.) *Cornucopia*.

COQUERELLE. (Fr.) *Anemone Pulsatilla*.

COQUERET. (Fr.) *Physalis Alkekengi*. —, **COMESTIBLE.** *Physalis peruviana*.

COQUILLA NUTS. The seeds of *Attalea funifera*.

COQUITO. The Chilian name of the palm *Jubæa spectabilis*.

CORACAN. (Fr.) *Eleusine Coracana*.

CORACINOUS. Raven-black.

CORAÇA DE JESU. *Mikania officinalis*.

CORAIL DES JARDINS. (Fr.) *Capsicum annuum*.

CORAL BERRY. An American name for *Symphoricarpos vulgaris*.

CORALLIFORM, CORALLOID. Resembling coral in general appearance.

CORALLINA, CORALLINEÆ. A genus and division of rose-spored *Algae*, the latter characterised by their calcareous rigid fronds, which when fresh are purple, fading to creamy white. Some are shrubby and jointed, others are crustaceous, and often adhere closely to their matrix, as pebbles, shells, seaweed, &c., while others present clavate or nodular forms, and are at length free from any attachment. When treated with hydrochloric acid their structure becomes visible under the microscope, and in some, as in *Corallina*, tetraspores have been discovered. The whole group, however, requires further investigation, and when the fruit is discovered in all the genera, it is probable that they will be absorbed into other groups. From the great quantity of carbonate of lime which they contain, some of the species, but especially *Corallina officinalis*, which is very common on our coasts, have been employed in medicine. They have, however, no specific properties beyond common chalk, which is a much more convenient substance. Crabs' eyes, crabs' claws, and red coral may be considered as belonging to the same pharmaceutical category. [M. J. B.]

CORALLINES. See *Corallineæ*.

CORALLORHIZA. A genus of orchids consisting of a small number of brown or yellowish terrestrial parasitical herbs, natives of moist woods and shady places in Europe, North America, and Northern Asia. Their leaves are reduced to small scales of the colour of the stems; their flowers are small in a loose terminal spike, the sepals and petals nearly alike, the lip larger and often white, the column short, with a terminal lid-like anther, and two pairs of globular pollen masses attached laterally. *C. innata*, the only European species, occasionally occurs in some parts of Scotland. It is a slender plant of six to nine inches high, of a pale colour, and remarkable for its root-stock, formed of a number of short thick whitish fleshy fibres, repeatedly divided into short blunt branches, and densely interwoven, which, from their resemblance to coral, have given the name to the genus.

Two species are found in Mexico, of which one, *C. bulbosa*, has its stem distended into a kind of corn at the base. The largest flowered species inhabits North-west America. *C. indica* was found by Dr. T. Thomson in the North-western Himalaya. A supposed species called *C. foliosa*, because it bears a true leaf, now forms part of the genus *Oreorchis*.

CORAL-ROOT. The common name for

Corallorhiza; also sometimes applied to *Dentaria bulbifera*.

CORAL-TREE. The common name for *Erythrina*.

CORALWORT. *Dentaria bulbifera*.

CORBEILLE D'ARGENT. (Fr.) *Iberis sempervirens*. — D'OR. (Fr.) *Alyssum saxatile*.

CORBULARIA. A genus of amaryllids, commonly called Hoop-petticoats. It is a small group sub-divided from *Narcissus*, and its chief peculiarities are a funnel-shaped tube to the perianth, an inconspicuous limb with small narrow spreading segments, and a large funnel-shaped cup, which is longer than the tube itself; the filaments and style are declinate and recurved, the sepaline filament inserted at the base, and the petaline near the base of the tube. The species are pretty dwarf hardy bulbs with very narrow half-terete leaves, and comparatively large showy flowers, one to three together on the scape. The species are found in the middle and south of Europe. *C. Bulbocodium*, the common Hoop-petticoat and the type of the genus, is a small plant, with conical bulbs as large as a nut, three or more leaves from four to eight inches long, and a one-flowered scape four to six inches long; the flower an inch long, pale yellow, with narrow linear lanceolate segments, the cup or coronef prominent truncate deep yellow. The few species vary chiefly in size and colour. [T. M.]

CORCHORUS. This genus of *Tiliaceæ* contains between forty and fifty species of herbaceous plants or small shrubs, with simple leaves, inhabitants of both hemispheres, but seldom found far beyond the tropics. Their flowers are produced either singly or in clusters opposite the leaves. They have a calyx of five deciduous sepals, and a corolla of five petals, with numerous stamens, a very short tubular style, and from two to five stigmas. Their fruit is long and pod-like or roundish, and splits when ripe into five divisions, each of which has numerous seeds arranged in rows on either side of a longitudinal partition.

C. capularis is an annual Asiatic plant, growing about ten or twelve feet high, and having a straight cylindrical stem as thick as the little finger, and seldom branching till near the top. Its leaves are about six inches long by one and a half or two broad towards the base, but tapering upwards into a long sharp point, and having their edges cut into saw-like teeth, the two teeth next the stalk being prolonged into bristle-like points. The flowers are yellow, and produced in clusters of two or three together; they are succeeded by a small almost globular but flat-topped fruit. This species, as well as *C. olitorius*, yields the exceedingly valuable fibre known under the name of Jute. Only twenty years ago, Jute was hardly heard of out of India, where it had long been in use amongst the natives for making cordage and cloth, but it now forms a very important article of

commerce; no less than 738,063 cwt., valued at \$19,6681., having been imported to this country alone in 1858. The plant is largely cultivated in India; also by the Malays and Chinese. The fibre is separated by the ordinary process of steeping in water. It is frequently as much as twelve feet in length, very soft, silky, and separable into fine filaments, which are easily spun. Jute is much used in the manufacture of carpets, and some kinds of cloth; but is not suitable for cordage, as it will not bear exposure to wet. Its most important use, however, is for the manufacture of the gunny-bags, so extensively used for packing cotton, rice, and other dry goods, enormous quantities of them being exported from India to the United States for that purpose. Very good paper is made from the refuse fibre, and also from worn-out gunny-bags; and a kind of whisky, resembling corn-spirit, has been distilled from the waste ends of the stems.

C. olitorius, is a native of India, but is now naturalised in all parts of the tropics, and extends as far north as the shores of the Mediterranean. It is an annual plant much resembling *C. capsularis*, the principal difference existing in the fruit, which in this species is two inches long, almost cylindrical, and about the thickness of a quill. The young shoots of this species are commonly used as a pot-herb in tropical countries, as are those of *C. capsularis*; it is much grown for this purpose in Egypt and Syria, and being used by the Jews, it has obtained the name of Jews' Mallow. It yields part of the Jute of commerce.

siliquosus, a common species in the West Indies and tropical America, is an herbaceous plant about two or three feet high; its leaves differ from those of the two last in not having bristles on the two bottom teeth, and there is usually a line of minute hairs along the stem. The negroes in the West Indies use it for making be-soms, and the inhabitants of Panama drink an infusion of the leaves as a substitute for tea; hence they call it *te*. [A. S.]

CORCULUM. The embryo; and also, the small axis of growth in such dicotyledonous embryos as the walnut.

CORDATE. A plane body, having two round lobes at the base; the whole resembling the heart in a pack of cards.

CORDATO-HASTATE. Between cordate and hastate.

CORDATO-OVATE. Between cordate and ovate.

CORDATO-SAGITTATE. Between cordate and sagittate.

CORDELYSTYLIS. A little known genus of Indian orchids described by Falconer in the *Journal of Botany* (iv. 75). It seems to be related to *Spiranthes*.

CORDIA (including *Myza*, *Pilicordia*, *Rhabdocalyx*, and *Sebestena*). A genus of *Boraginaceae*, containing nearly 200 species of plants scattered over the tropical and sub-

tropical regions of the world. They are trees or shrubs with alternate rarely subopposite petiolate and entire or subdentate leaves, and flowers variously arranged, sometimes polygamous, or monocious from the abortion of parts. The calyx is tubular with four or five teeth; the corolla is funnel-shaped with the limb four to five-parted, rarely six to twelve-lobed; the stamens are as numerous as the divisions of the corolla, and are inserted in the tube; the ovary is four-celled, and bears a doubly-bifid style, with a stigmatic surface on each division. The drupaceous fruit is ovate or globose, pulpy, generally surrounded by the persistent calyx, and four-celled or one to three-celled from the abortion of one or more cells; there is a single seed in each cell. This large unwieldy genus has been divided into the following sections from characters obtained from the calyx; and it would be well if these sections were raised into genera:

Gerascanthus, having a cylindrical ten-grooved calyx.

Pilicordia, with an oblong or cylindrical ten-striate calyx.

Physoclada, having a membranaceous calyx, hispid at the apex with setae, and at length irregularly torn.

Sebestenoides, having a cylindrical or ovate smooth three to ten-toothed calyx.

Myza, the calyx not grooved, four to five-toothed, the teeth short or rarely awn-shaped.

Cordiopsis, with an obovate or oblong calyx terminating in five setaceous divisions.

The fruit of some species is eaten, as of *C. latifolia* and *C. Myza*, two Indian species which have succulent mucilaginous and emollient fruits. From their mucilaginous qualities, combined with some astringency, they have been employed as pectoral medicines, under the name of *Sebestens*. The fruit of *C. abyssinica* is used in the same way in Abyssinia. The bark of *C. Myza* is a mild tonic, and is used in India for astringent gargles. Some species supply useful and ornamental timber; the wood of *C. Rumphii* is brown, beautifully veined with black, and smells of musk. *C. Gerascanthus* yields a timber of importance in the West Indies. The wood of *C. Myza* is soft, and of little use except for fuel. It is reckoned one of the best kinds for kindling fire by friction, and it is said to be the wood which was used by the Egyptians in constructing their mummy-cases. See Plate 6, c, and Plate 10, c. [W. C.]

CORDIACEÆ. A tribe or suborder of *Boraginaceae*, often considered as forming a distinct family. They differ from true *Boraginaceae*, but agree with *Ehretiaceae* in their concrete entire ovary internally divided into four or more cells; and are distinguished from both of those suborders by their branching style, and most frequently by their plaited cotyledons. They are trees, shrubs, or rarely herbs, with alternate rough leaves; their flowers are in terminal cymes, sometimes gyrate as in true *Bora-*

ginea, or rarely solitary. The fruit is usually more or less drupaceous. There are above 180 species, natives of the tropical or subtropical regions both of the New and the Old World, and have been distributed into about twelve genera, most of which have, however, been since reduced to *Cordia* itself.

CORDICEPS. A fine genus of Sphaeriaceous *Fungi* distinguished by its fleshy texture, vertical stipitate stroma and filiform articulate spores, which separate at the articulations. The species are the most remarkable amongst the very important group to which they belong. A few grow upon dead leaves, decaying branches, or ergoted grains, the rest upon pupae or larvae of insects. The New Zealand *C. Robertii* occurs on the caterpillar of a species of *Heptalus*, and is frequently brought home as an object of curiosity. We have two or three fine species in this country, of which *C. militaris* is remarkable for its brilliant scarlet hue. *C. alutacea*, which is of a pale tan, grows upon pine leaves, and a form of it, or distinct species, on *Ulex europaeus*. There is no doubt that, in many cases, the fungus-bearing insects are attacked during their lifetime; and there is one species of *Cordiceps* which occurs on wasps in the West Indies, which is considerably developed before the insect dies. The wasps so attacked are known by the name of *Gûêpes végétantes*. The peculiarities of the species which grow on ergot will be noticed under that head. *C. sinensis* is supposed by the Chinese to have healing properties, and is sold as a drug in little bundles. [M. J. B.]

CORDIFORM. When a solid has the form of cordate.

CORDLEAF. A name given by Lindley to the group of restiaceous plants.

CORDON DE CARDINAL. (Fr.) *Polygonum orientale*.

CORDYLANTHUS. A genus of *Homoioleaceae* from Java. It is allied to *Blackwellia*, but with an elongate club shaped perianth tube, adhering to the ovary, the limb ten or twelve-parted, and the segments in two rows, the inner longer and petaloid; leaves alternate, shortly-stalked, leathery, elliptical, toothed; flowers white, racemose, axillary; peduncles one to three-flowered; stamens fifteen or twelve; styles three to five; ovary one-celled. [J. T. S.]

CORDYLIN. A genus of erect-stemmed shrubby palm-like *Liliaceae*, bearing spreading and very ornamental heads of narrow elongate striated leaves, and terminal panicles of numerous small flowers. The perianth is deciduous, tubulose, bell-shaped, with a six-cleft or six-parted spreading limb of linear segments, inserted in two rows; and there are six stamens with linear filaments inserted in the mouth of the tube. The ovary is three-celled with one ovule in each cell; and the style is filiform with a capitate three-lobed stigma. The fruit is a globose three-celled berry,

often by abortion one or two-seeded. The species are found in tropical Africa, in Madagascar, and the Mascarene Islands, and in the Malayan Archipelago. The typical species, *C. regina*, a native of the Mauritius, St. Helena, and Madagascar, has a naked simple stem, bearing a crowded head of numerous ensiform striated leaves, six or seven inches long, and scarcely half an inch wide. The flowers are fragrant, numerous, yellowish green, in a branched terminal raceme. *C. fragrans*, a West African species, has a tall stem with a terminal head of lanceolate leaves, two to three feet long, and two to three inches broad, and divaricately-branched panicles of fragrant white flowers, collected into dense umbellate heads. *C. Stebbellii* is a compact growing species with oblong leaves, four to six inches long, deep green, ornamentally blotched with paler green, and producing short terminal panicles of greenish-white flowers. Some very ornamental species formerly included in *Cordylina*, are now referred to the genera *Caladragon* and *Dracænopsis*; and others less striking in their appearance to *Charivoodia*. [T. M.]

CORDYLOBLASTE. The name given to a Javanese tree, perhaps a species of *Camellia*. It has elliptic entire pointed leaves; flowers in whorls of five; stamens united into a tube, the upper edge of which has six anthers on it and ten or twelve teeth, while numerous other anthers are attached to the inner surface of the tube of the stamens; style simple; ovary seated on a fleshy disc, which is adherent to the base of the calyx, with one many-seeded compartment. [M. T. M.]

CORDYLOGYNE. A genus of *Asclepiadaceae*, consisting of a single herbaceous plant growing at a height of 4,000 feet on the mountains of Southern Africa. The plant has many erect slender stems about a foot high, long linear leaves, and pale green flowers clustered in many-flowered long peduncles. The calyx consists of five small hairy sepals; the corolla is five-parted, the divisions erect, and at length spreading; the staminal crown consists of five oblong leaves with angular processes on their lateral margins; the anthers are terminated by a triangular opaque apex, adpressed to the base of the oblong fleshy stigma; the pollen masses are attached by slender-kneed processes to a small simple corpuscle; the follicle is solitary, slender, and erect, with comose seed. [W. C.]

COREMA, Portugal Crakeberry. An erect much-branched low shrub of rigid habit, closely allied to *Empetrum*, from which it is distinguished by having no scales at the base of its calyx, and by its white three-seeded globose berries. The branches are slightly downy; the leaves obtuse, small, and narrow, with revolute edges, and sprinkled with resinous dots; flowers white, growing in terminal groups very like those of *Empetrum*, but larger. It is a native of Portugal and other coun-

tries of Southern Europe, and is described by some authors under the name of *Empetrum lusitanicum*. [C. A. J.]

COREOPSIS. A genus of American herbaceous composite plants remarkable for the singular shape of its seeds, which are flat on one side, convex on the other, membranous at the edge, and having the pappus furnished with two horns not unlike the antennæ of an insect. Hence its name, which in Greek signifies 'bearing resemblance to a bug.' Many species are cultivated, among which *C. diversifolia* is a perennial with branching stems, small three to five-lobed leaves and large terminal flowers, the disk of which is purple, and the rays yellow, marked with a purple stain at the base. Several beautiful annual species, as *C. tinctoria*, *C. coronata*, *C. Atkinsoniana*, and *C. Drummondii*, are now referred to *Calliopsis*. *C. verticillata* is a handsome shrubby perennial, continuing long in flower; its flowers are used in North America to dye cloth red. [C. A. J.]

CORESES. Dark red, broad, discoid bodies, found beneath the epicarp of grapes.

CORETTE POTAGE'RE. (Fr.) *Corchorus olitorius*.

CORETHROSTYLIS. A group of W. Australian bushes belonging to the *Scrofulaceae*, remarkable for the form of the style, which is elongated and furnished with numerous tufts of recurved hairs, giving it the appearance of a bottle-brush. This curious appearance has suggested the name. About seven species are known, all of them having their parts more or less covered with rusty-coloured starry hairs. Their leaves are alternate, mostly heart-shaped, and either entire or notched. The flowers are in branched racemes, which arise from opposite the leaves, each flower supported by a bract, and consisting of a five-parted petal-like calyx covered with soft hairs; no petals; five stamens with short stalks, and anthers opening at the apex by a small pore, surrounding a three-lobed ovary, which, when ripe, becomes a three-celled capsule with three seeds. *C. bracteata* is a pretty bush sometimes seen in greenhouses: it has heart-shaped entire leaves about an inch in length, covered like all parts of the plant with rusty hairs. The plants are now referred to the genus *Lasiopetalum*. [A. A. B.]

CORIAEOUS. Having the consistence of leather.

CORIANDER. *Coriandrum sativum*.

CORIANDRUM. A genus of *Umbelliferae* producing the fruits erroneously called Coriander seeds. There is but one species, *C. sativum*, a native of Southern Europe, the Levant, &c., and cultivated even in this country, where it is also sometimes met with in a half wild condition. It has a branching annual stem, one to one and a half foot high, with the lower leaves

pinnately divided into broad or wedge-shaped deeply-cut segments, while the upper leaves are more finely cut. The umbels have five to eight rays without a general involucre, and the partial ones consist of only a few small bracts; the flowers are whitish or pink. The most characteristic feature, however, is the globular fruit, which is crowned by the teeth of the calyx, and has no oil channels on the outer surface, but two on the inner face of each half of the fruit; the ridges are five and rather indistinct. The two carpels of which the fruit is composed do not readily separate one from the other. Coriander fruits or seeds are carminative and aromatic, and are hence used for flavouring purposes in curries, &c., &c. The odour and taste depend upon a volatile oil. The fresh plant has a strong smell of buga. [M. T. M.]

CORRIARIA. A genus of shrubs of uncertain position, by some made to constitute a distinct family under the name of *Coriariaceae*. The leaves are opposite, simple, ribbed, and entire. The flowers are in clusters, either hermaphrodite, monocious, or dioecious; calyx five-parted, bell-shaped; petals five, fleshy, with a prominent ridge internally; stamens ten, arising from beneath the ovary, which consists of five carpels arranged obliquely upon a thickened receptacle; stigmas five; ovules solitary, pendulous, inverted. Fruit of five crustaceous indehiscent one-seeded carpels, concealed by the membranous sepals and fleshy petals. These shrubs are natives of Southern Europe, the Mediterranean, Peru, Nepal, and New Zealand. *C. myrtifolia*, the European species, is a low deciduous shrub with myrtle-like leaves. Its fruit is poisonous, and is said to have proved fatal to some French soldiers in Catalonia. The leaves have also been used to adulterate senna—a dangerous fraud, as they are stated to have caused tetanic convulsions, and subsequent coma. *C. myrtifolia* is also used in dyeing black. *C. coccinea*, the Wineberry shrub of the settlers in New Zealand, has pendulous branches; greenish white flowers in long slender clusters, and shining-black berry-like fruits, full of a dark red juice of sweet taste, and free from any deleterious properties, but the seeds if eaten are poisonous; the natives therefore having expressed the juice from the fruits, strain it before they drink it, or soak their baked fern root in it. The 'missionaries at the Bay of Islands,' says Dr. Bennett, from whose *Wanderings in Australia* this notice is taken, 'make an agreeable wine from the berries of the shrub, which tastes like that made from elderberries.' The effects that result from eating the seeds are convulsions and delirium, which continue for several hours, and frequently terminate fatally. The fruit of *C. nepalensis* is also eaten in Northern India. [M. T. M.]

CORINDE. (Fr.) *Cardiospermum Halim-*

CORINTHS. The berries of the Corinthian grape, the Currants of the shops.

CORIS. A genus of *Primulaceæ*, containing a single species, a native of the western coasts of the Mediterranean. It is a lowly branching herbaceous plant, with alternate linear coriaceous leaves, and flowers in dense terminal spicate racemes. The calyx is campanulate with a

the upper two are the largest; the corolla is tubular, with the limb bilabiate and cleft into five emarginate lobes, the two upper of which are the smallest; the stamens are scarcely exserted; the slender filaments have glands at their base on the corolla tube; the ovary is obovate, and has a sub-globose placenta; the globose capsule has five valves and five seeds. [W. C.]

CORISPERMUM. A genus of *Chenopodiaceæ*, containing wiry-stemmed hairy annual herbs from Eastern Europe and temperate Asia. Leaves narrow, sessile; flowers very small, solitary in the axils of the leaves, forming spikes; perianth of a variable number of small scales, rarely of one, or absent; stamens one to five, but generally three; the lateral ones often sterile; ovary compressed with short style and two stigmas; fruit compressed often margined. Abundant in the marshy steppes of Southern Russia. [J. T. S.]

CORK, KORKER. The name in the Scotch Highlands of *Lecanora tartarea*, where, Dr. Lindsay informs us, it is made into a domestic dye by macerating the powdered lichen for some weeks in putrid urine, with the addition of kelp or salt, and when the requisite crimson or purple tint is obtained, forming the paste into balls or lumps with lime or burnt shells, and hanging it in bags to dry. When used it is powdered, and then boiled in water with a little alum. In the island of Shetland both the dye and the lichen are called Korkalatt. [M. J. B.]

CORK-TREE. *Quercus Suber*, the bark of which is cork. —, INDIAN. *Millingtonia portensis*.

CORK-WOOD. *Anona palustris*. — NEW SOUTH WALES. *Duboisia myoporoides*. — WEST INDIAN. *Ochroma Lagopus*.

CORN. A fleshy underground stem, having the appearance of a bulb, from which it is distinguished by not being scaly.

CORMAU or CORNIAU. (Fr.) A kind of olive.

CORMIER. (Fr.) *Sorbus domestica*.

CORMOPHYLLUM. A name given by Newmann to a genus of Ferns having an erect caudex 'eventuating in fronds,' and in which he proposed to unite the species usually referred to *Cyathea*, *Hemitelia*, and *Aleophila*. [T. M.]

CORN. A general term applied to the

cereal or grain-producing grasses. — **BROOM.** *Sorghum Dora*, the panicles of which are made into brooms, and the grain used for poultry food. — **KAFFIR** A species of *Sorghum*, probably *S. saccharatum*. — **GOOSE.** *Juncus squarrosus*. — **GUINEA.** *Sorghum vulgare*; also applied in the West Indies to several grain-bearing species of *Panicum*, as *P. pyramidale*, *scabrum*, &c. — **INDIAN.** The maize, *Zea Mays*.

CORNACEÆ. An inconsiderable natural order of polypetalous calycifloral dicotyledons, belonging to Lindley's umbellal alliance. Trees or shrubs usually with opposite leaves having no stipules; flowers in cymose clusters or in heads surrounded by an involucre; calyx adherent, its limb four-toothed; petals four, valvate in bud; stamens four, alternate with the petals; styles united into one; ovary two-celled; ovules solitary, pendulous. Fruit a two-celled drupe (like a cherry). Natives of the temperate parts of Europe, Asia, and America. The plants of this order are used as tonics and in ague. *Cornus mascula* is the akenia of the Greeks, and the kiziljiek or red-wood of the Turks. From the wood of this plant the Turks obtain the dye for their red fez. The fruit stewed and mixed with water forms a good drink in hot weather, and from its astringency it is useful in bowel-complaints. Various species of *Cornus* or dogwood are used in America as substitutes for Peruvian bark. There are nine known genera and forty species. Illustrative genera:—*Cornus*, *Benthania*, *Aucuba*. [J. H. B.]

CORNARET. (Fr.) *Martynia*.

CORN CAMPION, CORN CCKLE. *Agrostemma Githago*.

CORNE-DE-CERF. (Fr.) *Coronopus vulgaris*.

CORNEILLE. (Fr.) *Lysimachia vulgaris*.

CORNEL. (CORNOUILLET, Fr.) The Cornelian cherry, *Cornus mascula*. — **WILD** or **FEMALE.** The dogwood, *Cornus sanguinea*.

CORNEOUS. Horny; hard and very close in texture, but capable of being cut without difficulty, the parts cut off not being brittle: as the albumen of many plants.

CORN-FLAG. The common name for *Gladiolus*.

CORN-FLOWER. *Centaurea Cyanus*.

CORNICULATE. Terminating in a process resembling a horn; as the fruit of *Trapa bicornis*. If there are two horns the word *bicornis* is used, if three *tricornis*, and so on.

CORNIDIA. A genus of trees and shrubs from Peru and Chili belonging to *Hydrogaceæ*. They have opposite ovate or obovate stalked leaves, which are leathery and generally serrated, and bear their flowers in a terminal corymbose cyme of many

rays; calyx-tube adhering to the ovary, the limb four or five-toothed; petals four or five on an epigynous ring; stamens eight or ten; styles two to four; capsule with two or four imperfect partitions. [J. T. S.]

CORN-SALAD. The Lamb's lettuce, *Valerianella olitoria*.

CORNU (adj. **CORNUTUS**). A horn-like process, commonly solid, and usually a metamorphosed state of some other organ. Also employed in the sense of Calcar.

CORNUCOPIÆ. A genus of grasses belonging to the tribe *Phalaridæ*. It is distinguished chiefly by the involucre being large, one-leaved, cup-shaped or funnel-shaped, many-flowered; glumes two, united at the base, nitre-formed, and equal; pales one, bladder-shaped, split on one side, with an awn below the middle; stigmas long. Only one species is described, *C. cucullata*, the Horn of Plenty grass, a native of Greece and Asia Minor, which is frequently cultivated in gardens amongst curious annuals. [D. M.]

CORNUELLE. (Fr.) *Trapa natans*.

CORNUS. The typical genus of the order of cornels, consisting of twenty or thirty species distributed throughout temperate Europe, Asia, and America, generally forming small trees or shrubs, some, however, being humble herbs only a few inches high. Their leaves are undivided and generally opposite; their flowers have a calyx composed of four minute teeth, and a corolla of four yellow or white petals; and their fruit contains a hard two-celled stone with two seeds, and is marked at the top with a scar from the remains of the calyx.

C. florida, a deciduous tree about thirty feet high, is common in the woods in various parts of North America. It has shining branches, and egg-shaped sharp-pointed leaves, clothed with closely-pressed hairs on both sides; and its heads of yellowish flowers are surrounded by four large white bracts. In the United States the bark of this tree is substituted for Peruvian bark in intermittent fevers. Mixed with sulphate of iron it makes a good black ink; and the bark of the root dyes a scarlet colour. Its wood is hard, heavy, and close-grained, but being of small size it is only used for handles of tools, &c.; the young branches stripped of their bark are used for whitening the teeth.

The Cornelian Cherry, *C. mascula*, is a native of many parts of Europe and Northern Asia, forming a large shrub or small tree about fifteen or twenty feet in height, having smooth branches with oval sharp-pointed leaves, and producing its heads of small yellow flowers early in spring, before the appearance of the leaves. Its pulpy fruits resemble a cornelian in colour, and are about the size and shape of olives, for which they are sometimes substituted. The ripe fruits have a harsh acid taste, and are scarcely eatable, but they are sold in the markets in some

parts of Germany, and eaten by children, or made into sweetmeats and tarts. The Turks use the flowers in diarrhoea, and the fruits against cholera, or for flavouring sherbet. The wood is exceedingly hard and durable, and also tough and flexible; in central Europe it is used for making forks and other implements, ladder-spokes, &c., and the young branches for butcher's skewers. *C. sanguinea*, which grows wild in England, is known under the names of Dogwood, Dogberry tree, or Hound's tree, in consequence of a decoction of its bark having formerly been used for washing mangy dogs. It is a shrub about six feet high with dark red branches and broadly egg-shaped pointed leaves, which are hairy when young; and bearing heads of dull white flowers without bracts, producing globular, nearly black, and very bitter fruits, which yield an oil fit for lamps. Its hard wood is used like that of the other species, and its young branches for skewers. *C. suecica* is a humble little plant not more than six inches high, native of Britain, Northern Europe, Asia, and America. Its creeping roots produce annual stems having a few stalkless egg-shaped leaves, and terminated by a head of very minute purple flowers, surrounded by four large petal-like white bracts. The little red berries of this plant form part of the winter stock of food collected by the Esquimaux; and in the Scotch highlands they are a reputed tonic, and are supposed to increase the appetite, the plant being called *lus-a-chraois*, or Plant of gluttony. [A. S.]

Chemical analysis shows that the bark of the root, stem, and branches of *C. florida*, which are bitter, astringent and aromatic, contain, in different proportions, the same substances as are found in *Cinchona*, except that there is more gum, mucilage, gallic acid, and extractive matter, and less resin, quinine, and tannin. The principle obtained from it is called *cornine*, and its salts have, according to Dr. Blackie, all the properties of these of quinine, though not so strongly marked; the principle is also difficult to obtain in any quantity. The extract of Dogwood, though inferior and less stringent than the best cinchona, is said to be better than the inferior kinds; this extract contains all the tonic properties, while the simple resin is merely a stimulant. In cases of debility, Dogwood is a valuable corroborant. Country people often use it as a decoction, or chew the twigs as a prophylactic against fevers. Drunkards sometimes employ a tincture of the berries to restore the tone of the stomach, and combat the pains of dyspepsia. The powdered bark of the plant makes one of the best tooth powders, as it preserves the gums hard and sound, and at the same time renders the teeth extremely white. Rubbing the fresh twigs on the teeth has this effect, and the Creoles of the West Indies, the pearly whiteness of whose teeth is universally acknowledged, use another species in this way. [T. M.]

CORNWEED. *Dierris pectinatus*.

COROLLA (adj. **COROLLARIS**, **COROLLINE**). That part of a flower which intervenes between the calyx and stamens; its parts are called petals.

COROLLIFLORÆ. A subclass of dicotyledons or Exogens, characterised by the petals being united so as to form a monopetalous corolla, inserted below the ovary, and by the stamens being usually attached to the corolla, but sometimes inserted separately below the ovary. Such orders as the heath family, the gentians, and the labiates, may serve as illustrations. [J. H. B.]

CORONA. A coronet. Any appendage that intervenes between the corolla and stamens, as the cup of a daffodil, or the rays of a passion-flower. — **STAMINEA**. A coronet formed from transformed stamens.

CORONANS. Situated on the top or crown of anything. Thus, the limb of the calyx may crown an ovary; a gland at the apex of the filament may crown a stamen.

CORONARIA. A section of the caryophyllaceous genus *Lychnis*. The type of the group is the Rose Campion, *Lychnis coronaria*, a native of S. Europe, commonly cultivated for its beauty. The leaves of this plant are elliptical, white with soft wool, as are the stems and calices; corolla with the petals nearly entire, red or white, with a firm scale at the base of the limb of each; these scales form the crown. The most natural group to combine with the Rose Campion are the remaining species of the discarded genus *Agrostemma*, which have not the deeply-bifid petals of *Lychnis*: this is the arrangement of Fries. [J. T. S.]

CORONATE. Furnished with a coronet. Also used in the sense of Coronans.

CORONILLA. A genus of pretty annual or perennial plants of the pea family, characterised by the flowers being borne on stalked umbels, as well as by the articulated, round, and nearly straight pod. The plants of this genus are found in Europe, Asia Minor, and North Africa, and in greatest abundance in the countries bordering on the Mediterranean Sea. Between twenty and thirty species are enumerated. The Scorpion Senna, *C. Emerici*, a plant not unfrequently seen in gardens is a much-branched pretty bush, about five feet high. Its leaves are alternate, pinnate, from one to three inches long, and composed of three or four pairs of small wedge-shaped leaflets of a pea-green colour; these are said to produce a dye like indigo by proper fermentation, and are also reported as laxative. The yellow flowers, in their form and arrangement, are a good deal like those of the bird's-foot trefoil (*Lotus corniculatus*), and are produced in great abundance, making their appearance in May or June, and continuing in succession till the frost appears. The slender-jointed pod has been compared to a scorpion's tail. *C. varia* is a perennial plant

with creeping roots, and slender angular stems, from one to three feet long. The leaves, from two to three inches in length, have numerous oblong leaflets, and the flowers vary much in colour, being either white, rose, or violet. It grows in various parts of Southern Europe, and has been recommended as a forage plant, but its leaves are too bitter, and are even said to be poisonous. The plants of this genus bear much resemblance to each other, and in almost all, the foliage is of a peculiar pea-green colour. The yellow flowers of many emit a strong odour. [A. A. B.]

CORONULE. The small calyx-like body which crowns the nucule of *Chara*.

CORPUS. The mass of anything; thus, *C. ligneum*, or *lignosum*, signifies the mass of the woody tissue of a plant, and *C. medullare* the mass of its cellular tissue in the pith.

CORPUSCULES. The spore-cases of certain fungals. — **VERMIFORM**. Spiral vessels in a contracted, strangled, distorted condition.

CORREA. The pretty greenhouse shrubs so named are now familiar to most persons. They belong to a genus of *Rutaceæ*, and have simple dotted leaves, covered more or less with down. The handsome reddish or greenish flowers have a cup-shaped nearly entire calyx; a corolla of four petals united into a tube; eight stamens attached beneath the ovary; and four one-celled ovaries placed on a small eight-lobed disc, and covered with dense star-like hairs, the styles confluent into one. The fruit consists of four follicles bursting each by two valves, and one-seeded by abortion. These shrubs are natives of the Southern and Eastern parts of Australia, where they are sometimes called Native Fuchsias, from the slight resemblance of the blossoms to those of the fuchsia. It is said too that the leaves of some of the species are used as tea. [M. T. M.]

CORRIGIOLA. A genus of *Illecebraceæ*, small herbs growing in Europe (especially the Mediterranean region), and at the Cape of Good Hope. They have numerous slender slightly-branched procumbent stems, bearing linear and oblong fleshy glaucous leaves; stipules scarious, small; flowers small, green and white striped, forming compound corymbs or racemes at the end of the stem and branches: calyx five-parted, herbaceous, with a petaloid margin; petals five, very small; stamens five; style very short, three-cleft; fruit, a hard nut enclosing a single seed. *C. littoralis*, found in the extreme south-west of England, is a small annual with narrow leaves extending to the tips of the stems, and there intermixed with clusters of small flowers which arise from the axils, and also from a small terminal corymb. [J. T. S.]

CORBOYERE. (Fr.) *Coriaria myrtifolia*.

CORBUGATED, **CORRUGATIVE**. When

the parts are crumpled up irregularly, as the petals of the poppy, or the skin of some seeds.

COR SEMINIS. An old name for the embryo.

CORTEX. The bark. Also the peridium of certain fungi.

CORTICAL INTEGUMENT. The bark, or false bark of endogens.

CORTICAL STRATUM. The superficial layer of tissue in the thallus of a lichen.

CORTICATE. Harder externally than internally: having a rind, as the orange.

CORTINA. The filamentous ring of certain agarica.

CORTINARIUS. A large genus of *Fungi*, separated from *Agaricus* more from habit than from any striking characters. The spider-like veil, and bright red-brown spores resembling in tint that of peroxide of iron, are the most easily recognised characters. In the woods of Sweden they form by far the larger part of the mass of *Fungi*, and in our own country are sometimes very abundant. There is scarcely a single species which is received into European cookery, but in Bhotan one or two are eaten. Many of the species are extremely beautiful in point of colour, especially when young. They alter wonderfully in this respect in dry weather or as they pass maturity. [M. J. B.]

CORTINATE, CORTINARIOUS. Having a cobweb-like texture.

CORTISIA. A genus referred to *Ehretiacæ*, consisting of a much-branched shrub from the Pampas of South America, having alternate sessile wedge-shaped leaves trifid at the apex, and small white tubercles on both surfaces, from which tubercles spring white hairs. Flowers solitary, sessile, generally terminal, with a tubular calyx having ten small teeth; corolla yellowish-white tubular, with a five-lobed spreading limb; stamens five exserted; style thread-like, cleft at the apex; fruit, an ovate drupe with two seeds. [J. T. S.]

CORTUSA. A genus of *Primulaceæ*, containing a single species, a native of alpine and boreal districts in the Old World. It is a herb with the radical leaves on long petioles, and with simple scapes bearing pedicellate flowers in umbels. The calyx is five-parted; the corolla has a very short tube, and a campanulate limb; the five included stamens are inserted at the base of the limb with very short filaments and obcordate anthers; the capsule is five-valved, and many-seeded, and dehisces from the apex. [W. C.]

CORTUSALES. A name given by Lindley to a group of perigenous exogens, containing among others the primrose and the thrift families.

CORYANTHES. Under this name, formed in allusion to the resemblance of a part of the flower to a helmet, is collected a set

of epiphytal orchids inhabiting tropical America, which are the stragglers of all the strange forms of that extraordinary order. From one or two-leaved pseudobulbs hang down few-flowered racemes of flowers varying in length from two to five inches long, with the following singular structure. For the sepals there are two large membranous plates folding like a bat's wings, with a smaller interposed. In front hangs down a fleshy lip, bucket-like at the base, and expanding into a great helmet-shaped terminal lobe, whose weight keeps it always downwards, the cavity being turned upwards. The column is a long twisted recurved body with a vertical anther, containing a pair of excavated pollen masses. At the foot of the column are two fleshy feet, from whose toe perpetually distils a clear honey-like fluid, which drops into the hollow of the helmet. The meaning of so strange an apparatus is at present unexplained. Six species are known, of which *C. Fieldingi* has the largest flowers, five inches long and three wide when closed, and *C. distillatoria* the smallest.

CORYCIUM. A remarkable genus of orchids related to *Ceratandra*, and, like it, turning black in drying; the most marked difference between the two consisting in the petals of *Corycium* being saccate, and the lateral sepals connate, so as to form a narrow concave lower lip. Nine or ten species have been described, all inhabiting the Cape of Good Hope, and having close spikes of purplish or greenish flowers. One of them, *Corycium orobanchoides*, has been in cultivation.

CORYDALIS. A genus of *Fumariaceæ*, containing succulent-stemmed herbs, natives of the Northern Hemisphere. They have ternate or twice ternate leaves, and racemose flowers, which are very irregular. Calyx of two lateral sepals; corolla of four petals, the upper one spurred or gibbous at its base; stamens six, in two bundles of three each, the filaments forming a ribbon which is three-cleft at the end, the middle lobe with a two-celled, the others each with a one-celled anther; a spur-like process projects backwards from the upper ribbon, and is received into the hollow space of the upper petal. The capsule is a two-valved one-celled pod with numerous seeds, which have an appendage at the hilum. The genus is divided into several sections:—*Cepitæ* with no thickened tuberous rootstock. *Bulbocapnos* with a roundish or ovoid enlarged rootstock and alternate leaves. *Cryptoceras* with a fusiform rootstock and opposite leaves. [J. T. S.]

CORYDALIS, CLIMBING. An American name for *Adiantum*.

CORYDANDRA. *Eulophia*.

CORYLACEÆ. (*Cupulifera*, *Castanea*, *Quercinea*, *Masticoidea*.) A natural order of monochlamydeous dicotyledons, belonging to Lindley's quernal alliance. Trees or shrubs bearing catkins, with simple, alternate, stipulate, often feather-veined leaves,

and frequently, staminate and pistillate (monocious) flowers. Barren flowers (staminate) in catkins; stamens five to twenty, inserted in the base of scales, or of a membranous valvate perianth. Fertile flowers (pistillate) aggregate, or in a spike. Ovary with several cells, enclosed in an involucre or cup (cupule); ovules in pairs or solitary; stigmas, several. Fruit a nut with a husk or cup; seed solitary, without albinism. The plants abound in the forests of temperate regions in the form of oaks, hazels, beeches, and chestnuts. They afford valuable timber and edible seeds, and their bark is astringent. *Quercus* includes the various species of oak, which are well characterised by their acorns. Lieberman says that there are 230 species of oaks known, belonging chiefly to the Northern Hemisphere. To the south of the Line they occur in the Sunda Islands. They are not met with in the temperate zone of the Southern Hemisphere. *Quercus pedunculata* or *Robur* is the common British oak, which has usually stalked acorns. *Q. sessiliflora* is the Durmast with sessile fruit, which by some is reckoned only a variety of the former. The Durmast furnishes the best timber. In the common oak the medullary rays are large and the wood is easily rent; in the Durmast the rays are small and the wood not easily rent. Common oak taken from a ship broke under an average weight of 331 lbs., only bending 4½ inches; while Durmast from the same ship broke with an average weight of 1,032 lbs., and deflected 5½ inches before breaking. Durmast grows faster than common oak, and it was used in many ancient buildings, as in Glasgow Cathedral. The cups of *Quercus Egilops* are used by dyers under the name of valonia. The outer bark of *Quercus Suber* supplies cork. *Corylus Avellana*, the common hazel, yields excellent charcoal for drawing. *Fagus sylvatica*, the beech, and *Castanea vulgaris*, the Spanish chestnut, are cultivated for timber. *Castanea chrysophylla* is the golden chestnut from Oregon. There are eight or nine known genera, and about 280 species. Illustrative genera:—*Corylus*, *Carpinus*, *Fagus*, *Castanea*, *Quercus*. [J. H. B.]

CORYLOPSIS. The name of a genus belonging to the order of Witch-hazels, characterised by the calyx being adherent to the ovary, and divided above into five unequal pieces; corolla of five pieces, broadest upwards; filaments or stalks of the stamens awl-shaped and free; five short scales in the spaces between the stamens; styles or appendages on the ovary two in number, each thickest at the base, and ending in a round head or stigma. The name is derived from the Greek, and means 'Hazel-like,' indicating the general habit of the species, which are shrubs, natives of Japan, with alternate stalked leaves, heart-shaped or entire at the base and of short duration; the flowers are yellow. [G. D.]

CORYLUS. A small tree belonging to the *Corylaceæ*, and under the name of Hazel too well known to need any state-

ment of the characters by which it may be identified. The usual form of the Hazel in its wild state is a straggling bush consisting of a number of long flexible stems from the same root. The bark on the young branches is ash-coloured and hairy, that on the old stems mottled with bright brown and gray. *C. Avellana* includes not only the hazel, but all the European varieties of filbert and cobnut. Among the wild animals which feed on these nuts the most destructive are the squirrel, which carries them off for a winter hoard, or demolishes them on the spot, splitting the shell into two halves; the dormouse, which climbs the trees, and nibbles a round even hole, extracting the contents piece-meal; and the nuthatch, a bird not much bigger than a sparrow, belonging to the tribe Scansores, which carries them off singly, and fixing them in the crevice of an oak or some other rough-barked tree takes his position above, and, head downwards, hammers away with his strong beak until he has made an irregular angular hole. Many nuts are also rendered worthless by a beautiful little beetle (*Balaninus nucum*), which in early summer lays within the tender shell of a nut a single egg, which when the kernel is approaching maturity is hatched into a small grub. This, when the period of transformation to the pupa state is approaching, eats its way through the shell, and falling to the ground buries itself and constructs a cell from which it comes forth in the following season as a perfect insect. The hazel is rarely found of sufficient size to supply building materials, but the young rods being tough and flexible are much used for hoops, walking-sticks, fishing-rods, &c.; and from their smoothness and pleasing colour they are well adapted for making rustic seats and tables for summer-houses; they are also good fire-wood. The charcoal crayons used by artists for drawing outline are also prepared from hazel-wood. A purple-leaved variety to be obtained at the nurseries is a great ornament to shrubberies. Other species occasionally cultivated in England are *C. tubulosa* from Europe, *C. americana* and *rostrata* from America, and *C. Colurna* from Turkey. French, *Noisetier*; German, *Haselstande*. [C. A. J.] The name of *Avellana* is said by Pliny, according to Prof. Targioni, to be derived from Abellina in Asia, supposed to be the Valley of Damascus, its native country. He adds that it had been brought into Greece from Pontus, hence it was also called *Nux pontica*. The nuts were called, by Theophrastus, Heracleotic nuts, from Heraclea, now Ponderachi, on the Asiatic shores of the Black Sea. Others admit that a variety of hazel nut or filbert was brought from Pontus to Abella, a town in Campania, and hence the name of *Avellana* was applied to these trees. In France, at the present day, the better varieties are called *Avellanes*. But the above indications of an Eastern origin can only refer to particular kinds, for the species, it is well known, is common enough in Italy, as well as in other parts of Europe. It is also found over

a great part of Asia in a wild indigenous state. It bears the common names of Hazel, Hazle, or Hasel, not only in this country, but also in Germany, Holland, Sweden, and Denmark. The plant is indigenous to all these countries. Its habitat extends from the extreme south of Europe to the most northern parts of Britain. According to De Candolle it is found wild in the mountains of the Island of Sardinia; and he is not certain whether its growth may not be natural in some ravines near Algiers. It is said to be not now found in Shetland; but formerly it had existed there, for the shells of its nuts are found plentifully in bogs, as they are likewise in similar places throughout Scotland. The ancient nut-shells are often met with in fragments, but many are found quite entire, at various depths below the surface; some of them are larger than those of the Wild Hazel, growing near the same localities at the present day.

The Hazel generally forms large bushes, from its great disposition to produce suckers; but if grown with a single stem it assumes the form of a low tree. One at Gordon Castle, North Britain, measured thirty feet in height, with a trunk three feet in circumference. The plants often form a sort of jungle on precipitous banks of rivers and streams, and may frequently be seen growing out of crevices and fissures of rocks, sometimes much confined for root-space, yet in that case roots will extend far downwards, naked along the face of the rock, till they reach soil below. The wood when two years old and upwards is tough and elastic, and it is well adapted for hurdles, crates, hoops, walking-sticks, &c. Its charcoal is esteemed for making gunpowder.

Nut leaves are large, roundish cordate, and somewhat pointed. The same tree bears male and female flowers, distinct from each other, proceeding from different buds. The male flowers begin to make their appearance in autumn, and acquire their full development early in spring; they are at first compact cylindrical bodies of a greyish colour, afterwards they become long pendulous catkins of a yellow colour, giving the trees, then destitute of leaves, a conspicuous and rather ornamental appearance. The female flowers do not appear till spring. They exhibit a few crimson thread-like styles issuing from the apex of a bud. This bud elongates, and forms a small bractlet, at the extremity of which the cluster of nuts is borne. Until the nuts are nearly full-sized their yet soft green shell is filled with a milky juice, but this does not constitute the kernel. The latter may be observed at the same time not larger than the head of a pin. As it grows the milky substance is absorbed, all except the fibrous portion, which is deposited on the inside of the shell, forming a soft lining for the kernel. The calyx or husk has a fleshy base, to which the lower part of the nut is strongly attached until fully ripe, when the husk dries up and permits the nut to drop out, except in the case of some varieties, more especially those called fil-

berts, which have long tubular husks contracted beyond the apex of the nuts. These were formerly called Full-beards, whilst those with short husks were simply termed Nuts or Hazel-nuts.

There are numerous varieties, differing in the form of the nuts, and in the relative length of their husks. The Red Filbert and White Filbert are similar in external appearance, but in the former the thin pellicle which forms the immediate coating of the kernel is red or crimson, that of the latter white or pale-brown. Both these are esteemed because they admit of being kept fresh in the husks. Short roundish nuts with a strong thick shell are called Cob nuts. Of this description are most of those imported from Spain. The Coford nut is of an oblong form with a comparatively thin tender shell, finely striated longitudinally. The sorts above-named, together with the Downton large square nut, and the large Spanish, are amongst the best sorts for cultivation.

In this country, the neighbourhood of Maidstone in Kent is the most celebrated for the cultivation of filberts. The foreign supply is chiefly from Spain. Phillips states that from a single wood near Recus, 60,000 bushels have been gathered in one year, and shipped from Barcelona, whence they are called Barcelona nuts. 'In the neighbourhood of Avelino in Italy,' says Swinburn, 'the whole face of the neighbouring valley is covered with nut trees, and in good years they yield a profit of 60,000 ducats.' According to French authors the nuts of Provence and Italy are preferable to those of Spain and the Levant. [R. T.]

The common Hazel, *C. Avellana*, is the badge of the clan Colquhoun.

CORYMB (adj. **CORYMBOSE**). A raceme, whose pedicles are gradually shorter as they approach the summit, so that the result is a flat-headed inflorescence, as in candy-tuft. — **COMPOUND**. A branched corymb, each of whose divisions is corymbose.

CORYMBIFERÆ. Corymb-bearing composite plants, a sub-order of the natural order *Compositæ* or *Asteracæ*, containing plants with numerous flowers on a common receptacle, forming a head surrounded by a set of floral leaves or bracts called an involucre. The heads of flowers are either placed singly on stalks; or there are several stalked heads supported on a common axis, and so arranged as to have collectively the form of a corymb, the lower stalks being longer so as to bring the heads to nearly the same level. The flowers in the circumference of the heads are usually ligulate and bear pistils only, while those of the centre are tubular and have both stamens and pistils. The style of the perfect flowers is not swollen below the stigma. Such plants as chamomile, the daisy, the ox-eye, the dahlia, everlasting, sunflower, cineraria, ragwort, and groundsel belong to this sub-order. The plants have bitter qualities; some of

them induce sleep, and they usually contain more or less of a volatile oil. [J. H. B.]

CORYMBIS. Under this name, and those of *Corymborchia*, *Centrosia*, *Rhynchanthera*, *Macrostylis*, and *Hysteria*, botanists have described a singular herbaceous orchid found in the tropical parts of Africa and Asia, with the habit of a small bamboo, and long slender white flowers. After flowering the column grows to a great length, with the remains of the other organs at the base. Only one species, *C. disticha*, is well known; two others very like it are described.

CORYMBIUM. A genus of S. African plants of the composite family, some of them common on the flats about Cape Town, and on Table Mountain. They are perennial plants about two feet high, with grassy root leaves, which have parallel nerves, and are furnished at the base with a tuft of woolly hairs. The stem bears a number of small linear leaves, and terminates in a dense corymb of flowerheads, each of which contains but a single floret in a circumstance unusual in the family. The achene is clothed with long soft hairs, and crowned by a pappus of short scales. [A. A. B.]

CORYNEPHORUS. A genus of grasses belonging to the tribe *Avenae*. It is not considered essentially distinct from *Aira*, under which it is described in *Steudel's Synopsis*, as the *Aira caenaceus* of Linnaeus. It is rare in England, but generally diffused throughout Continental Europe. [D. M.]

CORYNEUM. One of the most remarkable genera amongst the coniomycetous *Fungi*, distinguished by the dark naked elongated articulated spores, radiating in every direction from a little raised cushion-like receptacle. It is distinguished from *Hendersonia*, which has somewhat similar spores, by the absence of any surrounding cyst or perithecium. From *Bactridium* it is separated by its more developed receptacle and dark, not coloured spores. The species grow on dead twigs. *C. Kunzei*, which is not uncommon on oak, affords a pretty microscopical object. The species are new, however, considered as conidiferous forms of *Sphaeriaceae* genera. [M. J. B.]

CORYNIDIA. Processes sunk into the margin of the germinating leaf of ferns, and containing spiral threads.

CORYNOCARPUS. A New Zealand genus of handsome trees belonging to the order *Myrsinaceae*. The leaves are entire and smooth; and the flowers small, white, in terminal clusters. The sepals and petals are five in number, the latter provided with a narrow claw; alternating with the petals are five ascending scales, each with a small globular gland attached to it; there are five stamens; the ovary is globular. The fruit is club-shaped, hence the name of the genus; it contains but one seed. *C. levis* is in cultivation in this country. The tree, according to Dr. Bennett, is valued in New Zealand for the sake of its fruit and seeds; the former is of the size

of a plum, pulpy in the interior and sweet. The seeds are used in times of scarcity, and contain a tasteless farinaceous substance. The raw seeds, however, are poisonous, and produce spasmodic pains, giddiness, and partial paralysis, to obviate which effects they are steamed for twenty-four hours, and then either buried in the ground, or allowed to soak in water for some days. [M. T. M.]

CORYNSTYLIS. Tropical American climbing shrubs of the violet family, with entire saw-toothed leaves, deciduous stipules, and large handsome flowers. The sepals are nearly equal; the five petals very irregular, the anterior ones the smallest, the lateral ones erect, the hinder one very large and prolonged at the base into a spur; the five stamens have short filaments prolonged into a hairy appendage at the base, the anthers surmounted by a membranous crest; the ovary is somewhat globular, three-celled; the style terminal, club-shaped; the stigma ciliated, lateral; the fruit a capsule with many seeds. [M. T. M.]

CORYPHA. A genus of fan-leaved palms composed of about five species, all natives of tropical Asia, and mostly forming tall trees. All their flowers are perfect, and produced on branching spikes, which are surrounded at the base by numerous leafy bracts. They have a cup-shaped calyx, the rim of which is cut into three teeth; a three-petaled corolla; six stamens, whose bases are dilated so as to join one another; and three ovaries, which cohere, and have their awl-shaped styles united together and crowned by a simple stigma. The fruit is a one-seeded berry.

The Talipot palm, *C. umbraenifera*, is a native of Ceylon and the Malabar coast, where it grows to sixty or seventy feet high, with a straight cylindrical trunk, marked by rings, and surmounted by a crown of gigantic fan-like leaves. These leaves have prickly stalks six or seven feet long, and when fully expanded form a nearly complete circle of thirteen feet in diameter, and composed of from ninety to a hundred radiating segments, joined together and plaited like a fan till near the extremity, where they separate and form a fringe of double points. Large fans made of these leaves are carried before people of rank among the Cinghalese; they are also commonly used as umbrellas, and tents are made by neatly joining them together; besides which they are used by the natives as a substitute for paper, being written upon with a style. Some of the sacred books of the Cinghalese are composed of strips of them. The hard seeds are suitable for turnery purposes. *C. Tallera* is a native of India, and is closely allied to the preceding, but does not grow more than thirty feet high. Its leaves are used for the same purposes. *C. Gebanga* is called Gebang in Java, where it is a native. The leaves are used for thatching, plaiting into baskets, hats, and similar articles. From the interior of the trunk a kind of sago is obtained; and the sliced

root is said to be an efficacious remedy for diarrhoea. [A. S.]

CORYSANTHES. Curious little swamp orchids, inhabiting Australia and Java, have received this name in allusion to their large dorsal sepal having the form of a helmet. They have thin roundish solitary leaves, from the axil of which rises a single purple and green flower. One species, named *Calcearia* by Blume, grows among damp moss on the summit of Mount Salak in Java.

COSCINIUM. A remarkable genus of *Menispermaceæ*, characterised by its large petals, the irregularly-mottled albumen, and the structure of its embryo, which has its radicle superior, pointing towards the apex of the drupe-like fruit, while the cotyledons are rounded, widely-spreading, either perforated with holes, or, according to Miers, deeply-gashed; but they are so thin as not readily to be taken from the albumen on which they lie. *C. fenestratum*, formerly called *Menispermum fenestratum*, is considered in Ceylon to be a valuable stomachic and tonic. The wood, which has a peculiar structure, described in Hooker and Thomson's *Flora Indica*, is of a yellow colour, and yields a yellow dye. Medicinally the wood, bark, and root, are used as tonics. [M. T. M.]

COSMANTHUS. A small genus of annual hydrophylls, closely allied to *Euloca* and *Phacelia*, so closely in fact, that by some botanists both *Euloca* and *Cosmanthus* are regarded as only sections of the genus *Phacelia*. It scarcely differs from the latter, but in its fringed corolla and procumbent habit; from *Euloca* it is distinguished by the former character, and by its fewer and larger seeds. The only species at all known in this country, *C. flabrinatus*, and which may serve as a type of the genus, is a neat procumbent plant, with rather succulent branched angular spreading stems, pinnatifid leaves, those of the stem stalkless and stem-clasping, those at the root on long stalks, all with ovate entire lobes; it has very pale lilac purple flowers produced in a curled or crook-like raceme, the corolla wheel-shaped, and having at the base of each lobe a scale rolled into a tubular form; five linear calyx segments, five stamens with hairy filaments, a single style with a circle of hairs at its base, and a four-seeded pod, complete the description. The species are all natives of North America, and appear to be destitute of any marked properties. [W. T.]

COSMILIA. A genus of *Euphorbiaceæ*, containing but one species, an erect marshy plant, with glossy leaves sheathing the stem, and solitary reddish flowers at the termination of the short branches. The foliaceous calyx is surrounded with many imbricated bracts; the corolla is five-parted; the anthers are exserted; there are five hypogynous scales; the capsule is five-valved and many-seeded. It is a native of S. W. Australia. [W. C.]

COSMIDIUM. A genus of composites, recently separated from *Coreopsis*, from which it differs in having an elongated obscurely four-angled, and minutely mammillated fruit, crowned by two short thick horns, and partially enveloped in a membranous scale, which remains attached when the fruit separates from the receptacle. In general habit and aspect, the species approach very closely to *Calliopsis*, having, like that, smooth erect branched stems, opposite leaves, pinnatifidly cut into distinct thread-like segments, and flower-heads an inch and half in diameter, with a ray of about eight broadly wedge-shaped florets, and a double involucre surrounding the capitule, each series consisting of eight leaflets, the innermost broad and erect, the outer narrow, spur-like and spreading. *C. filifolium*, till recently the only species generally known or cultivated, has the ray florets yellow, and the disk or centre crimson-brown. The beautiful *C. Burridgeanum*, of gardens, which is perhaps but a variety of the preceding, has larger flower-heads, with the ray florets of a deep purple brown at their base, the tip only being orange yellow. The fruit of this plant is considerably shorter and thicker than in *C. filifolium*. [W. T.]

COSMOPHYLLUM. The name given to a genus of the composite family found in Guatemala. *C. coccineifolium* is the only known species; it is described as a shrub or small tree, with leaves one to two feet in length, oval in contour, with seven triangular lobes, and having their surface clothed with short white down. The flower heads have some resemblance to those of the chamomile, and are disposed in terminal corymbs; the outer florets are white, strap-shaped and contain a pistil only; the inner are yellow, tubular, and perfect. The four-sided achenes bear on their angles rough points, and are crowned with a hard short pappus composed of a number of unequal-cut scales. [A. A. B.]

COSMOS. A small genus of composites allied to *Bidens*, with large showy reddish-purple or yellow flower heads, and finely divided or pinnate foliage. They are better known in gardens by Willdenow's name of *Cosmea*, but *Cosmos* has priority in its favour. The genus has a double involucre, as in *Coreopsis*, each series composed of from eight to ten ovate leaflets, the outer ones spreading, the inner ones erect; the receptacle is flat and set with membranous coloured scales, drawn out to a thread-like point; and the fruit is four-angled, tapering to both ends, and crowned with from two to four deciduous barbed awns. *C. bipinnatus* is a handsome annual, attaining in moist soil a height of four or five feet, with a smoothish erect furrowed stem, spreadingly-branched; opposite bipinnate leaves, the segments of which are linear, pointed, and somewhat curled; and flower heads two inches or more in diameter, on long peduncles, the ray florets about eight in number, of a bright red purple, the disk being composed of yellow florets tubular,

The fruit of the species is smooth and usually furnished with three awns; but that of *C. tenuifolius*, a dwarfier species with more finely-divided foliage, and darker flowers, is rough, and more frequently has but a single awn. All the species are natives of Mexico. Under the name of *Dahlia Zimapan*, a new species, *C. diversifolia atropurpurea*, has recently been introduced, with pinnate dahlia-like foliage, and flower heads varying from blackish-purple to red-purple, on very long peduncles, the disk being of the same colour as the ray florets. [W. T.]

COSMOSTIGMA. A genus of *Asclepiadaceae* containing a single species, a branched twining shrub, that climbs over trees of great height in India. It has opposite leaves with conic glands at their base, and many small flowers in racemes on interpetiolar peduncles. The small calyx is five-parted; the corolla is rotate and five-parted; the staminal corona consists of five blind divisions, which are irregularly toothed on their upper and inner margins; the anthers are terminated by a broad membrane; the oval pollen masses attached by long-kneed processes to a small bifurcate corpuscle; the follicles are large, linear, oblong, and smooth, with ovate comose seeds. [W. C.]

COSSIGNIA. A genus of *Sapindaceae*, differing from the others in the family in having flowers with petals, together with a capsular but not bladderly fruit, which is three-celled, each cell containing two or three small black seeds. The two known plants of this genus are natives of the Mauritius, where they are known as Bois de Judas. They are small trees with pinnate leaves made up of one or three pairs of oblong or oboval entire leaflets and an odd one; these are about two inches long, smooth above, and covered underneath (as are all the young parts) with a short white down. The small white flowers, disposed in terminal panicles, have a five-parted calyx, four or five oval petals larger than the calyx, and a like number of stamens inserted on a disc. The three-lobed ovary is crowned with a single style. [A. A. B.]

COSTA. The midrib of a leaf; that part which is a direct extension of the petiole, and whence the veins arise; a leaf may have many costae.

COSTATE. When there is only one rib, as in most leaves. Also the mere adj. of costa.

COSTATO-VEBOSE. When the parallel side-veins of a feather-veined leaf are much stouter than those which intervene.

COSTMARY. *Pyræthrum Tanacetum*, sometimes called *Balsamita vulgaris*.

COSTUS. A genus of tropical herbs belonging to the *Zingiberaceae*, and having tubernous roots, somewhat fleshy leaves, and flowers in spikes with overlapping bracts. The calyx is tubular and three-cleft; the tube of the corolla is funnel-shaped, the

outer segments of the limb equal, the inner lateral ones (sterile stamens) wanting, while the innermost or middle segment, called the lip or labellum, is large, bell-shaped, cleft at the back; the filaments are petaloid, prolonged beyond the anther on all sides. Ovary with three compartments; the style thread-like, passing between the cells of the anther; the stigma two-cleft, with two small horns at the base. Many of the species are highly ornamental as stove plants, such as *C. spectosus*, the roots of which are used by the natives in a kind of preserve. [M. T. M.]

COSTUS. The roots of an Arabian plant, supposed to be allied to *Cardopatum corymbosum*. The Costus of the ancients has, however, been ascertained to be the root of *Aucklandia Costus*, now *Aplataxis Lappa*.

COTONEASTER. A family of small trees or trailing shrubs belonging to the order *Rosaceae*, and allied to *Meisneria*, inhabiting the northern parts of Europe and the mountains of India. The leaves are small and entire at the edge, downy beneath, in some species evergreen; the flowers, which are white or pinkish, grow either in lateral clusters, like those of the hawthorn, or singly, and are succeeded by scarlet, or less commonly black, berry-like fruit. The species are very desirable from the beauty of their foliage, flowers, and fruit; the fruits of *C. frigida* and *C. affinis*, in particular, being produced in great abundance, and being of an intense scarlet colour, have a very splendid appearance, and remain on the trees the greater part of the winter. Though the greater part are natives of Asia, yet in Britain they are found to be as hardy as if they were indigenous to the north of Europe, especially such of them as are true evergreens. *C. vulgaris*, a species with deciduous leaves, has been in cultivation in British gardens since 1656, and was always considered a foreign plant, till it was found in a wild state at Orme's Head in Carnarvonshire. — (Loudon). *C. microphylla* is a yet more valuable plant. In this species the branches are trailing, the leaves small and evergreen. It is perfectly hardy and, wherever it grows, ornamental. 'Its deep glossy foliage, which no cold will impair, is, when the plant is in blossom, strewed with snow-white flowers, which, reposing on a rich couch of green, have so brilliant an appearance, that a poet would compare them to diamonds lying on a bed of emeralds.' — (Lindley). *C. marginata rotundifolia* and *buxifolia*, are of similar habit. The last species were introduced from the hills of Hindostan in 1824 and 1825. [C. A. J.]

COTONNIER. (Fr.) *Gossypium*.

COTTON. This well-known valuable textile commodity is the hairy covering of the seeds of *Gossypium herbaceum* and other species of *Gossypium*, especially of *G. religiosum*, *barbatenae*, *indicum*, and *arborescens*. — **CORKWOOD.** A name given in Trinidad to the down of *Ochroma Lago-*

pus. —, NATAL. A textile material resembling true cotton, obtained from the pods of a species of *Batatas*. —, SILK. A common name for *Bombax*. *B. pentandrum* is called the Indian cotton-tree.

COTTONIA macrostachya is an orchideous epiphyte from the Madras presidency and Ceylon, with a few greenish purple-lipped flowers at the end of a long lateral slender peduncle. The foliage is that of a *Succolabium* or *Vanda*, so that the name of *V. pedunculata* has been applied to the plant. Another species, *C. Championi*, found on both Victoria Peak Hong Kong, and the Khasya mountains, has smaller dirty lemon-coloured flowers in racemes little longer than the distichous leaves, which are mucronate and even serrate at the point.

COTTON-GRASS. The common name for *Eriophorum*.

COTTON-ROSE. A common name for *Flago*.

COTTON-RUSH. A name sometimes given to *Eriophorum*.

COTTON-SEGE. A name given by Bentham to *Eriophorum*.

COTTON-THISTLE. A common name for *Onopordum*.

COTTON-WEED. *Diotis maritima*.

COTTON-WOOD. An American name for *Populus monilifera* and *P. angulata*.

COTULA. A genus of weedy compound flowers allied to *Anthemis*, from which it is distinguished by its hemispherical naked receptacle, four-cleft florets of the disk, and by the ray being almost wanting. There are numerous species, of which one only, *C. coronopifolia*, is found in Europe. There is no British example. *Cotula* is a diminutive of *Cota*, the old name of some species of *Anthemis*. [C. A. J.]

COTYLEDON. A genus of shrubs and herbaceous plants belonging to the *Cruciferae*, among which they are distinguished by their five sepals, tubular five-cleft corolla bearing ten stamens, and a scale at the base of each of the five carpels. The only British species, *C. Umbilicus*, Navelwort, or Penny-wort, is a common weed in the west of England and some parts of Wales and elsewhere, growing on the sides or in the crevices of damp rocks and walls, where it is conspicuous during the winter and spring months by its orbicular concave petiole exceedingly succulent leaves, called by children Penny-pies. In summer it sends up a stalk, the lower portion of which bears succulent leaves, which gradually lose their petiole form and pass into bracts. The stalk, when the plant grows in a dry situation, is from four to six inches long, and bears a simple spike of drooping green flowers; but in a more genial situation grows to the height of a foot or more and is branched. After the seeds have ripened, the stems wither and turn brownish red, but retain their form

during a great part of the winter. Of the foreign species several are natives of the Cape of Good Hope; these are evergreen under-shrubs, and are sometimes found in the green-houses of the curious. *C. orbiculata*, which is the one most frequently cultivated, has thick and succulent leaves tinged at the edge with purple. The flowers are large drooping, and have the divisions revolute and of a reddish hue: they last from June to September. *C. lutea* is by some authors enumerated among British plants, but without due grounds. It is a native of Portugal. [C. A. J.]

COTYLEDONS. The seed-lobes; the primordial leaves in the rudimentary plant or embryo.

COTYLIFORM. Dished. Resembling rotate, but with an erect limb.

COUCH-GRASS. *Triticum repens*.

COUCOU. (Fr.) *Primula officinalis*.

COUCOURZELLE. (Fr.) A kind of gourd.

COUDRIER. (Fr.) *Corylus Avellana*. — **DU LEVANT.** *Corylus Colurna*.

COUEPIA. A genus of the chrysobalan family, whose distinguishing characters are its one-celled ovary, which adheres to the calyx tube, and its numerous stamens (twenty to forty or more), which arise from one side only of the mouth of the calyx, or are disposed round it in a perfect ring. The genus comprises upwards of a dozen species, all of them trees of South America, generally small, but sometimes attaining a height of fifty feet. Their leaves are entire, usually oblong, and very often covered with short white down underneath. The flowers, numerous and seldom more than half an inch in diameter, are either white or cream-coloured, and when in bud have a shape exactly like that of a clove; they are disposed in terminal or axillary panicles or racemes, and are composed of a tubular calyx with a five-parted border, five petals, numerous stamens, and an ovary with a simple style arising from near its base. The oval stoned fruits of a number of species are eaten. *C. chrysocalyx* is a beautiful tree of a pyramidal form, branching to the base, and attaining a height of thirty feet. According to Mr. Spruce, it grows plentifully all along the Amazon river from the Barra upwards. The Indians plant it also near their houses for the sake of its edible fruits, and a large pueblo on the Marañon of Cucama Indians derives its name 'Paranari' from the abundance of this tree, so called. Its oblong pointed or blunt leaves have a smooth upper surface, and are covered underneath with short white down. The flowers, about an inch in length, have a calyx covered with yellow down, and are borne in axillary racemes much shorter than the leaves. *C. guianensis* is, according to Aublet, a tree of sixty feet high, with grey shining bark, and dark red-coloured wood, which is durable and heavy. The leaves are oval, acute, and

stalked. The Indians make use of the bark in the manufacture of their pottery. The Caribbean name of the tree is Couepi, whence the origin of the generic name. *C. bracteata*, a Brazilian tree forty feet high with leaves half a foot long, and panicles of flowers furnished with large bracteas, is remarkable in the family, according to Mr. Spruce, for the fetid odour of its cream-coloured flowers. [A. A. B.]

COUGOURDETTE. (Fr.) *Cucurbita ovifera*.

COULEUVRE'E. (Fr.) *Bryonia dioica*.

COUMARIN. The fragrant principle of the Tonka bean, *Dipteris odorata*, and also of *Melilotus cerrulus*, the latter of which gives its peculiar odour to Chappizger cheese.

COUNTRYMAN'S TREACLE. An old name for *Ruta graveolens*.

COURGE. (Fr.) *Cucurbita maxima*. — DE SAINT-JEAN. *Cucurbita Pepo*. — VI-VACE. *Cucurbita perennia*.

COURONNE DES BLE'S. (Fr.) *Agrostemma Githago*. — IMPÉRIALE. *Fritularia imperialis*.

COURROUPITA. A genus of trees belonging to the order *Lecythidaceae*, and natives of tropical America. The clusters of flowers spring from the trunk and branches. The flowers are large whitish or rose coloured, with a top-shaped calyx-tube, adherent to the ovary, its limb having six deciduous segments; the corolla consists of six petals inserted into a disc, which surrounds the top of the ovary; the cup formed by the union of the filaments of some of the stamens is inserted with the petals: on one side it is very short, on the other it is prolonged into a petal-like hood overlapping the style, and bearing anthers at its top; the stamens at the base of the cup are minute and barren, those at the apex of the petal-like hood are fertile; ovary with six compartments; stigma sessile, hexagonal. The fruit is large, globular, and woody, marked with a circular scar indicating the point of detachment of the limb of the calyx; the seeds are numerous and imbedded in pulp. The fruit of *C. guianensis* is called from its appearance the Cannon-ball fruit, its shell is used as a drinking vessel, and its pulp when fresh is of an agreeable flavour. [M. T. M.]

COURY. A kind of Catechu, obtained by evaporating a decoction of the nuts of *Areca Catechu*.

COUSINIA. A genus of prickly-leaved thistle-like plants of the composite family, found in Western Asia, occurring as far east as Kunawur in the Himalaya, having their western limit in Asia Minor and found in greatest numbers in Persia. They are nearly allied to *Carlina*, but differ in having a simple-haired, not feathery, pappus. Upwards of thirty species are enumerated, some of which are annual, others perennial; some dwarf and prostrate, others tall and erect. The root leaves of many

are pinnately-parted, with spiny segments, and covered, especially underneath, with a loose white cottony substance; those of the stem, similarly cut and spiny, often have their bases decurrent, which gives the stem a winged appearance. Others have leaves, which in size and form are not unlike those of the holly. The flower-heads are either large and few on the ends of the branches, or numerous and small; their involucre, made up of many spiny-pointed scales, enclose a great number of yellow or pink florets. The achenes are smooth, or have rough points, or longitudinal furrows, and in some cases they are compressed and angled. The pappus is composed of two or three series of short and unequal rough hairs. [A. A. B.]

COUSSAPOA. A genus of tropical American trees, abounding in a milky juice, and belonging to the family *Artocarpaceae*. The trees are described as being at first mere climbing shrubs, but after reaching the summit of the tree upon which they are supported, they send down branches into the earth, these branches becoming fused together so as to encircle completely the tree which originally sustained them, and cause its death. The branches are spongy in texture, and hollow in the interior. The flowers are dioecious and clustered in heads, the male flower encircled by three or four small bracts, and consisting of a tubular perianth, from whose base two conjoined stamens arise; the female flower without bractlets surrounding its perianth, and consisting of four leaflets in close approximation. The one-celled ovary becomes succulent when mature, as also does the inclosing perianth, so that a mulberry-like fruit is produced. [M. T. M.]

COUSSINET. (Fr.) *Oxycooccus palustris*.

COUTAREA. A genus of cinchonaceous trees inhabiting Guiana, &c., and having large whitish flowers. The corolla is funnel-shaped, its tube short, so that the six stamens project from it, and its limb six-parted. The fruit is a leathery capsule, bursting by two valves, and containing several kidney-shaped seeds. *C. speciosa* is a very handsome stove plant; its bark is used in Guiana as a substitute for cinchona. It is also known by the name of *Portlandia hexandra*. [M. T. M.]

COVENTRY BELLS. *Campanula Medium*, also called Canterbury Bells.

COWAGE. The Cow-itch, *Mucuna pruriens*.

COWANIA. A genus of the rosewort family, distinguished from its congeners by the ten-cleft calyx; corolla of five petals; seed vessels five to ten, closely covered with fine down, and when ripe, each crowned with a feathery appendage, consisting of the enlarged persistent style. The genus was named by David Don in honour of Mr. Cowan, who, in the course of visits to Mexico and Peru, introduced many plants of those countries into Britain. *C. pilosa* or *mexicana*, the best-known species, is an inter-

esting shrub, about two feet high when mature, with alternate small narrow leaves, the edges turned down, covered with glands on the upper surface, and on the lower, white with fine down. The flowers are numerous and of a yellow colour, very much resembling those of certain species of *Potentilla*. [G. D.]

COWBANE. *Cicula virosa*; also an American name for *Archemora*.

COWBERRY. *Vaccinium Vitis idæa*. The name Cowberry is also applied in some parts of Scotland to the fruits of *Comarum palustre*.

COW-GRASS. *Trifolium medium*.

COWHAGE-CHERRY. The fruit of *Malpighia urens*.

COW-HERB. *Saponaria Vaccaria*.

COWITCH, COWAGE, or COWHAGE. The hairs of the pods of *Mucuna pruriens*, which are used as a mechanical anthelmintic.

COW-PARSLEY. *Heracleum Panaces*; also commonly applied to *Chærophyllum sylvestre*.

COW-PARSNIP. A common name for any *Heracleum*.

COW-PLANT, CEYLON. *Gymnema lactiferum*.

COW-QUAKES. *Briza media*.

COWRIE PINE. *Dumbara australis*.

COWSLIP. *Prinula veris*. — **AMERICAN.** The common name for *Dodecatheon*. — **VIRGINIAN.** *Mertensia* or *Pulmonaria virginica*. — **JERUSALEM.** *Pulmonaria officinalis*.

COW-TREE. The Palo de Vaca of South America, *Brosimum Galactodendron*, sometimes called *Galactodendron utile*; also the Hya Hya of the same continent, *Tabernaemontana utilis*. The name has besides been given to *Ficus Saussureana*, and other species of figs; and is, according to M. Desvaux, applied to *Clusia Galactodendron*.

COW-WEED. *Chærophyllum sylvestre*.

COW-WHEAT. A common name for *Melampyrum*.

CRAB. *Pyrus Malus*. — **QUEENSLAND.** *Petalostigma quadrilocularis*. — **SIBERIAN.** *Pyrus baccata* and *P. prunifolia*.

CRAB OIL. The oil obtained from *Carapa guianensis*.

CRAB'S EYE LICHEN. *Lecanora pallescens*, which was formerly gathered under this name in the north of England for the dyers. [M. J. B.]

CRAB'S EYES. The seeds of *Abrus precatorius*.

CRAB-WOOD. The timber of *Carapa guianensis*.

CRACCA. The name given to a few slender perennial herbs or small bushes of the pea family, which were at one time

placed in the genus *Tephrosia*, from which they differ in having no cup-shaped disc round the ovary. Six species are enumerated, all of them confined to tropical America. Their leaves are unequally pinnate, with four to twelve pairs of small opposite leaflets mostly elliptical in form, and the flowers (about the size of those of a vetch) are arranged in axillary racemes. The straight narrow pods are thin, smooth, and contain a number of seeds. [A. A. B.]

CRABEBERRY. *Empetrum nigrum*. — **PORTUGAL.** *Corema alba*.

CRAM DES ANGLAIS. (Fr.) *Cochlearia Armoracia*.

CRAMBE. A genus of *Cruciferae*, consisting of several species, of which two are edible, namely, *C. maritima* and *C. tatarica*. The former is our well-known Sea Kale. The latter is the Tatar Kenyer or Tartarian bread of the Hungarians, of which an interesting account is given in *London's Encyclopaedia of Plants*, p. 557; but we are not aware of any attempt having been made to cultivate it in this country, although the plant is stated to have been introduced in 1789.

The Sea Kale, *C. maritima*, is a hardy native perennial, found on various parts of the coast, growing among sand and shingle. It is easily recognised by its broad wavy toothed gray-coloured leaves, which, with the stem, have a peculiar appearance, from being glaucous, or covered with a very fine bloom. The flowers are white and have a strong smell of honey. It appears to have been known to the Romans, who gathered it in its wild state, and preserved it in barrels for use during long voyages. From a remote period it has also been used in this country by residents near the sea, but its introduction into our gardens is comparatively of recent date, although it is recorded that bundles of it were exposed for sale in Chichester market in 1753. It was not known about London until 1767, when Dr. Lettson cultivated it at Camberwell, and was the first to bring it into general notice. It has now become a common vegetable, and when blanched, the young shoots and leaves, before their complete development, are cut and tied up in small bundles for boiling. When thoroughly dressed they are served like asparagus, and are esteemed exceedingly choice and delicate. [W. B. B.]

CRANBERRY. The fruit of *Oxycoccus palustris*, also sometimes applied, according to Lindley, to those of *Vaccinium Vitis idæa*. — **AMERICAN.** *Oxycoccus macrocarpus*. — **TASMANIAN.** *Astroloma humifusum*.

CRANE'S BILL. The common name for *Geranium*.

CRANICHS. A rather numerous genus of American orchids, mostly tropical, with the habit of *Spiranthes*, but with a dorsal concave not convolute lip. The flowers are insignificant, and the species scarcely more than weeds.

CRANIOLARIA. A genus of Pedaliads, distinguished from its congeners by the somewhat bell-shaped calyx, which is cleft or five-toothed, and by the tube of the corolla widening toward the upper part, where it is bell-shaped and two-lipped, the upper lip of two pieces, the lower of three, the middle piece of the latter longer than the other two. The name of the genus was given in allusion to some resemblance which the ripe fruit has to the skull, in Latin 'cranium.' The species are herbaceous, natives of the tropical parts of America, usually very hairy and viscid; the leaves are opposite angled or five-lobed, the flowers from the axils of the leaves or terminal, the corolla being generally pale, with the throat variegated. The genus was originally formed to comprehend a plant known as the *Martynia Craniolaria*, first introduced in 1733, and which is now *Craniolaria annua*: a handsome greenhouse plant, easily cultivated, attaining a height of two feet, with leaves somewhat heart-shaped, five-lobed and toothed, the tube of the corolla longer than the calyx, which has at the base two leaflets or bracts. Dr. Lindley states 'that its fleshy and sweet root is preserved in sugar by the Creoles as a delicacy. In the dry state it is said to be a bitter cooling medicine.' Another species is the *C. umbroclata*, which is perennial; the tube of the corolla is as long as the calyx, which has one bract. The flowers are in clusters, sulphur yellow, with purple dots. [G. D.]

CRANIOSPERMUM. A small genus of Siberian herbs belonging to *Boraginaceæ*. They are hairy with obovate or linear leaves, and rather small rose-coloured flowers with a five-parted calyx, a tubular corolla, five-cleft at the mouth, the segments erect, the throat without scales; stigma capitate; nuts four, obliquely depressed at the apex, affixed to a four-sided pyramidal central column, the disk sub-concave with a narrow margin. [J. T. S.]

CRANSON. (Fr.) *Cochlearia officinalis*.
— **RUSTIQUE.** *Cochlearia Armoracia*.

CRAPAUDINE. (Fr.) Any *Sideritis*.

CRAQUELIN. (Fr.) *Fragaria collina*.

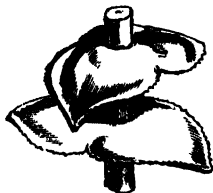
CRASPEDARIA. A name given by Link and others to various polypodiaceous ferns, now referred to the genera *Goniophlebium*, *Nipholobolus*, &c. [T. M.]

CRASS. Something thicker than usual. Leaves are generally papery in texture; the leaves of cotyledons, which are much more fleshy, have been called crass.

CRASSULACEÆ. (*Sempervivum*, *Succulentæ*, *House-leeks*, *Stonecrop* family.) A natural order of polypetalous calyciflorous dicotyledons, included in Lindley's violal alliance. Succulent herbs or shrubs with exstipulate (no stipules) leaves, and clustered flowers, which are often turned towards one side; sepals three to twenty, more or less combined; petals three to twenty, separate or united; stamens equal

in number to the petals or twice as many; ovary composed of numerous one-celled carpels, having scales at their base; fruit consisting of follicles. Natives of dry places in all parts of the world. They are found on naked rocks, old walls, or hot sandy plains, alternately exposed to the heaviest dews of night, and the fiercest rays of the noon-day sun. Acridity prevails in many plants of this order. Some species are cooling in their properties, others are astringent. *Sedum acre* is very acrid, and is hence called Wall-pepper; it is abundant on sandy shores. *Sempervivum tectorum*, the Houseleek, is so called from being grown on the tops of houses. *Bryophyllum calycinum* has the property of producing leaf-buds along the margin of its leaves. There are about 470 species, distributed among twenty-four genera, of which *Crassula*, *Bryophyllum*, *Sedum*, *Sempervivum*, and *Penthorum* are examples. [J. H. B.]

CRASSULA. A well-known genus giving its name to the order *Crassulaceæ*. It consists of herbs or shrubs, with, for the most part, more or less fleshy leaves and stems, and white or pink flowers in loose cymes or compact heads. The form and disposition of the leaves vary in the different species; frequently the two opposite leaves are conjoined at the base, as in *C. perfoliata*.



Crassula perfoliata (stem and leaves).

The sepals are five, shorter than the five petals; the stamens are five, perigynous; there are also five hypogynous scales; the ovaries are five, distinct one from the other, and ripening into as many few or many-seeded follicles. About 120 species are known, the majority peculiar to S. Africa, with 3 in Tropical Africa, and a few in the Mediterranean region. Numerous species are in cultivation. Some of them frequently produce little leaf-buds in place of flowers on their inflorescence. [M. T. M.]

CRATÆGUS. A well-known genus of moderate-sized trees, commonly called thorns, belonging to the sub-order *Pomaceæ*, of rosaceous plants, closely allied to the medlar, *Mespilus*, from which it is distinguished by the small (not leaf-like) segments of the calyx, and by the different form of the fruit. The thorns are natives of Europe, North America, and the temperate regions of Asia and Africa, bearing for the most part a great resemblance to one another in habit of growth, and agree-

ing generally in having cut leaves, white fragrant flowers, and scarlet berries, though there are exceptions to all these characters. All are hardy and ripen their fruit in the climate of Great Britain, and being very ornamental, both when in flower and fruit, are highly prized by the landscape gardener. *C. Oxyacantha*, the Hawthorn, is to be met with on a dry soil in most parts of Europe, in the North of Africa, and in Western Asia, varying greatly in size according to soil and climate, and presenting in the shape, size, and surface of its leaves, and in the colour of its berries, numberless shades of difference. The leaves vary also in their amount of pubescence; and the flowers, though generally white and fragrant, sometimes have an unpleasant fishy smell; they are either tinged with red, or, in some cultivated varieties, are of a full pink or crimson. The fruit or 'haw,' too, varies greatly in size, shape, and colour, being sometimes oblong, sometimes nearly globular, sometimes downy, at other times smooth and polished. Varieties have been observed in which it changes its usual crimson hue for black, orange, golden-yellow, or white. In some districts, each haw contains a single nut, in others they more frequently contain two. In spite, however, of all these liabilities to variation, a hawthorn tree can be distinguished at any season of the year without recourse being had to botanical characters; and a mere cursory examination of almost any other species of crataegus will suffice to assign it to its proper genus. Most of the cultivated species blossom in the month which has given to the Common Hawthorn the name of May-tree; but no one of them is more worthy of the title than that which has so long held it. Collections of thorns exist in various places in Europe, some containing from fifty to eighty sorts, including varieties: for a full account of which the reader should consult *Loudon's Arboretum Britannicum*. French, *Audépine*; German, *Hagedorn*. The hawthorn is the badge of the Ogilvies. [C. A. J.]

CRATERA. The cup-shaped receptacle of certain fungals.

CRATERIFORM. Concave, hemispherical, a little contracted at the base.

CRATÆVA. A genus of the caper family consisting of shrubs or trees, natives of tropical regions, whose flowers have a four-parted calyx, a corolla of four stalked petals inserted on the margin of a hemispherical fleshy receptacle, and eight to twenty stamens inserted with the petals; ovary on a long stalk; stigma sessile; berry globular, one or two-celled, containing pulpy matter, in which the seeds are imbedded. *C. Nurvala*, a native of Malabar and the Society Isles, is a sacred tree in the latter islands, and is planted in graveyards. Its leaves are aromatic, bitter, and stomachic, and other parts of the tree are likewise used medicinally. The bark of the root of *C. gynandra*, the Garlic Pear, blisters like

cantharides. Some of the species have a strong smell of garlic. [M. T. M.]

ORATOXYLON. A genus of opposite-leaved bushes or small trees of the St. John's wort family, found in the Malayan peninsula, China, Java, and the adjacent islands. Its chief distinguishing characters are the winged seeds, contained in a three-celled capsule, which when ripe is surrounded by the withered calyx. The leaves are stalked, or sessile and entire, generally lance-shaped or elliptical in form, but sometimes oboval. The flowers are white, chocolate, or rose-coloured, arranged in terminal panicles, or arising from the axils of the leaves. They have a five-leaved calyx, five roundish petals, and three or five parcels of stamens surrounding an ovary crowned with three styles. About ten species are known. *C. Hornschuchii*, a Javanese species, is said to be slightly astringent and diuretic. [A. A. B.]

CRAWFURDIA. A genus of Nepalese gentianaceous herbs with twining stems and large axillary flowers. They have a bell-shaped corolla whose limb is five-cleft, or ten-cleft, with five of the divisions smaller than the rest; filaments of the five stamens dilated; ovary one-celled, style straight; stigma two-cleft with oblong recurved lobes; disc hypogynous, five-lobed; capsule stalked, one-celled, many-seeded. [M. T. M.]

CREAM-COLOUR. White, verging to yellow, with little lustre.

CREAM FRUIT. *Rouppellia grata*.

CREAM OF TARTAR TREE. *Adansonia Gregorii*.

CREEPER, TRUMPET. An American name for *Tecoma radicans*.

CREMANIUM. A genus of tropical American shrubs or small trees belonging to *Melastomaceae*. They have terminal panicles of small white flowers with the parts in fours or fives; the stamens twice as many as the petals; the berry globose, depressed at the apex, blue or violet, adhering to the circumscissile calyx, with three to five cells, and numerous seeds. *C. reclinatatum* and *tinctorium* yield a yellow dye. [J. T. B.]

CREMASTRA. A little-known genus of terrestrial orchids from India and Japan, with broad ribbed leaves, and radical scapes bearing each a spike of dull-red tubular flowers. Two species are known. *Hyacinth-orchis* of Blume is the same genus.

CRÈME D'ABSINTHE. A bitter aromatic liqueur prepared from *Artemisia Mutellina* and *A. spicata*.

CREMOCARP. Such fruits as that of umbellifers, consisting of two or more indehiscent inferior one-seeded carpels adhering round a distinct and separable axis.

CREMOLOBUS. A genus of *Cruciferae* from Peru and Chili, consisting of herbs or

undershrubs, with oblong or ovate leaves, and elongated racemes of numerous yellow flowers; filaments not toothed; pouch stalked, laterally compressed, constricted at the partition as in *Biscutella*, with orbicular valves winged on the back, tipped by the persistent style; seed solitary in each valve. [J. T. S.]

CREMOSTACHYS. M. Tulasne's name for a genus of *Asphorbiaceae*, which proves to be the same as *Bennettia*. See GALLARIA.

CRENA, CRENATURE, CRENEL. A round or convex flat tooth.

CRENATE, CRENELLED. Having convex flat teeth. When these teeth are themselves crenated, bicrenate is the term which is used.

CRENATO-DENTATE. Divided at the edge into triangular notches.

CRENATO-SERRATE. When serratures are convex, and not straight.

CRENULATE. Having the edge divided into small crenae.

CREPON. (Fr.) *Pinus Pumilio*.

CREPIS. A genus of herbaceous plants, known as Hawk's-heads, belonging to the chicory tribe of compound flowers, and distinguished among its congeners by the soft whitish deciduous pappus which crowns the cylindrical achenes, which are destitute of a beak, or furnished with but a very short one. The species are common hedge plants throughout Europe, and are uninteresting. [*C. virens* is a common British and European species, extending to the Canaries. It is a very variable plant, the lower leaves being usually toothed runcinate or lyrate, the upper linear sagittate; the stems are much branched, and the flowers are in small yellow heads. It is abundant in waste and cultivated ground, on cottage roofs, &c., flowering throughout the summer.] *C. palustris* is a much larger plant, not uncommon in moist woods, where it grows to the height of six feet or more. [C. A. J.]

CRESCENTI-PINNATISECT. When the lobes of a pinnated leaf become gradually larger as they approach the end.

CRESCENTIA. The typical genus of *Crescentiaceae*. Its four species are inhabitants of the forests of tropical America, and are either small trees or large shrubs, having simple or trifoliate leaves arranged alternately or in clusters upon the stem. The flowers are produced upon the stem or old branches, and are distinguished by having a two-lipped calyx, with the lips undivided; the corolla being somewhat bell-shaped, and having a long tube puffed out on one side. Their fruits have a hard woody shell or rind, and contain numerous seeds nestling in pulp. *C. alata* is a native of Western Mexico, growing mostly in the vicinity of the sea-coast; but it is cultivated in the Philippine and Ladrones or Marianne Islands. It is called *Teconate* in Mexico, and forms a tree about thirty

feet high, with its leaves growing in clusters of three; the two outer ones being undivided and stalkless, while the central one is composed of three distinct leaflets, with a long winged stalk, and is compared to a cross by the inhabitants of the Philippines, the tree being called *Hoja-cruz*, and a decoction of its leaves used as a remedy against spitting of blood. The fruit is about the size and of the same colour as an orange, and contains a sourish-bitter pulp, which the Mexicans boil with sugar and administer internally as a cure for chest complaints; while the shells are converted into drinking cups.

C. cucurbitina, the Calabazo de playa of the Panamians, is a shrub about twelve or fifteen feet high, found growing very commonly on the coasts of Central America, the West Indian, and some of the Pacific Islands, and cultivated in Java. Its leaves are placed singly and alternately upon the stem, and vary very much in shape. Its fruit is either round, egg-shaped, or elliptical, and has a very brittle shell. This shrub has been reported to possess poisonous properties, but as the rest of the plants belonging to the order are of a harmless character, probably some mistake has occurred.

C. Cujete, commonly called the Calabash-tree, from the Spanish word Calabazo, which means a gourd or pumpkin, and alludes to the resemblance of the fruits, is a tree about thirty feet high, and is found growing either wild or cultivated in various parts of tropical America, and the West Indies. Its flowers are variegated with green, purple, red and yellow; and its leaves are stranged in clusters of five, all of them undivided, and of a narrowly elliptic form, the upper half being broader and terminated by a short point, while the lower tapers gradually to the base. The fruits are generally of a globular form, or sometimes slightly oval, and have a very hard woody shell, which is made to serve many useful purposes in the domestic economy of the inhabitants of the above-mentioned countries—basins, cups, spoons, water-bottles, pails, and even kettles being made of them; the latter, it is said, standing the fire several successive times before they are destroyed. In fact they in great measure take the place of pottery-ware, and many of them are carved and polished or stained in various quaint devices. The pulp is esteemed as a medicine, acting as a purgative, and considered to be beneficial in diseases of the chest; it is also roasted and used as a poultice for bruises and inflammations. The wood of the Calabash-tree is light, tough, and pliant, but is only obtainable in planks six or eight inches broad. [A. S.]

CRESCENTIACEAE. (*Crescentiaceae*.) A small family of corollifloral dictyodendons, closely allied to *Bignoniaceae*, and often associated with them as a tribe or suborder, but differing in their one-celled ovaries with parietal placentas, and in their large succulent fruits, with almond-like wingless

seeds. They are usually trees with alternate or rarely opposite leaves, and rather large flowers growing out of the old stems or branches. Calyx at first undivided, but at length splitting into irregular pieces. Corolla gamopetalous, irregular, somewhat two-lipped; stamens four, inserted in the corolla, two long and two short, often with the rudiment of a fifth; ovary free, one-celled, with two or four parietal placentas; ovules numerous. Fruit woody, not splitting, and containing large seeds immersed in pulp; embryo without albumen. They are tropical and subtropical plants, extending from 30° S. to 30° N.; they abound in Madagascar, the Mauritius, the Seychelles, and other islands of Eastern Africa. In America they are represented by ten species, in Asia by two only, and they are not found in Europe, nor on the continent of Australia. Some, as *Kigelia pinnata*, yield timber, which is used for canoes and for pillars. *Crescentia Cujete* is the Calabash tree, whose gourd-like fruits have been seen two feet in diameter in the west of Africa. A large Calabash can support two men in crossing a river. *Parmentiera cerifera* yields wax, and is called the Candle tree in Panama. The fruit of *P. edulis* is the Quauhxiolot of Mexico, and is edible. The fruit of *Tanacetum ilacinum* and of *Colea Telfairia* is eaten. There are eleven known genera and thirty-four species. Illustrative genera:—*Crescentia*, *Parmentiera*, *Colea*, *Kigelia*, and *Tanacetum*. [J. H. B.]

CRESS, AMERICAN. *Barbarea praecox*. —, AMERICAN WATER. *Cardamine rotundifolia*. —, AUSTRALIAN. The Golden Cress, a broad yellowish-leaved variety of *Lepidium sativum*. —, BASTARD. The common name for *Thlaspi*. —, BELLEISLE. *Barbarea praecox*. —, BITTER. A common name for *Cardamine*. —, GARDEN. *Lepidium sativum*. —, GOLDEN. A variety of *Lepidium sativum*. —, INDIAN. *Tropaeolum majus*; the name of Indian Cresses is also given to the order *Tropaeolaceae*. —, LAND. *Barbarea praecox*. —, MEADOW. *Cardamine pratensis*. —, MOUSE-EAR. *Arabis Thaliana*. —, PARA'. *Spilanthes oleracea*. —, PENNY. *Thlaspi arvense*. —, PETER'S. An old name for *Critium maritimum*. —, ROCK. A common name for *Arabis*; also an old name for *Critium maritimum*. —, SPANISH. *Lepidium Cardamines*. —, SPRING. *Cardamine rhomboidea*. —, SWINE'S. *Senebiera Coronopus*. —, THALE. *Arabis Thaliana*. —, TOOTH. A common name for *Dentaria*. —, TOWER. *Arabis Turris*. —, VIOLET. *Ionopsidium acaule*. —, WALL. *Arabis Thaliana*; also a common name for *Arabis*. —, WART. *Senebiera Coronopus*; also a common name for *Senebiera*. —, WATER. *Nasturtium officinale*. —, WINTER. *Barbarea vulgaris*; also a common name for *Barbarea*. —, YELLOW. *Nasturtium palustre*, and *N. amphibium*; also *Barbarea*.

CRESSA. A genus of *Convolvulaceae*, containing probably a single species, though very variable from the different conditions under which the plant grows, as it is a

common sublitlitoral undershrub in tropical and sub-tropical regions all over the world. It has scattered entire leaves, and crowded flowers in the axils of the uppermost leaves. The calyx consists of four sepals; the corolla is funnel-shaped and five-cleft; the ovary is two-celled with two ovules in each cell; the capsule contains from one to four seeds. [W. C.]

CRESSON ALE'NOIS. (Fr.) *Lepidium sativum*. — AMER. *Cardamine amara*. — D'EAU or DE FONTAINE. *Nasturtium officinale*. — DE PARA'. *Spilanthes oleracea*. — DES JARDINS. *Lepidium sativum*. — DES PRE'S. *Cardamine pratensis*. — DU BRE'SIL. *Spilanthes fusca*. — DU PE'ROU. *Tropaeolum majus*. — DE ROCHE. *Chrysosplenium*; also *Cardamine petraea*.

CRESS-ROCKET. *Vella Pseudo-cytisus*.

CRESTED. Having an elevated, irregular or notched ridge, resembling the crest of a helmet. This term is chiefly applied to seeds, and to the appendages of anthers; it also belongs to bracts which form with their edges an appearance like that of a crest, as in *Melampyrum*.

CRETACEOUS. Very dull white, with a little touch of grey; chalky.

CRETE DE COQ. (Fr.) *Celosia cristata*; also *Erythrina Crista galli*; also *Rhinanthus major*. — MARINE. *Critium maritimum*.

CRETELLE COMMUNE. (Fr.) *Cynosurus cristatus*.

CREVE-CHIEN. (Fr.) *Solanum nigrum*.

CREYAT. The Indian name for *Justicia paniculata*.

CRIBRARIA. One of the most elegant genera of myxogastrous Fungi. The lower half of the spore-case or peridium is permanent, but the upper half partially shells off, and leaves behind a complicated network. The species are confined to the northern temperate regions. Two species have been found in this country. [M. J. B.]

CRIBROSE. Pierced (like a sieve) with numerous close small apertures.

CRINITE. Having tufts of long weak hairs, growing from different parts of the surface.

CRINODENDRON. The name of a small Chilean tree of the lime-tree family, having opposite or alternate shortly-stalked and smooth leaves, with their margins toothed near the points. The flower-stalks, which are single from the axils of the leaves, and longer than them, are thickened towards the apex, and bear a rose-coloured flower, which has a two-lobed five-toothed calyx; five pyramidal fleshy petals hollowed at their base; about twelve stamens with anthers as long as their stalks, and a globular ovary crowned with a single style. The fruit is a four or five-celled capsule about the size of a cherry, and containing numer-

ous seeds. Chequehue is the name given by the Chilians to this plant, which is known to botanists as *Crimodendron Hookeri* or *C. Palagua*. [A. A. B.]

CRINUM. A genus of remarkably handsome amaryllidaceous plants, well-known in gardens. They are tropical or sub-tropical herbs, generally of large size, with columnar or spherical bulbs, lorate-lanceolate leaves, and a solid scape bearing a many-flowered umbel. The perianth has a long slender tube scarcely enlarged at the mouth, and a six-parted limb of nearly equal segments, which are erect, spreading or reflexed. The six stamens are inserted in the mouth of the tube. The ovary is three-celled, containing many ovules; the style filiform and inclined, and the stigma obtuse or obsoletely three-lobed. There are numerous species of Asiatic, Australasian, and South American origin, while one or two are met with in Western Africa, and some of a hardier character in South Africa. Many very fine cross-bred varieties have also been obtained in gardens. One of the best known species is *C. amabile*, which Dr. Herbert regards as a spontaneous cross, probably between *C. procerum* and *C. sepiaticum*, also stating that it is cultivated for its beauty in Sumatra. This plant has thick pyramidal bulbs, and sheathing strap-lance-shaped erect leaves, three to six feet long and three to six inches wide in the centre. The scape is much compressed, three to four feet high, and bears an umbel of from twenty to thirty large rose fragrant flowers, having a tube five or six inches long, and a limb of lanceolate-linear lobes as long as the tube, and pale flesh-coloured within. The South African *C. capense*, is sufficiently hardy to grow in a protected border out of doors in warm situations. This has roundish ovate bulbs, and lanceolate-linear glaucous leaves, two to three feet long, ending in long narrow points; the flowers are pleasantly scented, flesh-coloured, and about six inches long. It is sometimes called *C. longifolia*. Among the interesting hybrids is one called *C.utchensis*, raised between *australe* and *capense*; this is a very handsome plant, perfectly hardy in favourable positions, and produces a succession of flower-scapes till the winter. Another is *C. Herbertii*, raised between *scabrum* and *capense*, a plant of great beauty, bearing about a dozen flowers on a scape three feet high; the tube is four inches long, and the limb three and a half inches, while the colour is bluish with deep-red stripes. See Plate 2, fig. 4. [T. M.]

CRISPATE (adj). **CRISPUS.** When the edge is excessively and irregularly divided and puckered; also when the surface is much puckered and crumpled. Good examples are afforded by 'curled' endive, 'curled' kale, and the like. Also a diminutive of *Buliate*.

CRYSTALLINE. (Fr.) *Meembryanthemum crystallinum*.

CRISTATE. The same as *Crested*.

CRISTATO-RUGOSE. When the wrinkles of a surface are deep and sharp-edged.

CRISTE MARINE. (Fr.) *Crithmum maritimum*.

CRITHMUM. The Samphire, an umbelliferous plant, easily distinguished from all others of the same order by its glaucous twice-ternate leaves, the divisions of which are very succulent and taper towards either extremity. The flowers are greenish-yellow and inconspicuous, except from the contrast between their general hue and the blue tinge of the foliage. The whole plant is 'of a spicily taste with a certain saltiness,' on which account it has been long held in great repute as an ingredient in salads, and was declared by Gerard to be 'the pleasantest sauce, most familiar, and best agreeing with man's bodie for digestion of meates.' For this purpose it is now nearly gone out of use, but it is still so much valued as a pickle that other succulent marine herbs are not unfrequently offered for sale under the name of Samphire, for example *Salicornia* and *Suaeda*. All these substitutes, which are worthless for the purpose of pickling, may be infallibly detected on a simple examination of the leaf. Samphire is exclusively confined to the rocky sea-shore, and, like many other marine plants, has an extensive geographical range, being found on most of the shores of Europe, from the Crimea to the Land's End, and extends even to the Canaries. The best pickled Samphire is made from leaves which have been gathered in May, before the appearance of the flower-stalk; otherwise it is apt to be tough and stringy. The etymology of the name *Samphire* is somewhat curious; it was formerly written *Samplier*, a corruption of *Saint Pierre*; and, more anciently still, it was called by the French *Perce-pierre*; by the Italians, *Herba di San Pietro*, and in Latin, *Petrus cretensis*. Thus a herb properly enough called Rock-cren from its growing in the crevices of rocks, came to be known as Peter's cress (the name Peter meaning a rock). The change to *Saint Peter's Herb* was an easy one; the postfix 'herb' being dropped, *San Pietro* became *Samplier* and that *Samphire*. French, *Bacille*; German, *Meerfenchel*. [C. A. J.]

CRITHO. A genus of grasses belonging to the tribe *Hordeæ*, not considered by modern authors to be distinct from *Hordeum*, under which it is described by Steudel. The only species is the curious Nepal Barley, *C. agliceras*, which is cultivated at great elevations on the Himalayas and Tibet. The grain has been frequently sent to Europe from those countries, recommended as a very hardy kind, arriving at maturity within an unusually short period after sowing. It has not, however, been found of much value in Britain, where it is chiefly cultivated in botanical gardens. [D. M.]

CRITHOPSIS. A genus of grasses be-

longing to the tribe *Hordeae*, scarcely distinct from *Elymus*. One species is described, namely, *C. rachitrichus*, a native of Syria and Persia. [D. M.]

CROCEOUS, CROCATUS. Saffron-coloured.

CROCOSMIA. A beautiful genus of *Iridaceae*, separated from *Tritonia*, and consisting of one species, *C. aurea*, a native of South Africa. It is a perennial Ixia-like herb, with fleshy corms, slender erect compressed stems terminating in a branched flower-spike, the leaves narrowly sword-shaped, and the flowers, sessile on the branches, large, deep orange-coloured, and not inapily compared to large crocus blossoms. The perianth has a longish curved slender tube, and a nearly regular six-parted limb of oblong segments spreading in a star-like form, which causes the long filaments and style, which are fully as long as the segments, to stand out very prominently. The ovary is oblong with about ten or twelve ovules in each of its three cells; this grows into a three-lobed subglobose capsule, having about three seeds in each cell. In this particular, and in not having the throat of the perianth enlarged, this plant differs from *Tritonia*, with which it had been associated. [T. M.]

CROCUS. A well-known genus of *Iridaceae*, very much prized in gardens as affording some of the earliest of spring flowers. The species and varieties are numerous, and exceedingly beautiful, best known as early spring bloomers, a large proportion of them flowering at that season; but also including several which are very handsome autumn-flowering kinds. They are all dwarf herbs, with fleshy corms and grassy leaves, the latter not fully developed till after the flowers have faded. The perianth is funnel-shaped with an elongated tube, and a six-parted limb of concave petaloid segments, of which the inner are rather smaller than the outer series: these segments are erect and closed in cloudy weather and at night, but expand under the influence of sunshine. There are three erect included stamens inserted in the throat of the tube, and an elongated style terminated by three dilated wedge-shaped fleshy cleft or fimbriated stigmas. The ovary is three-celled, containing numerous seeds. The species are mostly found in the southern and eastern parts of Europe, and in Asia Minor. A few species extend to central Europe, and one or two, long cultivated for ornamental purposes, have become established in some localities in England. *C. vernus*, one of these latter, is a handsome plant producing in very early spring its large bluish-purple flowers with orange-coloured stigmas. Another of them is *C. pyreneus* or *nudiflorus*, an autumnal-blooming species, producing light purple flowers. *C. vernus* and *versicolor* have yielded many of the fine garden spring-flowering sorts, other favourite ones blooming at that early season being, *C. imperatorius*, *viridatus*, *reticulatus*, *annulatus*, *lanceolatus*, with its variety *luteus*. Of the autumnal-

blooming species some of the most beautiful are *C. speciosus*, *guicheltius*, *Visticus*, *Cartwrightianus*, *cancellatus*, *medius*, *Boryanus*, *bysantinus*, and *odoratus*. *C. sativus*, which is a light-purple autumnal-flowering species, formerly cultivated about Saffron Walden, and partially naturalised, yields the saffron of the shops, which consists of the deep orange-coloured stigmas of the flowers gathered with part of the style, and carefully dried. According to Dr. Pereira, a grain of good commercial saffron contains the stigmas and styles of nine flowers, and consequently 4,320 flowers are required to yield one ounce of saffron. English grown saffron is now rarely, if ever, met with in commerce. The best comes from Spain, while that imported from France is usually considered of second-rate quality. The quantity imported varies between 5,000 and 20,000 lbs. weight per annum. Saffron has a bitter taste, and a penetrating aromatic odour, and was formerly considered to possess stimulant, emmenagogue, cordial, and antispasmodic properties, but when administered in large quantities it is narcotic. It is employed, especially on the continent, as a flavouring and colouring ingredient in culinary preparations, liqueurs, &c., and in modern medicine is only applied for similar purposes, except when included in the domestic pharmacopœia. Saffron gives to water and alcohol three-fourths of its weight of an orange-red extract, which is largely employed in painting and dyeing. Another colouring agent of the same deep orange colour, called safflowers, is quite different from saffron, and consists of the florets of *Carthamus tinctorius*. [T. M.]

CROISETTE. (Fr.) *Gentiana cruciata*. — **VELUE.** *Gallium cruciatum*.

CROIX DE JERUSALEM or DE MALTE. (Fr.) *Lychnis chalcidensis*. The name Croix de Malte is also applied to *Tribulus terrestris*. — **DE ST. JACQUES.** *Sprekelia formosissima*.

CROSSANDRA. A genus of Indian *Acanthaceae*, consisting of shrubs or herbs with suberect verticillate leaves, and large red flowers in terminal four-cornered spikes, with broad bracts, and narrow membranaceous bracteoles. The calyx is five-parted, with broad lobes, the inner ones being smallest; the corolla has a long tube, and a flat five-cleft limb; the four didynamous stamens are included in the tube; the one-celled anthers are hairy and ciliated at the margin; the capsule is compressed and two-celled, with four ovate seeds at the base. The genus is nearly related to *Semandrium*, which has, however, a more prostrate habit, and more slender anthers. [W. C.]

The same name is given to a little known genus of terrestrial orchids, near *Gastrodia*.

CROSSOSTEMA. A climbing shrub of the passion-flower family, found in Sierra Leone. The calyx and corolla each consist of five segments; those of the corolla are larger than the sepals, more deeply

coloured, and three to five-nerved; within them is a 'crown' consisting of one row of filaments. The ovary is placed on a short stalk which is expanded into a disc-like mass, with five short acute teeth at the margin, alternating with the five stamens which arise from the same place; it is terminated by a slender style with a dilated stigma, and is internally one-celled with several ovules attached to the walls of the ovary. [M. T. M.]

CROSSOSTYLIS. A genus of trees placed by Lindley and others among *Lecythidaceae*, but by Bentham referred to *Rhinophoraceae*. The trees are natives of the Society and Feejee Islands. They have opposite entire leaves; flower-stalks arranged somewhat umbel fashion, jointed in the middle; flowers greenish with four or five segments to the calyx, and as many shortly-stalked petals; stamens about twenty on a short disc alternating with an equal number of sterile stamens; ovary superior, with five to twelve compartments, in each of which are two ovules; fruit fleshy, but ultimately opening by two valves. [M. T. M.]

CROSSOTOMA. The name of an Australian shrub, of the order *Goodeniaceae*, separated by Don from *Scævola*, but by others ranked with the latter, from which it differs in the calyx being imperfectly developed or obsolete, and in the segments of the corolla being fringed. [M. T. M.]

CROSS-SPINE. *Stauracanthus aphyllus*.

CROSSWORT. The common name for *Crucianella*; also applied to *Galium* or *Vaillantia cruciata*, and to *Eupatorium perfoliatum*. It is further sometimes applied to the cruciferous family.

CROTALARIA. A very extensive genus of papilionaceous leguminous plants, containing between 250 and 300 species, natives of the tropics and sub-tropics of both hemispheres. They are either herbs or small shrubs, some having simple and others compound leaves. Their flowers are produced in racemes, either opposite the leaves or at the ends of the branches, and are usually of a yellow colour. They have a somewhat two-lipped calyx; a papilionaceous corolla, the upper petal or standard being heart-shaped, and the lower or keel sickle-shaped; and the stamens united into a column which is split down one side. The legume or pod is curved inwards, and of an oblong form, with its sides puffed or swollen out.

C. Burha is a small shrub with numerous spreading stiff branches, slightly armed with spines, growing in arid sandy places in Sindh. Its leaves are of an oblong form and wide apart on the branches; and the whole plant is covered with silky hairs. The tough twiggy branches are used in Sindh for twisting into tough ropes.

C. Epadilla, a harsh shrubby plant about a foot high, growing in sandy places in Venezuela, has bluntly lance-shaped leaves, covered with stiff, close-pressed, shining

hairs, and when young of a fine golden colour. This plant is a common domestic medicine in Venezuela; a decoction of it is a sudorific, and it is used in fevers.

C. juncea, the Sunn-hemp of India, is a shrubby plant growing from eight to twelve feet high, with a branching stem marked with longitudinal furrows; when cultivated, however, it is sown close, so as to prevent branching as much as possible. Its leaves are on short stalks, and are either bluntly lance-shaped, or very narrow and sharp-pointed, from two to six inches long, thickly covered with shining silky white hairs, which give them a silvery appearance. The flowers are of a beautiful bright-yellow colour, resembling those of the common broom; they are produced in long racemes at the ends of the branches, and are succeeded by club-shaped stalkless pods about two inches long, containing numerous kidney-shaped seeds. This plant is extensively cultivated in different parts of Southern Asia, particularly in India, on account of the valuable fibre yielded by its inner bark; and which is known by the names of Sunn-hemp, Bombay-hemp, Madras-hemp, Brown-hemp, &c. The stems after being cut are steeped in water for two or three days in order to loosen the bark, they are then taken out in handfuls and bent so as to break the interior wood without injuring the fibre; the operator then beats them upon the surface of the water until the fibrous part is entirely separated, when it is washed and hung upon bamboo poles to dry, and afterwards combed to separate the filaments from each other. The fibre thus obtained is very strong, and is considered to be equal if not superior to some kinds of Russian hemp: it is employed for cordage, canvas, and all the ordinary purposes of hemp. A variety produced at Jubbulpore in Malwah, and called Jubbulpore-hemp, has been supposed to be the produce of a different species, *C. tenuifolia*, but that species is now united with the present. Besides its use as a fibrous plant, it is grown in the Madras territories as a food for milch cows, and is said to be very nourishing.

C. retusa, a native of the East Indies, but naturalised in the West Indies and Brazil, is an annual plant with smooth branching stems, from four to six feet high, and oblong wedge-shaped leaves notched at the top, smooth upon the upper surface, but covered with short silky hairs underneath. This is cultivated for its fibre in the Madras territory. [A. B.]

CROTON. An important genus of *Euphorbiaceae*, among which it may be known by the flowers being monœcious, with a five-parted calyx. The male flowers have five petals, and ten stamens, and the female flowers are destitute of petals, but have three styles, divided into two or more branches. The fruit consists of three carpels separating one from the other, and each containing one seed. The species are numerous and vary very much in general

appearance, some being herbs, others trees, and some having entire, others divided leaves.

C. Tiglium is the most important tree of this genus in a medicinal point of view, as it produces the seeds whence croton oil is extracted. The tree is a native of Coromandel, the Indian Archipelago, &c., and has oblong-pointed leaves covered with stellate hairs, when young. One seed is sufficient to act as a purgative, but the oil expressed from the seeds is yet more powerful, though sometimes uncertain in its action: one drop is usually sufficient, hence the great value of this drug in cases where smallness of dose, speediness of action, and powerful effects are required, as in mania, apoplexy, dropsy, &c. It is so acrid that it is exhibited usually in



Croton Tiglium.

pills in order to avoid the burning heat it occasions in the throat if swallowed by itself: on this account it is not used in any case where there is inflammation of the bowels. In large doses it acts as a frightful poison, producing symptoms like those of cholera. Externally it has been used as a counter-irritant. It is obtained by submitting the seeds to pressure, an operation which affects the men engaged in it with irritation of the eyes, and air passages, and purging. Dr. Pereira gives the case of a workman who suffered very severely from inhaling the dust of the seeds, he having been occupied for some time in emptying packages of them. The seeds of *C. Pavana* and *C. polyandrum*, Indian shrubs, are also used as purgatives.

Many of the species have aromatic properties. Of these the most important are *C. Eleuthera*, the tree yielding Cascarilla bark, which is chiefly collected on the island of Eleuthera, one of the Bahamas. This bark is esteemed in this country as an aromatic bitter tonic, without astringency, in cases of simple indigestion. It has a fragrant smell when burnt, on which account it is said to have been at one time mixed with tobacco for smoking. *C. pseudo-China*, called in Mexico Ocopalche, yields a

bark having similar properties with the above, and which is used in Mexico in place of cinchona. *C. balsamiferum*, a West Indian shrub, furnishes a spirituous liquor called Eau de Mantes, which is used in irregular menstruation; whilst others are employed in the West Indies, the Cape, &c., for their aromatic, fragrant, and balsamic qualities. *C. lacciferum* in Ceylon, and *C. Draco* in Mexico, yield resin used for varnish-making, &c. The plants known in cultivation as *C. pictum*, &c., are referred to *Codiaeum*. [M. T. M.]

CROTONOPSIS. A North American herb of the euphorbiaceous family, scattered over with bran-like scales; the fruit and calyx with stellate hairs. The flowers are monœcious, the males having a five-parted calyx, with five petals, and as many stamens; the females likewise have a five-parted calyx, two of the segments of which are frequently suppressed, with five petaloid scales opposite the sepals; the ovary has three two-lobed stigmas. The fruit is one-seeded. [M. T. M.]

CROTTLÉS. A name given by the lichen gatherers in Scotland to various species, which they distinguish under the names black, brown, dark, light, white, stone crottlés, &c. In Scotland the name is applied indifferently, but the merchants and dyers distinguish all the species with an erect or pendulous habit by the name of weeds, while the flat imbricated species, as *Parmelia saxatilis*, are called mosses. The word Crottlés is not confined to Scotland, but is used in some parts of England. [M. J. B.]

CROWBERRY. *Empetrum nigrum*. —, **BROOM.** An American name for *Corema*.

CROWEA. Pretty greenhouse shrubs with simple dotted leaves, and purple flowers, constituting a genus of *Rutaceæ*, and natives of New Holland. The whorls of the flower are in fives; there are ten stamens with hairy filaments, five of which, opposite the petals, are shorter than the remainder; the anthers have an awl-shaped hairy appendage prolonged from the summit; the carpels are five on a five-lobed disc, with five styles fused into one. The fruit consists of five dry segments, which burst into two pieces, each containing one seed. [M. T. M.]

CROWFOOT. The common name for *Ranunculus*.

CROW GARLIC. *Allium vineale*.

CROWNBEARD. An American name for *Verbesina*.

CROWN IMPERIAL. *Fritillaria Imperialis*.

CROWNWORTS. A name given by Lindley to the group *Malesherbiaceæ*.

CROWS'-FOOT. *Echinochloa crus-galli*.

CROWSILK. A name sometimes given to the *Conifera* and other delicate green-spored *Alga*. [M. J. B.]

CROZOPHORA. A genus of *Euphorbiaceae* found in tropical and northern Africa, and extending eastwards as far as India. It consists of annual or perennial low growing plants, having all their parts densely clothed with starry hairs or shield-shaped scales. The stalked leaves have an oval or heart-shaped blade with either entire lobed or curled margins. The minute green flowers are borne on terminal or axillary bracted racemes, the lower portion of which is occupied by the females, the upper by the males. The latter have a calyx of five divisions, five petals and a central column of five to ten stamens, but most commonly eight, these being arranged in two whorls, the outer one of five short stamens, the inner of three longer, and all of them opposite the calyx leaves. The number and disposition of these stamens afford the chief distinguishing character of the genus. The ripe capsule is about the size of a pea, and covered with shield-shaped scales. It contains three seeds.

C. tinctoria, which grows wild in the countries bordering the Mediterranean, is cultivated in the South of France for the sake of a dye which is obtained from it. This dye is called Turnsole, and is obtained by grinding the plants, little herbs seldom more than a foot high, to a pulp in a mill, when they yield about half their weight of a dark green coloured juice, which becomes purple by exposure to the air or under the influence of ammonia. It is chiefly exported to Holland, and is prepared for exportation by soaking coarse linen rags or sacking with it, the rags being previously washed clean. After soaking they are allowed to dry, and are exposed to the influence of ammonia by being suspended over heaps of stable manure. They are then packed in sacks, and ready for shipping to Holland. Not much is known of the uses the Dutch put the dye to, but it is supposed to be chiefly employed as a colouring matter for cheese, and perhaps confectionary, wine, &c. This dye has been confounded by some authors with the litmus of our chemists.

[A. A. B.]

CRUCIATELLA. A genus of herbaceous plants, called Crosswort and Petty Madder, and belonging to the *Rubiaceae*. The corolla is funnel-shaped with an exceedingly slender tube and narrow inflexed lobes; the seeds are in pairs, linear not crowned with the calyx. They are found in the southern parts of Europe and Asia, and are of humble growth, bearing thin leaves inserted in opposite pairs, and having stipules at their base so arranged as to simulate a whorled form of growth. The species are rarely cultivated except in botanical gardens, with the exception of *C. stylosa*, a native of Persia and the Caucasus: this is a low tufted herb with rose-coloured flowers, which bloom during the greater part of the summer; it is well adapted for rockeries. French, *Croissette*; German, *Kreuzblatt*.

[C. A. J.]

CRUCIATE, CRUCIFORM. Having the

form of a cross, with equal arms, as the flowers of radish or wallflower.

CRUCIBULUM. A genus of gasteromycetous *Fungi*, belonging to the natural order *Nidulariet*. It is distinguished from *Cyathus* by its peridium being homogeneous and not composed of distinct strata, and by the sporangia being supported by a cord ending above in a globular swelling sunk in a pit of the sporangium, and including an elastic complicated thread. There is but one species which is common all over Europe, and occurs in the north of Africa, and New Zealand. It is especially fond of the old fronds of ferns, but occurs also on sticks, old ropes, and various other vegetable substances. [M. J. B.]

CRUCIFERÆ. (*Brassicaceae*, *Cruciferae*, the *Cruciferous* family.) A natural order of thalamifloral dicotyledons, belonging to Lindley's cistal alliance. Herbs with alternate leaves having no stipules, and flowers, usually yellow or white, arranged in racemes or corymba without bracts; sepals four, falling off; petals four, arranged like a cross; stamens six, of which four are long and two short. Fruit, a siliqua or silicula, that is, a long or short pod opening by two valves, with a partition (septum) in the centre; seeds without albumen; embryo with its radicle folded on the cotyledons. The plants of this very natural order were included by Linnaeus in his class *Tetradynamia*. They are generally distributed, but most abundant in cold and temperate regions, especially in Europe. This order has been divided into sub-orders and tribes according to the nature of the fruit or the embryo. Considering the fruit we have these six divisions:—

1. *Siliqueosae*, a siliqua or long pod opening by two valves from below upwards;
2. *Siliculosae latiseptae*, a silicula or short pod opening with two flat or convex valves, the replem (partition) being in the broadest diameter;
3. *Siliculosae angustiseptae*, a silicula with folded or keeled valves, the replem in the narrow diameter;
4. *Nucumentaceae*, a silicula whose valves do not open, one-celled, having no replem;
5. *Septulatae*, valves with transverse partitions on their inside;
6. *Lomentaceae*, a pod dividing transversely into single-seeded portions, the beak sometimes containing one or two seeds, while the true pod is abortive. The nature of the embryo gives origin to five subdivisions, namely:—1. *Pleurorhizae*, the radicle folded on the edge of the cotyledons;
2. *Notorhizae*, the radicle folded on the back of the cotyledons;
3. *Orthoplocae*, the cotyledons folded on the radicle;
4. *Spirolobae*, cotyledons twice-folded;
5. *Diplolobae*, cotyledons thrice-folded. Crucifers are pungent, and occasionally acid in their properties. None of them are poisonous; many are culinary vegetables. From containing much nitrogen and sulphur in their composition they give out a fetid odour when decaying. Among the common cruciferous garden flowers may be enumerated wallflower, stock, rocket, honesty. *Brassica oleracea*

is the origin of the cabbage, cauliflower, broccolli, savoy and curled kale. *Brassica Rapa* is the origin of the turnip. The Swede or Swedish turnip is by some said to be a variety of *Brassica campestris*, by others a hybrid between *B. Rapa*, the turnip, and *B. Napus*, the wild narver, rape or coleseed. *Crambe maritima* supplies sea-kale, which is subjected to the process of blanching in order to fit it for the table. Among the pungent plants of the order are *Sinapis nigra*, the black seeds of which supply the best mustard; *S. alba*, or white mustard, which is less pungent; *Lepidium sativum*, common cress; *Nasturtium officinale*, water-cress; *Cochlearia Armoracia*, horse-radish; and *Raphanus sativus*, the radish. *Isatis tinctoria*, woad, yields a blue dye; and *I. indigotica* is used as indigo in China. Many of the species grow on the sea shore, and have been used as fresh vegetables by the crews of ships affected with scurvy. Hence, *Cochlearia officinalis* receives the name of scurvy-grass. Oil is procured from the seeds of many of the plants; thus we have rape oil, and oil of mustard, and camellina oil. After pressing out the oil from rape-seeds the cake is used as food for cattle. There are 206 known genera, and about 1730 species. Illustrative genera:—*Cheiranthus*, *Arabis*, *Linaria*, *Draba*, *Thlaspi*, *Tessdalia*, *Hesperis*, *Erysimum*, *Capsella*, *Isatis*, *Brassica*, *Bunias*, *Seneciera*, and *Schizopetalum*. [J. H. B.]

CRUICKSHANKIA. The name of certain Chilean herbs, constituting a genus of *Couchouaceae*. The plants have branching wavy stems, and yellow flowers in terminal heads. Their calyx tube is globular, its limb with four stalked roundish netted segments, having two stipules at the base of each; the corolla is salver-shaped. The fruit is a membranous two-celled and two-valved capsule. The most remarkable feature in the genus is the curious condition of the calyx before mentioned. [M. T. M.]

CRUSTA. The upper surface of lichens.

CRUSTACEOUS. Hard, thin, and brittle; as the seed-skin of asparagus, and the thallus of many lichens.

CRUSTOLLE. (Fr.) *Ruellia*.

CRYBE rosea is a small tuberous orchid with grassy leaves, from Guatemala. It has the habit of *Bletia*, but its pollen is that of an *Arethusean*.

CRYPsis. A genus of grasses belonging to the tribe *Agrostideae*. The inflorescence is generally between a thyrse and a capitule; spikelets one-flowered; glumes two, compressed and carinate; pales two, lanceolate, the inferior one nerved; stamens two to three; styles two. Thirteen species are described, mostly annuals, and little known in a cultivated state. [D. M.]

CRYPTA. The sunken glands or cysts which occur in dotted leaves. The same as *Cyst*.

CRYPTADENIA. A genus of *Thymelacae*, composed of a few heath-like dwarf

bushes, natives of S. Africa. They differ from their allies in their tubular calyx bearing on its inner surface near the apex of the ovary eight anther-like glands. Their minute linear leaves are numerous, opposite and smooth: the pink flowers, single or in pairs at the apex of the twigs, or from the axils of the upper leaves, consist of a coloured tubular calyx with a four-parted border, covered outside with short silky hairs, and bearing on its tube eight stamens, four of which are short and included, the others longer and slightly protruding beyond the mouth of the tube. *C. uniflora* is a slender pretty bush with pink flowers at the ends of the branches, and is sometimes seen in greenhouses. Five species are known. The name of the genus has reference to the eight hidden glands of the calyx tube. [A. A. B.]

CRYPTANDRA. A genus of heath-like under-shrubs, belonging to the order *Rhamnaceae*, natives of New Holland. They are erect branching plants, with alternate entire glabrous leaves, and flowers aggregated at the summits of the branches, or sometimes solitary. The coloured calyx has a campanulate occasionally cylindrical tube attached below to the ovary, but free above, and having a five-cleft limb cut into acute segments. The small hooded petals are inserted in the throat of the calyx, and cover the stamens, which have short filaments, and two-celled anthers opening longitudinally. The three-celled ovary is semi-inferior, each cell containing a single erect ovule; the style is simple, with a three-lobed stigma; the capsule is covered with the persistent calyx. There are upwards of seventy species. [W. C.]

CRYPTANTHUS. A Brazilian epiphyte belonging to the *Bromeliaceae*. Its leaves are lanceolate, and conceal the flowers: hence the name. The flowers have the arrangement and structure common to the order, with six stamens inserted on a fleshy epigynous disc, three of them moreover are united to the base of the inner petal-like segments of the perianth. The stigmas are three in number, twisted and hairy. [M. T. M.]

CRYPTARRHENA. A very singular genus of tiny stemless epiphytal orchids with spikes of minute yellowish flowers, living in the forests of Surinam and Mexico. They have a lip divided into attenuated segments, and a column furnished at the upper extremity with a hood, under which the anther lies. A plant called *Orchidofunkia pallidiflora* belongs to the genus.

CRYPTOCARYA. A genus of *Lauraceae*, consisting of trees natives of the tropics of both hemispheres, and of Australia. The leaf buds are scaly. The flowers are hermaphrodite, with a somewhat funnel-shaped six-cleft perianth; stamens twelve in four rows, the nine outer ones fertile, the three inner sterile; the innermost row of the fertile stamens has stalked glands at each side of each stamen, and the

anthers of this row open outwardly, while those of the two outer rows open inwardly, in either case by two valves; the one-celled ovary is immersed in the calyx tube, which becomes succulent as the fruit ripens, concealing the latter, hence the name of the genus. *Brazilian Nutmegs* are the produce of *C. moschata*. [M. T. M.]

CRYPTOCERAS. A section of the fumariaceous genus *Corydalis*, containing a few species from the warmer parts of temperate Asia. They have enlarged fusiform rootstocks, simple stems with two opposite leaves, which are ternate with imbricated segments, and very large flowers. [J. T. S.]

CRYPTOCHILUS sanguinea. A terrestrial orchid from the cooler parts of India, with leathery lanceolate leaves, and scapes bearing spikes of crimson tubular flowers. There is another species from the same country, the flowers of which are smaller and yellow.

CRYPTOGAMS. Many names have been applied to the vast class of plants comprehended under this name, as Asexual, or Flowerless Plants, Acrogens, Agamæ, Anandæ, Acotyledons, Cryptogams, Cryptophyta, Cellulares, Exembryonata, &c. Some of these have been given to them by authors collectively, while others have been appropriated to one of the two great sections into which Cryptogams are divisible. Of these we have chosen the term **CRYPTOGAMS** as liable to fewer objections than most others, and predicating little that is exposed in the present state of our knowledge to much contradiction. We have already stated the objections to which some are subject, as Asexual Plants, Acotyledons, Anandæ, and Cellulares; others will be mentioned hereafter. The great distinctive point of Cryptogams does not consist in the absence of decided male and female organs, nor in their minuteness, for in the greater part their presence has been ascertained beyond all doubt, and the analogous organs in phænogams often require the assistance of the lens to make out even their external form clearly. The main point is that the reproductive organs are not true seeds containing an embryo, but mere cells consisting of one or two membranes inclosing a granular matter. These bodies, whether called spores or sporidia, produce by germination a thread or mass of threads, a membrane, a cellular body, &c., as the case may be, which either at once gives rise to the fruit or to a plant producing fruit. Indeed the differences are so great that these spores seem rather to be relatives, or what is technically termed homologues, of pollen grains, than of true seeds.

The Cryptogams are divided into two great classes, **THALLOGENS** and **ACROGENS**, whose distinctive characters will be found under those heads. It is scarcely possible to give any general character of the whole except that which we have indicated above, as these two divisions are as distinct from each other as Cryptogams

themselves are from phænogams. Many of them indeed consist entirely of cells, but so do some more perfect plants, and vascular tissue exists in many Cryptogams. The greater part increase from the tips of the threads, but cell division takes place occasionally in other parts; while even in exogens, the main growth of the cells of which the wood and bark are composed is similar. Again, if they have no true pistils and anthers, they have their analogues, while in several an embryo is at length produced, and in *Saliginella* something even like cotyledons. Both the embryo and cotyledons are, however, aftergrowths, and not derived immediately from the spore. The consideration of the relations between the reproductive organs of phænogams and Cryptogams is one of the most interesting which is to be found in Botany, but it is also one of the most abstruse and difficult, and can be followed out only by those who have an intimate knowledge of the structure and functions in either branch of the vegetable kingdom. Such considerations would be wholly out of place in a work like the present. [M. J. D.]

CRYPTOGLOTTIS serpyllifolia is a little trailing moss-like orchid growing on trees in the Malayan archipelago. Its flowers are very minute. It is the same as the *Hexamera* of Brown, and notwithstanding its diminutive dimensions, is nearly related to the showy *Angraecum*.

CRYPTOGRAMMA. A small genus of polypodiaceous ferns of the group *Platylomeæ*. They are very closely related to our native *Allosorus*, with which they are indeed sometimes, and, perhaps rightly, united. The typical species of the present genus, *C. acrostichoides*, has, however, the spore-cases continued in lines along the course of the veins from the margin a short distance inwards, so as to be unmistakably oblong or linear-oblong, and hence has the distinguishing characteristic of the *Platylomeæ*; while in *Allosorus*, as now restricted, the sori are normally punctiform, and therefore polypodioid. They simulate the *Fleridea*, in consequence of the reflexed herbaceous margin resembling an indusium. The aspect of the plants is quite that of *Allosorus crispus*, being of dwarf and tufted habit, with dimorphous fronds, and having the fertile pinnales formed like a siliole or short pod. There are three species, *C. acrostichoides*, found in Arctic America, *C. sitkensis*, found in Sitka, and *C. Brunoniana*, found in India. [T. M.]

CRYPTOMERIA. A lofty evergreen tree, forming a genus of *Conifera* of the tribe or suborder *Cupressineæ*. The leaves are shortly linear, falcate, rigid and acute, crowded but spreading. The flowers are monocious, the males in axillary catkins, the petate scales bearing five anther-cells at their base. The fruits are in small terminal globular cones, with palmately-lobed imbricate scales, each one covering four to six winged seeds. *C. japonica*, the only species known, is a native of North China

and Japan, and being hardy enough to sustain our climate without injury, is now very generally planted in collections of Conifers. It is not, however, suited to heavy soil.

CRYPTONEMATA. Small cellular threads produced by cryptostomata.

CRYPTONEMIACEÆ. One of the largest natural orders amongst the rose-spored *Alga*, belonging to the section *Gongylopermeæ*, in which the imarticulate cartilaginous frond consists of a number of jointed threads compacted by gelatine. In the membranous species it is sometimes formed of many-sided cells, decreasing in size towards the surface. The capsules are immersed and are sometimes compound, and the spores are congregated without order. These arise either from several congregated fertile cells, which at length enlarge their endochrome, giving rise to a multitude of spores, or from a single cell, according as they are compound or simple; in the former case all trace of the original structure is frequently lost when the fruit is perfected. The genera and species are numerous, and occur in all climates. *Chondrus crispus* with several species of *Iridaea* and *Gigartina* belonging to this order, abound in gelatine, and in consequence are useful for many domestic purposes. [M. J. B.]

CRYPTOPHYTES. A synonym of cryptogams. [M. J. B.]

CRYPTOPUS elata (*Declardia* of Rich.) is a handsome epiphytall orchid from the Isle of Bourbon. It has the habit of *Epidendrum elongatum*, the double gland and caudicle of an *Angraecum*, and flowers with deeply-lobed petals and lip; their colour is white dotted with purple.

CRYPTOS. In Greek compounds=concealed; thus *Cryptogams* are plants with concealed sexes.

CRYPTOSANUS. *Leochilus*.

CRYPTOSEMA. A name sometimes given to a West Australian bush of the pea family, also called *JANSONIA*: which see. [A. A. B.]

CRYPTOSORUS. A very appropriate name proposed for a few species of small-growing Ferns, having sunken punctiform nonindusiate sori, but which are not generally considered sufficiently distinct from *Polypodium*. [T. M.]

CRYPTOSTEGIA. A genus of twining shrubs, belonging to the natural order *Aeclepiadaceæ*, and containing a single species from India and another from Madagascar. They have opposite leaves, and large reddish-white flowers in terminal cymes. The calyx consists of five lanceolate sepals; in the tube of the corolla there are five linear bipartite scales; the stamens are included, and have very short filaments inserted at the base of the tube, and the oval pollen masses are solitary and attached to the five glandular points

on the globose stigma. The large three-sided follicles are widely divaricate, with an incurved apex and comose seeds.

The plants of this genus abound in milky juice, which when exposed for a short time to the sun is converted into pure caoutchouc. [W. C.]

CRYPTOSTOMATA. Little circular nuclei found on the surface of some algae.

CRYPTOSTYLIS. A small genus of brown-flowered terrestrial orchids inhabiting New Holland, Java, and Ceylon. The main character consists in its having a great dorsal lip hollowed out at the base to receive the column. The abolished genus *Zosterostylis* is one of the species.

CRYPTOTÆNIA. A genus of *Umbelliferae*. The Honewort, *C. canadensis*, is the only species, and is one of a goodly number of plants common to North America and Japan. It is a smooth perennial erect herb, one to two feet high, having ternate stalked leaves with ovate coarsely-toothed leaflets, and numerous umbels of small white flowers, curiously disposed in an almost panicle manner, which is very unusual in the family. The fruit is linear-oblong, contracted at both sides, each of the carpels having five equal obtuse ribs, with an oil tube (vitta) in each furrow, and one under each rib. [A. A. B.]

CRYPTOTHECA. A genus of *Lythraceæ*, containing bog herbs or undershrubs from Japan with angular stems, opposite shortly stalked lanceolate or linear-lanceolate leaves, and axillary many-flowered peduncles. The calyx is funnel-shaped, four-cleft; corolla of four small petals or absent; stamens two, with roundish anthers; style lateral; capsule one-celled, irregularly circumscissile, inclosed in the calyx tube. [J. T. S.]

CRYPTOTHECII. A small group of mosses, represented by *Spiridens*.

CRYSTALWORTS. A name given by Lindley to the *Riociaceæ*.

CTENOMERIA. A genus of slender twiners of the spurgewort family, found in South Africa. The slender cobwebby filaments of the male flowers, together with the pectinately-toothed calyx leaves of those of the females, serve to distinguish it from its allies. The wiry stems are furnished with distant nettle-like heart-shaped leaves, and the small green flowers are disposed in racemes which arise from opposite the leaves. [A. A. B.]

CTENOPTERIS. A name originally proposed as a sectional division of *Polypodium* by Blume, a Dutch botanist, and subsequently adopted as a genus, with various modifications by modern pteridologists. It is, however, synonymous with the true or typical species of *Polypodium*. [T. M.]

CUBEBA. A genus of *Piperaceæ*, the distinguishing features of which are, the dioecious flowers partially covered by sessile bracts and the fruits elevated on a

sort of stalk, formed from the contraction of the base of the fruit itself, so that they are not really but only apparently stalked. They are shrubs frequently of climbing habit, indigenous in the tropics of Asia and Africa. *C. officinalis*, a native of Java, furnishes the cubeb fruits of com-



Cubeba canina.

merce, which are like black pepper but stalked. They have an acrid hot aromatic taste, and are specially useful in diseases of the bladder and urinary passages. In large doses they give rise to symptoms of irritant poisoning. *C. canina* is also said to furnish some portion of the commercial cubeba. [M. T. M.]

CUBEBS. The fruits of various species of *Cubeba*, as *C. officinalis*, *C. canina*, and others.

CUCHUNCHULLY or **CUICHUNCHULL.** *Tonidium microphyllum*.

CUCKOLD TREE. *Acacia cornigera*.

CUCKOO-FLOWER. *Cardamine pratensis*; also *Lychnis Flos-cuculi*.

CUCKOO-PINT. *Arim maculatum*.

CUCUBALUS A genus of *Caryophyllaceae*, of the tribe *Sileneae*, containing a single European herb which has been found in the Isle of Dogs, but doubtless introduced. It has trailing stems, opposite ovate leaves, and shortly stalked drooping whitish flowers in dichotomous cymes. The calyx is bell-shaped; the petals deeply cleft; stamens ten; styles three; fruit a globular berry, at first reddish, but black when ripe; seeds numerous. [J. T. S.]

CUCULLATE. When the apex or sides of anything are curved inwards, so as to resemble the point of a slipper, or a hood as in the lip of *Cypripedium* and *Calypso*.

CUCULLUS. A hood or terminal hollow.

CUCUMBER. *Cucumis sativa*. —, **BITTER.** *Citrullus* or *Cucumis Colocynthis*, commonly called *Colocynth*. —, **INDIAN.** *Medeola virginica*. —, **ONE-SEEDED STAR.** An American name for *Sicyos*. —, **SINGLE-**

SEEDED. A common name for *Sicyos*. —, **SNAKE.** *Trichosanthes colubrina*; also *Cucumis flexuosus*. —, **SPIRTING** or **SQUIRTING.** *Ecdalum agreste*, formerly called *Momordica Elaterium*.

CUCUMBER-ROOT. An American name for *Medeola*.

CUCUMBER-TREE. An American name for *Magnolia acuminata* and *M. Fraseri*.

CUCUMBERTS. A name proposed for the *Cucurbitaceae*.

CUCUMIS. A genus of *Cucurbitaceae*, comprising a number of species, among which the most remarkable are the *Cucumber*, *C. sativus*, so well known as one of our most ancient table esculents, and the *Melon*, *C. Melo*, equally familiar to us as one of our most ancient and luscious fruits. Some of the species possess valuable medicinal properties. Nearly all are annuals and natives of the warmer parts of Asia, Africa, and America. It is worthy of note that the tender tops of all the edible species of *Cucurbitaceae*, boiled as greens or spinach, are even a more delicate vegetable than the fruit.

The *Cucumber*, *C. sativus*, is a tender annual, having rough trailing stems, with large angular leaves, and yellow male and female flowers borne in the axils of the leaf stalks. It is a native of Asia and Egypt, where it has been cultivated for more than 3,000 years. It is mentioned as one of the things for which the Israelites longed while in the wilderness, and complained to Moses (Numbers xi. 5). At a very early period it was grown by the Greeks and Romans, and according to Pliny, the Emperor Tiberius had Cucumbers at his table every day in the year. They were known in England in the time of Edward III. (1327), but during the wars of the Houses of York and Lancaster their cultivation was neglected, and the plant lost until the reign of Henry VIII., when it was again introduced. Since then it has gradually increased in public favour until it has now become of such importance as to be an object of rivalry with gardeners to produce fruit for the great and wealthy at all seasons. In summer such is the demand for this esculent that in order to obtain a sufficient supply, it is grown extensively in forcing frames, and in the counties near the metropolis, whole fields are devoted to cucumbers as a crop. Although cold and watery, and by some considered unwholesome, still the fruits are generally much esteemed as forming a most grateful salad when cut into very thin slices, and dressed with vinegar, &c. In a young state when small they are called *Gherkins*, and are in great request for preserving in vinegar, or for pickling with other vegetables. It is recorded that the village of Sandy in Bedfordshire has been known to furnish for the London market, 10,000 bushels for this purpose in one week! [W. B. B.]

The *Melon*, *C. Melo*, is the *Pepon* of Dioscorides, the *Melopepon* of Galen, and the *Melo* of Pliny. In Greece at the present

day it is named Peponia. In Italy in 1539, the names of Pepone, Melone, and Melone were applied to it. In Sardinia, where, it is remarked by De Candolle, Roman traditions are well preserved, it is called Meloni. From the Spaniards in the beginning of the sixteenth century, it received the name of Melon, which it retains in France, England, and with but slight modifications in other countries throughout Europe, where indeed the uniformity of name seems to indicate an introduction not very remote. De Candolle is of opinion that the species was originally confined to the valleys in the south of the Caucasus, and chiefly to the southern coasts of the Caspian. But its cultivation in the open air has long been extensively practised over a great part of Asia. It even appears to have been introduced into Italy early in the first century, if not before, as it is mentioned by Pliny, who died from suffocation caused by the great eruption of Vesuvius in A.D. 79. In his works he describes the modes by which melons were grown or forced, so as to be obtained for the Emperor Tiberius at all times of the year. Their cultivation, however, appears to have been very limited in Europe till within the last three centuries. According to M. Jacquin, *Monographie complète du Melon*, the Cantaloup variety derives its name from Cantaloup, a seat belonging to the Pope, near Rome, where this sort, brought from Armenia by the missionaries, was first cultivated. He states further that it was received into France from Florence; that from France it passed into Spain, and thence into England, where, according to some authors, it has been cultivated since 1570; but the precise time of its introduction is uncertain. Probably the cultivation of Melons had been attempted much earlier. Till lately they were called in this country Musk Melons to distinguish them from water melons, which belong to a different species. Persia is noted for the excellence of its Melons, and the extensive scale on which their cultivation is carried on. Some nobles and wealthy individuals keep, it is said, from 10,000 to 20,000 pigeons, chiefly for manuring their melon beds, pigeons' dung being there considered the best manure for these plants. A collection of seeds of the best Persian varieties was sent in 1824 to the Horticultural Society by Sir Henry Willock, ambassador at the court of Persia; and some of the kinds when grown under particular treatment in this country proved excellent, but they are apt to degenerate. The melons of Bokhara are of the highest excellence, although in our climate they are liable to the same objection with regard to degeneration as those of Persia. Burnes in his *Travels* says 'The Melon is the choicest fruit of Bokhara. The Emperor Baber tells us that he shed tears over a melon of Turkistan which he cut up in India after his conquest: its flavour brought his native country and other dear associations to memory. There are two distinct species of Melons which the people class into hot and cold; the first ripens in

June, and is the common Musk or Scented Melon of India; the other ripens in July, and is the true Melon of Turkistan: in appearance it is not unlike a water melon, and comes to maturity after being seven months in the ground. It is much larger than the common sort and generally of an oval shape, exceeding two and three feet in circumference. Some are much larger, and those which ripen in the autumn have exceeded four feet. One has a notion that what is large cannot be delicate or high-flavoured; but no fruit can be more luscious than the Melon of Bokhara, nor do I believe their flavour will be credited by any one who has not tasted them. The Melons of India, Cabool, and even Persia, bear no comparison with them—not even the celebrated fruit of Ispahan itself. There are various kinds: the best is named Kokchu, and has a green and yellow-coloured skin: another is called Ak nubut, which means white sugar candy; it is yellow and exceedingly rich. The Winter Melon is of a dark green colour, called Kara knobuk, and said to surpass all the others. Bokhara appears to be the native country of the Melon, having a dry climate, sandy soil, and great facilities for irrigation.' (*Burnes' Travels in Bokhara*.)

Provided the soil is moist below, the Melon succeeds in all countries where the summer is sufficiently hot, even although the winters are cold, as is the case at Cabul, where severe winters are succeeded by very hot summers. There, Melons are produced in great abundance. Being an annual, its vegetation only commences naturally when the soil and air are warm; the fruit ripens in summer or before winter; and the plant then dies off before cold weather sets in. In the middle and southern states of America, Downing informs us, Melons are raised as field crops by market gardeners, the seeds being sown in the open air in May, and ripe fruit is obtained in August. In Australia likewise Melons are produced with the greatest ease in extraordinary abundance. There are many varieties of Melons, differing in size, form, and colour. Some are round or oblate, others oblong or oval; the surface of some is smooth, of others ribbed, netted, or warted. The flesh is either white, greenish, salmon-coloured, or red. The green-fleshed varieties are now generally preferred.

The Water Melon, *C. Citrullus*, is supposed to be of more ancient introduction to Europe than the foregoing. Rauwolf, in 1574, found it in abundance in the gardens of Tripoli, Rama, and Aleppo, under the name of Bathleca, the root of which word is from the Hebrew Abbatlechim, one of the fruits of Egypt which the Jews regretted in the wilderness. It still forms chiefly the food and drink of the inhabitants of Egypt for several months in the year. It is very much cultivated in India, China, Cochín-China, Japan, the Indian archipelago, in America, and in short in most dry hot parts of the world, on account of its abundant refreshing juice, which, however, is not so rich and sugary as that

of the common Melon. It is not esteemed in this country, where it is rarely grown.

[R. T.]

CUCURBITACEÆ. (*Nandirobeæ*, *Cucurbits*, the *Cucumber* and *Gourd* family.) A natural order of polypetalous and gamopetalous calycifloral dicotyledons, characterising Lindley's cucurbitalliance. Succulent climbing plants with tendrils in place of stipules, alternate palmately-veined rough leaves, and staminate and pistillate flowers. Calyx adherent, its limb five-toothed, or obsolete. Petals four to five, usually united (gamopetalous), reticulated. Stamens generally five, distinct or combined; anthers long and wavy. Ovary one-celled, inferior, with three parietal placentas, which often send processes into the cavity so as to reach the centre, and there unite; stigmas thick. Fruit succulent, a pepo (gourd); seeds flat, without albumen; cotyledons of the embryo leafy. Natives chiefly of hot countries; they are found in India and South America, a few are found in the North of Europe and North America; some are also met with at the Cape of Good Hope and in Australia.

The plants of this order possess generally a certain amount of acidity. Many of them are powerful purgatives, such as the melon, cucumber, vegetable marrow, gourd, pumpkin and squash; while of others the fruits are edible when cultivated. The seeds are usually harmless. The pulp of the fruit of *Citrullus Colocynthis*, the colocynthis, or bitter apple, is the colocynthis of the shops; this is supposed to be the wild gourd of Scripture. *Ecballium purgans* or *agreste* (*Momordica Elaterium*) is called squirting cucumber on account of the elastic force with which its seeds are scattered; the deposit from the fluid of the fruit constitutes the powerful purgative called elaterium. *Cucumis sativus* is the common cucumber, *C. Melo* the melon, and *C. Citrullus*, the water-melon. *Cucurbita Pepo*, the gourd, is a scrambling plant, to which belong the vegetable marrows, which are edible, the orange gourds, which are bitter, the egg-gourds, giraumons, crooknecks, Turks' caps, and warted gourds. *C. maxima*, the pumpkin, bears immense fruit; and *C. Melopepo*, the Squash, forms a bush about 3 ft. high, and may be had in the shops under the names of Pâtisson, Elektor's Cap, and Jerusalem Artichoke Gourd. The seeds of *Judaea* are eaten in India. *Lagenaria vulgaris* supplies fruit, which after the pulp is removed is used for carrying water, under the name of bottle-gourd. The fruit of *Luffa Egyptiaca* is cut up when dry and used as a flesh brush, under the name of towel-gourd. *Sesquid edule* yields an edible fruit called chocho or chacha. The species of *Bryonia* are purgative. There are three divisions of this order: 1. *Nandirobeæ*, anthers not wavy, placentas adhering in the axis of the fruit, seeds numerous; 2. *Cucurbitææ*, anthers wavy, placentas and seeds as in the first; 3. *Scyææ*, placentas not projecting into the cavity, seeds solitary from the top

of the cell. There are about seventy genera, and 340 species. *Bryonia*, *Citrullus*, *Momordica*, *Luffa*, *Cucumis*, *Cucurbita*, *Coccinia*, *Trichosanthes*, *Telavaria*, *Festilæa*, and *Sicyos* are examples. [J. H. B.]

CUCURBITA. The typical genus of the *Cucurbitaceæ*, and composed of herbaceous mostly climbing plants, that are natives of hot countries in both hemispheres, chiefly within the tropics. A few are found in the north of Europe and North America, but India appears to be their head quarters. Those which are annuals readily submit to the climate of northern latitudes during summer. Although we best know the cucurbits by the use of the melon, cucumber, vegetable marrow and similar plants, yet it must be borne in mind that acrimony and a drastic tendency pervade many species, the fruits of some of which afford cathartics of remarkable power. Such being the predominant quality of the family it is well to be cautious in the use of even the best known species. (*Lindl. Veg. King.* p. 313.)

The Pomplon or Pumpkin Gourd, *C. Pepo*, of which there are many varieties, is a tender or half-hardy annual, a native of Astrachan, and is stated to have been cultivated in England since 1570. It has large rough heart-shaped five-lobed leaves, and hispid branching tendrilled stems, which in good soil will grow rapidly and cover a large space in the course of a season; the flowers are large deep yellow. The fruit is oblong egg-shaped, varying both in form and size, and is used for soups or stews, but more frequently in this country it is mixed with sliced apples, to which a little sugar and spice are added, and after being baked is eaten with butter under the name of pumpkin pie. Until 1818, according to London, this was the principal kind of gourd cultivated in British gardens—in those of the rich chiefly for ornament, and in those of the poor, in some parts of England, as a culinary vegetable.

The Egg-shaped or Succade Gourd, or Vegetable Marrow, *C. ovifera succada*, sometimes regarded as a variety of *C. Pepo*, is believed to have been originally brought from Persia, but the date of its introduction is not exactly known. It is one of the most valuable sorts of gourd for culinary purposes that we possess. The plant is similar in habit and appearance to the other kinds of trailing gourds; and the leaves are rough, middle-sized, and deeply-lobed. The fruit is of an uniform pale greenish yellow, of an elongated oval-shape, slightly ribbed and about nine inches long. It is used in every stage of its growth, and is peculiarly tender and sweet; when very young it is good if fried in batter, but it is in the intermediate or half-grown state that it deserves the name of Vegetable Marrow. It is then excellent when plain boiled and served with rich sauces. For many years this valuable esculent was only to be met with in the gardens of the wealthy, but it is now extensively cultivated, and during the latter part of sum-

mer and autumn it forms one of our common vegetables.

The Melon Pumpkin, *C. maxima*, is one of the largest examples of the gourd tribe. It is a native of the Levant, and is recorded to have been introduced in 1547. The stems are angular, rough and trailing, with large heart-shaped five-lobed tooth-letted rough leaves. The flowers are large bell-shaped deep-orange. The fruit is roundish, often flattened at top and bottom, slightly ribbed, of a pale buff or salmon colour, and thickly netted over its surface with narrow vermicular processes. When dressed it has a peculiar flavour not unpleasant to the taste, and forms an excellent substitute for carrots or turnips. It is the *Potiron* of the French, who use it largely in soups, as well as mashed in the manner of potatoes. In North America it is extensively cultivated as an article of food, and as it keeps well it affords a supply through a great part of the winter. The fruit often attains a large size. One grown at Luscumbe in Devonshire is mentioned in the *Gardener's Magazine* (vii. 102), as having weighed 245 lbs. Another, grown at Lord Rodney's in 1834, weighed 212 lbs., and was 8 ft. round. Yellow, green, and grey varieties are cultivated.

Besides the gourds just noticed as being the sorts that have been longest cultivated and best known in this country, there are many other sorts well deserving of attention. Among these we would particularly mention the Custard Marrow Squash, and the improved Custard Marrow or Bush Squash, both of which are prolific and highly esteemed for their superior excellence, as well as for the peculiar form of their fruit, which for culinary purposes are remarkably handsome and in great request. Many kinds of gourds are also exceedingly ornamental. [W. B.]

CUDBEAR. A name given in Scotland to a crimson dye prepared from *Lecanora tartarea* and some other lichens, by treating them with alkaline substances. The collection of the lichen formerly employed a great number of hands, but it is now much neglected. A person so employed could earn fourteen shillings a week, the lichen being sold at about three halfpence a pound. It is now principally procured from Sweden and Norway, the manufacture being chiefly in the hands of the English. The name was derived from Dr. Cuthbert Gordon who first introduced the manufacture in Glasgow. [M. J. B.]

CUDRANIA. Climbing spiny shrubs, belonging to the *Artocarpaceæ*; they are natives of the Moluccas, Philippines, and India, and have entire dioecious flowers, the females in globose or oblong heads, each with a four-leaved perianth, and a pendulous ovule. [M. T. M.]

CUDWEED. The common name for *Gnaphalium*.

CUICHUNCHULLI. *Ionidium microphyllum*,

CUITLAUZINA. *Odontoglossum*.

CUJUMARY BEANS. The fruits of *Ayendron Cujumary*.

CULANTRILLO. The Chilian name for *Tetilla*, an astringent plant.

CULCASIA. A little known genus of *Araceæ*, comprising a tropical African species, with entire stalked leaves, and a brownish spathe enclosing a spadix bearing male and female flowers, and intermediate rudimentary organs. Ovaries crowded, each with one ovule. [M. T. M.]

CULCITA. *Dicksonia Culcita*. The name has sometimes been used generically to separate this species from the rest of the genus *Dicksonia*. [T. M.]

CULCITIUM. A genus of *Compositæ*, composed of woolly herbs or small bushes found in the Andes of Peru and Columbia near the snow limit at an elevation of 14,000 or 15,000 feet above the level of the sea. The name derived from *Culcita*, a cushion, is given, because all parts of the plants, except the upper surface of the leaves of a few, are covered with dense white or rusty coloured woolly hairs, which serve as beds for those travellers who may be forced to spend the night in the open air at this great elevation. The manner of making the bed is, by first amassing a quantity of the plants, and after taking the soft woolly pappus from the flowers, laying the branches, with the leaves attached, on the ground. On this first layer the soft warm pappus hairs are scattered, then a third layer is placed of leaves only, and, lastly, another layer of pappus hairs. On this couch the traveller reposes after the toils of the day without fear of frozen limbs. The genus *Espeletia* also belongs to this family, and growing on the high Andes, bears much resemblance to this in the woolly clothing of the leaves and stems, but the present is easily distinguished from it, the forets being all tubular, while in *Espeletia* there is an outer row of strap-shaped forets in the flower-head. Their nearest relationship is to the groundseels, *Senecio*, from which they may be at once recognised by their appearance. About a dozen species are known, some attaining a height of five or six feet, and having lance-shaped root leaves from six inches to a foot in length clasping the stem with their sheathing bases; these are sometimes called Lion's ear. [A. A. B.]

CULEN. A Chilian name for *Psoralea glandulosa*.

CULILAWAN BARK. The bark of *Cinnamomum Cutilawan*, or Clove Bark.

CULLUMIA. A genus of little Cnpe bushes belonging to the composite family, and distinguished from its allies by the achenes being destitute of pappus, as well as by the curiously spinous margins of the leaves. These are seldom more than an inch long (generally much shorter), oblong in form, sessile, and often closely pressed

to the stem. In a great many the margins are bordered with a single row of slender bristles about an eighth of an inch in length and in a few there is a double row of these bristles, one set pointing upwards, the other directed downwards. In all cases the leaves are terminated by a bristle. The yellow flower-heads are single on the ends of the branches, and half an inch or more in diameter. The scales of the involucre, in many rows, are furnished with bristles like the leaves. The florets of the outer row are strap-shaped and barren, of the inner tubular and fertile. About twenty species are enumerated. [A. A. B.]

CULM. The straw of corn; a kind of hollow stem.

CULMIFEROUS. Producing culms.

CULVER'S ROOT or **CULVER'S PHYSIC.** American names for *Veronica virginica*.

CUMIN or **CUMMIN.** *Cuminum Cuminum*. —, **BLACK.** The pungent seeds of *Nigella sativa*. —, **SWEET.** The Anise, *Pimpinella Anisum*. —, **WILD.** *Lagocnemis*.

CUMIN CORNU. (Fr.) *Hypocymum cumbens*. — **NOIR.** *Nigella sativa*.

CUMINUM. Fennel-like plants, belonging to the *Umbelliferae*, and botanically characterised by the presence of both general and partial involucre, the latter one-sided; by the calyx having five lance-shaped teeth; and by the elongated fruits, slightly contracted at the side, and each half provided with five thread-like ridges, and four intermediate ones more prominent and slightly prickly, beneath each of which there is an oil channel or vitla. The cumlin seeds or fruits are the produce of *C. Cuminum*. They are much like those of caraway, but larger and of lighter colour, and with nine in place of five ridges on each half of the fruit. They are but little used, as carways are more agreeable and more efficacious. The seeds of cumlin smoked were considered by the ancients to produce pallor of the countenance. [M. T. M.]

CUMINGIA. A genus of *Liliaceae*, consisting of bulbous Chilian herbs, with linear-lanceolate nervose leaves, and branched scapes bearing panicles of nodding blue flowers. The perianth is bell-shaped, the tube adhering to the base of the ovary, the limb six-parted with spreading segments. The six stamens are inserted in the tube, and have short compressed filaments; the ovary is three-celled with many ovules, the style subulate and the stigma simple. The genus is near *Conanthera*, but differs in having a less divided perianth, in the same way as *Hyacinthus* differs from *Scilla*. *C. campanulata* is a very interesting plant, with linear-channelled leaves, and a stem from a span to a foot high, bearing a racemose panicle at top, the flowers violet, paler in the throat around which they are spotted with blackish purple. [T. M.]

CUNEATE, CUNEIFORM. Wedge-shaped. Inversely triangular, with rounded angles.

CUNICULATE. Traversed by a long passage, open at one end, as the peduncle of *Tropaeolum*.

CUNILA. A genus of *Labiatae*, containing several species of perennial herbs or undershrubs, natives of N. America. They have small white or purplish flowers, in corymbed cymes or close clusters. The calyx is ovate-tubular, equally five toothed, and hairy in the throat; the corolla is two-lipped, with the upper lip erect, flattish, mostly notched, and the lower somewhat equally three-cleft; the two inferior stamens, which alone are fertile, are erect, exerted, and distant, and there are no traces of the superior stamens; the apex of the style is shortly blind with subulate lobes. The nucule is smooth. [W. C.]

CUNIX. The separable space which intervenes between the wood and bark of exogens; an obsolete word.

CUNNINGHAMIA. A lofty evergreen tree, forming a genus of *Coniferae* of the suborder or tribe *Abietinae*. The linear falcate or lanceolate stiffly-pointed leaves are nearly those of the American *Araucarius*, but of a brighter green and less rigid. In the flowers and cones, the genus is nearly related to *Pinus*, but there are three or four anther-cells instead of two to each scale of the male catkins, and three instead of two ovules or seeds to each scale of the females. *C. sinensis*, the only species known, is a native of South China, and too tender for our climate without protection; but it is occasionally to be seen in our conservatories, where, from the elegance of its habit, it is a welcome inmate when there is room for its development.

CUNONIA. A genus of *Cunoniaceae*, consisting of a small tree from the Cape of Good Hope, where it is called Rood Elze by the Dutch colonists. It has reddish twigs, and opposite pinnate leaves with oblong coriaceous serrated leaflets, and ovate caducous stipules. The dense racemes of small white flowers are axillary and opposite, with the pedicels fascicled; calyx five-parted, deciduous; corolla of five oblong petals; stamens ten; ovary free, with two diverging styles; capsule conical, two-celled, separable into two many-celled carpels. [J. T. S.]

CUNONIACEAE. (*Ochranthaceae*, *Cunoniads*.) A family of dicotyledons, closely allied to *Saxifragaceae*, and very generally considered as a tribe only of that family, differing more in their habit than in the structure of their flowers or fruit. They are shrubs or trees with opposite leaves, simple or compound, and have stipules between the leaf-stalks. The calyx is half-superior or nearly inferior, the petals and stamens perigynous, the latter definite or more rarely indefinite. The ovary is two-celled, with two or more ovules in each cell; the styles usually distinct; the fruit

capsular or indehiscent. They are natives chiefly of tropical regions or of the southern hemisphere, and especially of Australia. There are above a hundred species, distributed into about twenty genera, among which may be cited as the most generally known, *Weinmannia*, *Callicoma*, *Acrophyl- lum*, *Ceratopetalum*, *Cunonia*, *Caldcluvia*, *Belangeria*, &c.

CUPANIA. A large genus of trees or shrubs belonging to the *Sapindaceæ*, numbering upwards of fifty species, more or less frequent in all tropical countries, but found in greatest numbers in South America. They are distinguished from their near allies by having a dry capsular fruit, which bursts when ripe: those genera more immediately related to them having more or less fleshy fruits which do not burst when ripe. In all cases the leaves are pinnate, varying in length from six inches to two feet, and composed of few or many leaflets. The flowers are small, generally green or white, and arranged in terminal or axillary racemes or panicles; some of them contain stamens only, others both stamens and pistil. The calyx is five-parted; the petals five, with or without a little scale-like appendage; and surrounding the ovary is a fleshy ring, inside of which the stamens (eight to ten in number) are inserted. The ovary is crowned with a simple style, generally trifid at the top, and becomes when ripe a two or three-lobed capsule, woody or thin in texture, with two or three cells, each containing one seed; the latter in all the species are furnished with a large or small fleshy cup-shaped aril, which is frequently of a bright yellow colour, while the outer coating of the seed is generally black and polished. *C. edulis*, the Akee Tree, is sometimes called *Blighia sapida*: which see. The Tulp Wood of eastern tropical Australia is furnished by the *Cupania* or *Harpulia pendula*, a tree of lofty growth, with a stem varying from eighteen to twenty inches in diameter. The light coloured wood is interspersed with darker mahogany-coloured patches, and is susceptible of a high polish; it bears much resemblance to that of the Tamarind tree. A very curious circumstance has been noticed by Mr. Spruce in connection with the seeds of *C. cinerea*, a Peruvian tree with pinnate leaves, and wedge-shaped leaflets covered underneath with a white down. He says, 'The embryos fall out of the seeds, while the outer coating or husk of the seeds with their aril contained in the burst capsules still remain on the tree.' Lobolly-wood is the name given in Jamaica to the wood of a number of trees of this genus. [A. A. B.]

CUP FLOWER. *Scyphanthus elegans*.

CUP GOLDOLOCKS. *Trichomanes radicans*.

CUPHEA. A genus of *Zythrææ*, consisting of herbs or undershrubs, often viscid, natives of Tropical America, one species extending northwards as far as New York. The leaves are opposite, rarely

verticillate, entire; flowers solitary, on short often-curved stalks, and not unfrequently arranged in a racemose manner, purple, red or white; calyx tubular, inflated below, and gibbous or spurred at the base on the upper side, strongly nerved, the limb plaited and six-toothed, often with six smaller intermediate teeth, the whole coloured and often forming the most conspicuous part of the flower; petals six, rarely absent, unequal, the two uppermost generally much larger than the others: stamens about twelve, unequal, in two sets; ovary free, one or two-celled, few ovuled, with a slender style and two-lobed stigma. Capsule oblong, usually ruptured before the seeds are ripe, in which case the placentas with the seeds attached, protrude. [J. T. S.]

CUPIDONE. (Fr.) *Calananche cerulea*.

CUP-PLANT. An American name for *Silphium perfoliatum*.

CUPRESSUS. A genus of evergreen trees and shrubs, giving its name to the tribe *Cupressineæ*, of the family of conifers. Their foliage is not often to be distinguished from that of some species of juniper, consisting, as in that genus, of either small scale-like closely-appressed leaves, or of longer linear spreading ones, acute or acuminate, always opposite, and both forms occurring sometimes in different parts of the same tree or shrub. The fruit or cone is, however, very different from that of *Juniperus*, being much larger, with peltate woody scales opening to let out the seeds when ripe, and not at all succulent; and the seeds are winged. There are about ten species natives of the northern hemisphere, all extratropical or penetrating into the tropics only in mountain regions. They may be readily distributed into two sections, considered sometimes as distinct genera: *Cupressus* proper, with several seeds under each scale of the cone; and *Chamaecyparis*, with two seeds only to each scale. But the species themselves are very difficult to mark out, being distinguished rather by general habit than by any very positive botanical character.

C. sempervirens of Linnaeus, the common Cypress, is a native of Persia and the Levant, but so generally planted in the East that the precise limits of its indigenous area have not been well ascertained. It has two very remarkable forms. One, *C. fastigiata*, with erect closely-appressed branches, is the well-known tall Cypress, celebrated by Oriental poets for its elegant slender pyramidal form, and extensively planted in Southern Europe and Western Asia, especially in Mahomedan and Armenian burial grounds. It will there reach a height of above sixty feet, densely clothed with leafy compact branches to within four or five feet of its base, the trunk below the branches attaining twice to fifteen feet in circumference. In our country, however, it is only in a few favoured spots that it will rise much above a bush of ten to fifteen feet, for it is of very slow growth,

and much liable to injury from wind and severe frost. The second variety, *C. hortensis*, or spreading Cypress, with all its

to the same species, were it not that it will frequently spring from the seed of *C. fastigiata*. In the south of Europe it readily grows to a tree, having much the form of a Cedar, but it is seldom planted in England.

C. torulosa, from the Himalaya, is one of the most elegant of modern introductions to our pinetums and shrubberies; the branches are erect or ascending, but less compact than in the common tall cypress and the colour is not so dark. It is hardy enough to bear well the climate of some parts of England, but in others suffers much in severe winters. *C. glauca*, another East Indian species, is much more tender, and will seldom outlive our winters without protection, but it is much planted in Portugal, and has thence acquired the name of *C. lusitanica*. *C. funebris*, from North China, with its long branches, said to droop like those of a Weeping Willow, promises to be a valuable addition to our hardy evergreens. To these must be added *C. macrocarpa* and *Gossypiana*, both Californian. The first a noble tree with the habit of *C. sempervirens*, the second of much smaller dimensions and with a less compact habit.

Of the section *Chamacypariss*, two species, *C. thuyoides* and *C. nutkaensis* (*Thuopsis nutkaensis* of our garden catalogues), from North America, and *C. squarrosa* (*Retinospora squarrosa* of our garden catalogues) from Japan, are to be met with in our plantations of conifers.

CUPULE. The cup or husk of the acorn, Spanish chesnut, &c.; a collection of bracts; a sort of involucre; a cup-like body found in such fungals as *Peziza*.

CUPULA-SHAPED. Slightly concave, with a nearly entire margin; as the calyx of *Citrus*, or the cup of an acorn.

CURAGE. (Fr.) *Polygonum Hydropiper*.

CURANA WOOD. The wood of *Icica alissima*.

CURATELLA. A genus of small trees from Tropical America, belonging to *Dilleniaceae*, with alternate ovate rough leaves often with winged leaf stalks; flowers small, white, racemose; calyx of four unequal roundish sepals; petals four or five; stamens numerous; ovaries two, subglobose, united at the base, with subbilateral styles; capsules leathery, hispid, one-celled, two-seeded; seeds with a membranous aril. The rough leaves of *C. americana* are used in Guiana for polishing. [J. T. S.]

CURCUM. A genus of *Euphorbiaceae* formed for the reception of the Physic-nut tree, *C. purgans*, or, as it was formerly called, *Jatropha Curcas*. It differs from *Jatropha* merely in having a bell-shaped corolla, while the latter has a corolla of

five distinct petals. It forms a large bush or sometimes a tree of twenty feet high, with soft spongy wood and smooth bark, and is indigenous in Tropical America, but is very generally found in all tropical countries, being cultivated for the purgative oil of the seeds. Its leaves, generally crowded at the apex of the branches, are smooth, entire, and heart-shaped, or more commonly three or five-lobed, and including the stalks, from six to eight inches in length. The small green flowers are supported on stalked cymes about the length of the leaves; the males occupy the extremities of the ramifications, and the females the forks. The former have a calyx of five leaves; a bell-shaped corolla with a five-lobed border; and a double staminate tube of ten stamens, the five inner longer than the others. The females have a similar calyx and corolla, and a three-lobed ovary crowned with a tripartite style, each branch forked at the apex.

Dr. Bennett in his *Gatherings of a Naturalist*, states that this tree 'contains a milky acid glutinous juice, which when dropped on white linen produces an indelible stain, at first of a light blue colour, but after being washed, changing to a permanent brown: it might therefore form a very excellent marking ink. The fruit is globular and fleshy, about the size of a filbert, and contains three seeds in distinct cells. When immature, it is of a green colour, and when ripe black. On removing the husk from the oblong seeds, a white kernel remains, which contains much oil, and has an agreeable almond-like taste. The seeds are collected by the natives of the Philippine Islands for the purpose of expressing the oil, which they use for



Curcas purgans.

burning in their lamps, as well as for medicinal purposes. The leaves are employed for fomentations, and the juice of the young buds or other parts of the tree as a beneficial application to the ulcerated surface of wounds. The seeds are employed

by the native doctors of the Philippine Islands, and are considered excellent and mild purgatives, in doses of from one to four seeds. The effects which result from an overdose are vomiting, purging, a burning sensation in the stomach and bowels, with a determination of blood to the head. The only antidote used by native practitioners is cold water; warm water they affirm would be injurious. The kernels are administered entire, or are pounded in a mortar with water, and after being strained given as a draught. Dr. Bennett has himself administered these seeds to Europeans, but has found their effects very irregular, and occasioning in all cases a burning sensation in the bowels, followed with nausea and vomiting.

The oil is said to be sometimes boiled with oxide of iron, and used by the Chinese as a varnish. It is of a light colour, and has been imported into England and used as a substitute for linseed oil, as well as for dressing cloth, burning in lamps, &c. Its qualities differ little from those of castor oil according to Dr. Christison, who says that twelve or fifteen drops of it are equal to an ounce of castor oil. The white milky juice in which the plant abounds is reported as having healing properties, and a decoction of the leaves is used in the Cape de Verd Islands to excite secretion of milk in women.

The only other species of the genus is *C. spathulata*, sometimes called *Mozambican spathulata*, a low bush found in Mexico, with stout succulent stems, having olive-coloured bark, and furnished with numerous warty excrescences from which the leaves and flowers arise. The former are small and spathulate, and the latter inconspicuous. [A. A. B.]

CURCULIGO. A genus of hypoxids found in extratropical South Africa, in tropical New Holland, and in India. They are herbs with grassy ribbed leaves, and short scapaceous spikes or fascicles of small inconspicuous flowers, which have a cylindrical tube adhering to the style, a regular spreading six-parted limb, and six stamens inserted in the mouth of the tube. The roots of *C. orchitoides* are bitter and aromatic, and are used medicinally in India; while those of *C. stans* are eaten in the Marianne Islands. [T. M.]

CURCUMA. A genus of *Zingiberaceae*, consisting of plants with perennial rootstocks and annual stems. The flowers are in spikes with concave bracts; they have a tubular three-toothed calyx; the tube of the corolla is dilated above, five of its lobes are equal, but the middle one of the inner row or the lip is larger and spreading; the filament is petaloid, three-lobed at the top, with a two-spurred anther on the middle lobe. The substance called Turmeric consists of the old tubers of *C. longa*, and perhaps some other species. The powder is used as a mild aromatic, and for other medicinal purposes in India. It enters into the composition of curry powder, and is used as a chemical test for the presence

of alkalies, which change its yellow colour to a reddish brown. The young colourless tubers of this plant furnish a sort of arrowroot; another species, however, *C. angustifolia*, furnishes East Indian arrowroot, which is prepared by bruising and powdering the tubers, and throwing the powder into water, which is frequently changed till the starch loses its originally bitter taste. *C. rubescens* and *C. leucorhiza* also furnish starch. *C. aromatica* and *C. Zedoaria* furnish Zedoary tubers, which are used by the natives of India as aromatic tonics, and as a perfume. Several species with yellow or reddish flowers are cultivated in hot-houses. [M. T. M.]

CURL. A formidable disease in potatoes, referrible to Chlorosis, in which the tubers produce deformed curled shoots of a pallid tint, which are never perfectly developed, and give rise to minute tubers. It is supposed to arise from the tubers being over-ripe. It is, however, a local disease, and is quite unknown in many districts. It must not be confounded with a curled state of the foliage, which arises from the presence of aphides. [M. J. B.]

CURLS, BLUE. An American name for *Trichostema*.

CURRENT. The common name for *Ribes*, but especially applied to *Ribes rubrum*, the red, and *R. nigrum*, the black currant of the gardens. The currants of the shops are the dried berries of the Corinthian grape. — **AUSTRALIAN.** *Leucopogon Richet*. — **INDIAN.** An American name for *Symphoricarpos vulgaris*. — **NATIVE**, of New South Wales. *Leucopogon Richet*. — **NATIVE**, of Tasmania. A name applied to some species of *Coprosmas*.

CURRENTWORTS. A name given by Lindley to the *Grossularaceae*.

CURRA-TOW. *Ananassa Baganaria*.

CURRORIA. A genus of *Asclepiadaceae*, containing a single species from Western Tropical Africa. It has a five-parted calyx, with ovate-lanceolate sepals; the corolla tube is short and subglobose, the divisions of the limb are linear-lanceolate, and have a twisted aestivation; there are five linear scales in the throat of the corolla; the gynostegium is included; the pollen masses are slightly stalked and erect; and the stigma is short. [W. C.]

CURRY-LEAF TREE. *Bergera Koenigii*.

CURTISIA. A genus of *Cornaceae*, the flowers of which have a four-parted calyx, four blunt petals, and four stamens alternating with them. The fruit is a small obovoid drupe, the hard part of which is four or five-celled. The name was given in honour of Mr. Curtis, a well-known English Botanist. *C. japonica* is a large and fine tree, a native of the Cape, with opposite shining broad or toothed leaves, of a rusty colour beneath; the flowers small and numerous. The natives of the region where it abounds employ it to form shafts for their javelins

or assagays; hence the common name Assagay-tree or Hassagay-wood. [Q. D.]

CURVATIVE. When the margins are slightly turned up or down, without any sensible bending inwards.

CURVE-RIBBED. When the ribs of a leaf describe curves, and meet at the point; as in *Plantago lanceolata*.

CURVINERVED, CURVE-VEINED. The same as Convergent-nervose.

CUSCO BARK. A kind of cinchona bark.

CUSCUTACEÆ. (Dodders.) A natural order of corollifloral dicotyledons, belonging to Lindley's solanal alliance. The plants are included by some in a suborder of *Convolvulaceæ*. Leafless parasitic twining herbs, with flowers in dense clusters. Calyx inferior, four to five-parted; corolla persistent, four to five-cleft; scales alternating with the segments of the corolla, and adhering to them; stamens four to five; ovary two-celled, with two ovules in each cavity; styles two or wanting; fruit two-celled, either capsular or succulent; seeds with fleshy albumen; embryo spiral, filiform, having no cotyledons. The seeds germinate in the soil in the usual way, and afterwards become true parasites by attaching themselves to plants in their vicinity, and growing at their expense. Some of them destroy flax, clover, and other crops. Dodder, or scaldweed, is also the pest of beans and hops in some places. These parasites are found in the temperate regions of both hemispheres. They seem also to possess acrid and purgative qualities. The farmer requires to take care that dodder seeds are not mixed with those of his crops. They may be separated by careful sifting. There are upwards of fifty species included in four genera, of which *Cuscuta*, *Lepidanche*, and *Ephitella* are examples. [J. H. B.]

CUSCUTA. The Dodders, a genus of annual leafless parasitic plants, the stems of which consist of small wire-like tendrils that twine round the plant destined to be the foster parent, and into the texture of which they send out aerial roots at the points of contact, and through these imbibe the sap of the attacked plant. Our native flora contains two species: *C. europæa*, a plant which is described by Sir J. Smith as climbing 'two or more feet high upon thistles, oats, and any plants that are crowded together and will afford it nourishment'; and *C. Epithymum*, a smaller plant which grows on heath, thyme, &c. Besides these are now recognised *C. Epithymum*, the Flax Dodder, and *C. Trifolii*, the Clover Dodder, species, or probably varieties, which it would appear have been introduced with foreign seeds of their respective crops in the cultivation of which they are so gradually becoming most serious impediments. This is so much the case that we were induced to experiment largely on their mode of growth, with a view if possible to ob-

viate the evil. The extent of the mischief may be judged from the fact that it was reported in the *Agricultural Gazette* for 1880 that one grower of flax had separated no



Cuscuta Epithymum.

less than seventy bushels of Dodder seed from his flax crop. With some of this seed we carried out the following experiments:—

Exp. 1.—On sowing some seeds in a saucer with fine mould, the following appearances presented themselves. In four days, the radicle was extended. In five days the germ was elevated above the soil, bearing the seed-covering on its apex. In six days the young thread-like plant was as it were on the look-out for a foster parent, and by the eighth day, not finding a foster parent, it emerged from the soil and died. (See diagrams in *Agric. Gaz.* 1880, 746.) Thus, then, all the plants which germinated freely died within a few days, the thread-like germs gradually becoming elevated out of the soil, and then withering away. However, on planting young examples of flax, chickweed, tomato, and others among them, the later germinated seeds immediately directed their threads towards them, and commenced that parasitic mode of growth which was so fully shown in the next case.

Exp. 2.—A saucer was sown with a mixture of flax and Dodder. In a few days both germinated, and the Dodder threads were attracted to the stems of the young flax, their history and progress being as follows. In seven days the Dodder had just clasped a flax plant. In nine days, both Dodder and flax having grown, the elevation of the flax stem had lifted the firmly attached Dodder out of the soil. In eleven days the Dodder was throwing out buds for new shoots, and the lower unattached part was dying away. (See diagram already referred to.) This explains the method by which the Dodder first becomes attached to the plant upon which it grows. It makes one or two tight coils around its future support, and during the time these coils are progressing, the foster-parent is increasing in size, the compression of the former around the latter becomes tighter, thus causing the bark of the foster-parent

to be more delicate, while the parasite is preparing a series of aerial roots to penetrate it; it having done this, its position is firmly established, its own natural root dies quite away, and thenceforward its true parasitic growth is astonishingly rapid. Experiments 3 and 4 were repeated during the present summer, 1860, as follows:—

Exp. 3.—A plot of pure flax seed was sown in the botanical garden of the Cirencester Royal Agricultural College; this came up well, and afforded a good crop of fine flax.

Exp. 4.—A plot of flax seed and Dodder seed intermixed. In this the flax and Dodder came up simultaneously, and the thread-like germ of the latter soon twisted round the flax stems, and in time sent out branches in every direction, which in turn twined about fresh flax stems until the whole plot was borne down by the parasite, and both it and the crop went through the processes of flowering and seeding simultaneously: so that in harvesting the crop both would be gathered together, and of course, unless carefully separated, such flax seed would perpetuate the evil.

The same remark applies equally to the clover crops as to those of flax. If crops are to be free from the Dodder pests, the farmer must take care not to sow them with the seed for the crop, for it is now evident that this is their mode of propagation. *C. Tripartita* grows precisely in the same way, but the whole plant is smaller; the seeds on this account are not so readily detected, so that it is much on the increase. [J. B.]

CUSPIDARIA. A genus of *Bignoniaceæ*, natives of Brazil, containing several species, forming erect or subcandent glabrous shrubs. The leaves are opposite, petiolate, and simple or trifoliate, with petiolulate ovate acuminate and ciliate leaflets. The flowers are in terminal panicles. The cup-shaped calyx is cut into five long cuspidate teeth; the corolla tube is ventricose-campanulate, and the limb is five-lobed; one of the five stamens is sterile; the stigma is bilamellate, with long acute lobes; the four angles of the capsular fruit are produced into wings; the seeds also are winged. This genus is nearly related to *Bignonia* and *Lundia*. It is separated from the former by its ciliated anthers, from the latter by its awn-like sepals, and from both by its tetrapterous fruit. [W. C.]

This name has also been applied to a genus of ferns, which have since been called *Dicranoglossum*. [T. M.]

CUSPIDATE. Tapering gradually into a rigid point; also abruptly acuminate, as the leaflets of many *Rubi*.

CUSSO. The Abyssinian *Brayera anthelmintica*.

CUSSONIA. The name of a genus belonging to the order of Ivyworts, distinguished by the top-shaped calyx, which is adherent to the seed vessel, its border having from five to seven short teeth; the petals five to seven, adhering to a conical

disk on the upper part of the seed vessel; stamens five to seven, adherent to the petals; fruit almost round, with little juice, two to three-celled, one seed in each cell. The genus was named in honour of Cusson, a botanist of Montpellier. The species are shrubs, natives of the Cape or of New Zealand, having a soft stem, with leaves alternate, smooth, stalked, in three to seven large lobes; the flowers are greenish.

Two species have been known in our collections since the end of the last century; they are chiefly interesting on account of their peculiar aspect. *C. thyrsiflora* has the leaflets sessile, wedge-shaped, truncate, and three-toothed at the end. *C. spicata* has the leaflets wedge-shaped, acuminate, and serrated at the end, the flowers in spikes. *C. tripartita* is by some considered to be a hybrid, having numerous leaflets, like those of *C. spicata*, but without stalks, as in *C. thyrsiflora*. [G. D.]

CUSTARD-APPLE. *Anona*. —, NORTH AMERICAN. *Asimina triloba*.

CUTICLE. The external homogeneous skin of a plant, consisting of a tough membrane overlying the epidermis. The word is also used for the skin of anything, including the epidermis.

CUTIS. The peridium of certain fungi.

CUVY. The name of the large common form of *Laminaria digitata* in Orkney, where the narrow plant with a smooth stem (*Laminaria flexicaulis*) is distinguished by the name of tangle. The situations in which the two plants grow, are, according to Mr. Clouston, very different: 'the Cuvy growing so far out in the sea that the highest limit can only be approached at the lowest stream tides, and from this it runs out into the ocean as far as the eye can penetrate, and probably much farther; while the tangle may be approached at ordinary tides, and forms a belt between the Cuvy and the beach. The general aspect also differs: the stems of the Cuvy stand up like a parcel of sticks, and the leaves wave from them like little flags; while the tangle lies prostrate on the rocks, the leaves mingle together and form a darker belt round the shore. Six or eight feet is reckoned a good length for a Cuvy, while tangles may be found from twelve to twenty feet.' [M. J. B.]

CYANIUM. A kind of follicle, resembling a legume.

CYANANTHUS. A genus of *Polemoniaceæ*, containing a few species of annual procumbent or erect herbs, found on lofty situations on the Himalayas. They have alternate entire or lobed leaves, and few solitary and generally terminal showy blue flowers. The calyx is inferior, tubular-campanulate, and five-cleft; the corolla is funnel-shaped, with a large five-cleft limb; the five stamens are inserted at the base of the corolla, alternate with its lobes, the anthers being adpressed to or connate with the

ovary. The ovary is free and five-celled, with many ovules in each cell, and bears a simple style, and a five-lobed stigma. The capsule is oblong-conical, dehiscing loculicidally. Some botanists, overlooking the superior ovary, have referred this genus to *Campanulaceae*, because of its five-celled ovary and five-lobed stigma, but in every other respect it appears more nearly connected with *Polemoniaceae*. [W. C.]

CYANELLA. A genus of herbs from the Cape of Good Hope, belonging to *Liliaceae*, and having lanceolate-elliptical or linear radical leaves sheathing at the base, and racemose blue or yellow flowers. Perianth coloured, six-parted; stamens six, with glabrous filaments: the lower perianth segments, the lowest stamen, and the style declinate; capsule three-celled, with numerous seeds. They are pretty greenhouse plants. [J. T. S.]

CYANEUS, CYANÆUS, CYALINUS. In composition *Cyano*. A clear bright blue.

CYANOCHROUS. Having a blue skin.

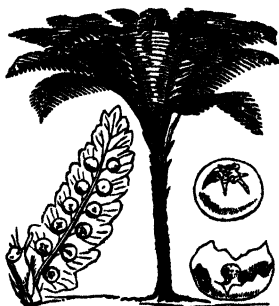
CYANOPHYLLUM. A genus of *Melastomaceae*, containing one or two undershrubs with large five-nerved leaves having a metallic lustre. The flowers are small, with five petals and ten stamens. *C. metallicum*, which grows at an altitude of 6,000 or 7,000 feet, has a blue metallic lustre on the under-surface of its leaves. *C. magnificum*, one of the grandest of what are now commonly cultivated in hothouses as ornamental-leaved plants, has its very large opposite leaves of a rich shaded green above, and purple beneath. They are from Tropical America. *C. assamicum*, a similar plant, is of eastern origin. [J. T. S.]

CYANOSTEGIA. A genus of *Verbenaceae*, found in West Australia, and composed of small upright bushes with narrow lance-shaped or linear entire leaves, often covered with a gummy substance. The blue flowers, in terminal branching racemes, are numerous and remarkable for their frill-like papery calyx, with a five-lobed border, which increases in size after the flowers have withered, and when mature is about half an inch in diameter. The somewhat irregular corollas are small and tubular. The great profusion of the blue flowers with their remarkably enlarged calyces of a paler colour, together with their neat bushy habit, would no doubt render them favourite greenhouse plants were they in cultivation. Three species are enumerated. [A. A. B.]

CYANOTIS. The generic name of plants belonging to the spiderwort order, characterised by having the calyx in three divisions joined into a tube at the lower part, and persistent; the three petals also joined to form a tube, but soon falling off; the style thickened upwards, ending in a point—the stigma—which is hollow and covered with hairs. The name of the genus is derived from the Greek words signifying 'blue' and 'ear,' in allusion to the colour

of the flowers. The species are showy plants, natives of Tropical Asia, annual or perennial, hairy or woolly, seldom naked, the stems trailing below, sometimes erect above. [G. D.]

CYATHEA. An extensive genus of arborescent ferns representative of the *Cyathea*. The genus belongs to that series or subgroup which has an indusium or involucre placed in the form of a cup beneath or so as to contain the spore-cases, the fructification being seated on the under surface of the fronds. The species are numerous, and rank amongst the most striking features of tropical scenery. They are most abundant in South America and in the West Indies, in India, the Eastern Islands, and the Pacific Islands; a few are met with in New Zealand and South Africa. In some the trunk is short, but in others it reaches a height of forty or fifty feet or even more, and is crowned with a magnificent head of fronds, which, in many cases, are of gigantic size, and are always large. The greater number have the fronds bipinnate, with the pinnae deeply pinnatifid; but in one, *C. Brunonia*, found in Malacca and Penang, they are pinnate, the fronds being two to three feet long, and the pinnae six or eight inches; and in another, *C. striata*, found in Ceylon, they are simple and lanceolate, with a sinuated margin. This latter has a slender trunk, about an inch in diameter, on which the elegant crown of simple wavy fronds is upborne. *C. medullaris*, a fine bipinnate or tripinnate species of New Zealand and the Pacific



Cyathea medullaris.

Isles, and known in gardens as a noble tree fern of comparatively hardy character, forms in its native country a common article of food with the natives. The part eaten is the soft pulpy medullary substance, which occupies the centre of the trunk, and which has some resemblance to sago. *C. dealbata*, another beautiful species of New Zealand, is said to be eaten in a similar way. This has a trunk of from

ten to fifteen feet high, crowned with a noble tuft of fronds, which are white beneath with a silvery powder. [T. M.]

CYATHEINEÆ, CYATHEÆ. The former is a principal sub-division or tribe of the polypodiaceous ferns, in which the receptacles are elevated and the sessile or subsessile spore-cases are oblique-laterally compressed, and burst horizontally, the ring or annulus being narrow, nearly complete, and more or less obliquely vertical. The latter is a section of this group, in which the sori have involucre or inferior India, the fructification being borne on the back of the fronds. [T. M.]

OYATHIFORM. The same as Cup-shaped.

OYATHOCALYX. A genus of *Anonaceæ*, characterised by having their petals hollow and constricted at the base, but expanding above into a flat blade; the stamens numerous; and the ovary solitary, embedded in a hollow receptacle, with several ovules attached to the line of union of the margins of the carpels. The genus includes a Cingalese tree, with flowers opposite to the smooth shining leaves. [M. T. M.]

OYATHOCNEMIS. A genus of begoniads, consisting of succulent Peruvian plants. The staminate and pistillate flowers have each two sepals: the anthers elongated with slightly united filaments; the style persistent, its branches furnished with a continuous papillose band, making two spiral turns; the seed-vessel margined with three equal wings. The peduncles at their dichotomous divisions are surrounded by a large cup-like bract. There is one known species, viz., *C. obliqua*, found on rocks in the Andes of Peru. It was formerly a *Begonia*. [J. H. B.]

OYATHODES. A genus of *Epacridaceæ*, consisting of fifteen species, natives not only of Australia, but, like very few other genera of this order, found also in New Zealand and the Pacific Islands. They are small branching woody heath-like shrubs, with small axillary white or yellow flowers. The pedicels are covered with imbricated bracts, which are gradually larger upwards, and appear to pass into the sepals; the corolla is funnel-shaped, with a naked or bearded limb, and a smooth tube; the stamens are included or exserted; the drupe is more or less fleshy, with a bony five to ten celled and five to ten-seeded nut, seated on a fleshy cup-shaped disc. [W. C.]

OYATHOGLOTTIS. An obscure genus of terrestrial orchids, with the ribbed foliage of an *Epidendrum*, to which genus it is probably more nearly allied than to *Sobralia*, with which it has been usually compared. Two Andine species are mentioned: one with white, the other with yellow flowers.

OYATHUS. The cup-like body which contains propagula, or the reproductive bodies of *Marchantia*.

CYATHUS. One of the genera to which the curious *Fungi* belong which are commonly named Bird's Nest Fossils. It is distinguished from *Nidularia* by the more complicated structure of the walls, and the stouter peduncle of the sporangia. We have two species generally distributed throughout England: *C. striatus*, which has a bright-brown shaggy cup, deeply grooved within, and *C. verrucosus*, which is mouse-grey, with the outer surface tomentose, and the inner polished. [M. J. B.]

CYBELE. *Peristylus*.

CYBISTAX (including *Yangua*). A genus of *Bignoniaceæ* confined to Peru, Bolivia, and Brazil, and easily distinguished from its allies by its lax plicate calyx, and broad pods traversed by twelve deep furrows on the surface. There seems to be only one species, *C. antispythetica* (*Yangua tinctoria* of Spruce), which forms a bush or small tree, and has when young duplicato-pinnate, when old digitate leaves. The bark of the younger branches is considered, in Brazil, one of the most powerful remedies against syphilitic swellings of a malignant character. The decoction is chiefly used, and also the bark dried and powdered and applied externally. In the Peruvian Andes, the tree is termed *Yangua* or *Atunyangua*, and the inhabitants dye the cotton cloths of their own manufacture a permanent blue by simply boiling them along with its leaves. About every three months all the leaves that can be got at are stripped off, and the trees seem not to suffer from being thus denuded; but they rarely put forth flowers till they grow beyond the reach of spoiling hands. The panicles are small, the calyx whitish, and the tubular corolla and the fruit of a greenish colour. In Brazil and Peru the plant is cultivated; it was also, at one time, an inmate of our gardens. [B. S.]

CYCADACEÆ. (*Cycads*). A natural order of achlamydeous dicotyledons belonging to the gymnospermous (naked-seeded) alliance. Small palm-like trees or shrubs, with unbranched stems, occasionally dividing into two, marked with leaf-scars, and having large rays in the wood along with punctated ligneous tubes. Leaves pinnate, and usually rolled up like a crozier while in bud. Flowers staminate or pistillate, and without any envelope (achlamydeous); staminate flowers in cones, the scales bearing one-celled anthers on their lower surface; pistillate flowers consisting only of ovules on the edge of altered leaves, or placed below, or at the base of scales. Seeds either hard, or with a soft spongy covering; embryo hanging by a long cord in a cavity of the albumen; cotyledons unequal. Natives chiefly of the tropical and temperate regions of America and Asia. They are found also in southern Africa, and in Australia. *Cycads* are mucilaginous and starchy. *Cycas revoluta*, a native of Japan, supplies a kind of starch which is used as sago; and a similar kind of false sago is supplied by *Cycas circinalis* in the Moluccas.

Caffre-bread is made from the starch of a Cape species of *Encephalartes*, many species of which genus exist in Australia. In the West Indies some species of *Zamia* yield a kind of arrowroot. Cycads occur in a fossil state after the coal epoch. There are seven known genera, and about fifty species. Examples: *Cycas*, *Dion*, *Encephalartos*, and *Bamia*. [J. H. B.]

CYCAS. A remarkable genus giving its name to the order *Cycadales*. It consists of trees of no great height, with cylindrical usually unbranched stems, terminated at the top by a crown of handsome deeply-cut pinnate leaves of thick texture. The male flowers grow in cones, consisting of scales bearing anthers on their under surface. The female plants bear in the centre of the crown of leaves surmounting the stem, a tuft of woolly pinnately-cleft leaves, in the notches of whose margins the naked or uncovered ovules are placed. The species are natives of the tropical regions of Australia, Polynesia, and Asia.

C. circinalis furnishes in Malabar a sort of sago, which is prepared from the seeds, which are dried and powdered; medicinal properties are attributed to the seeds, but these are of little importance. The plant is said to be singularly tenacious of life. The pith in the interior of the stem of *C. revoluta* abounds in starch, which is highly esteemed in Japan. A clear gum exudes from the trunks of these trees, which is said to be employed by the natives of India in promoting speedy supplantation. These elegant species are great ornaments in our plant-houses. A fine group of them and of the allied genera may be seen at one end of the large palm-house at Kew. They are popularly but erroneously called Sago-palms, as they furnish none of the sago of commerce. See Plate 6, figs. b and d, the latter showing an old branched stem. [M. T. M.]

CYCLADENIA. A genus of apocynaceous plants, natives of California, and allied to the genus *Vinca*, but abundantly distinguished from it, says Mr. Benthani, by the cymose inflorescence, the funnel or bell-shaped corolla, and the ring-like disc at the base of the stamens, from which latter the genus derives its name. *C. humilis* is described as being a most beautiful plant, resembling *Villarsia pumila*. [M. T. M.]

CYCLAMEN. A well-marked genus of perennial herbs belonging to the *Primulaceae*. The species, which are not very numerous, are exceedingly beautiful when in flower. They have a roundish tuberous or fleshy rootstock, from the upper side of which proceed the leaves and flowers, sometimes directly from the top, sometimes from a short neck-like stem. The leaves are roundish or ovate with a deep basal sinus, sometimes angular at the margin, and often marbled with greyish-white. The flowers have a five-parted calyx, and a monopetalous corolla, the tube of which is short, and the limb large and deeply five-lobed, the segments being turned back so as to

give the flowers the appearance of a shuttlecock. The capsule is five-valved; and after flowering the scape, in most of the species, coils up spirally with the seed-vessel in the centre, bending itself at the same time towards the ground, in which position the seeds are ripened. The name of the genus is derived from *Aphel*, in allusion to the spiral peduncle, or according to others from the circular rootstock. The species are mostly South European, extending to North Africa, and Western Asia. The fleshy rootstocks, though acrid, are greedily sought after by swine, whence the names *Fene porcinæ* and *Pesce de Porcino*, from which the English name Sowbread is derived. *C. hederifolium*, an autumnal flowered species, with tubers frequently of large size, is found naturalised in some parts of England. [T. M.]

CYCLANTHACEÆ. A name sometimes given to the family of *Pandaceæ*, of which the *Cyclanthaceæ* are a tribe.

CYCLANTHERA. A Mexican climbing herb, belonging to the *Gesneriaceæ*. It has blind tendrils, and small green flowers. The female flowers are sessile, arising from the same point as the males. The latter are stalked, and their peculiarities have given rise to the name of the genus, and to the means of distinguishing it from its allies: the stamens, that is to say, are combined below into a short column which expands above into a round disc, bearing the anthers at its circumference. [M. T. M.]

CYCLANTHUS. A remarkable genus of Tropical American plants, referred to *Pandaceæ*. From a contracted stem they throw up leaves, which are fan-shaped and cleft into two divisions. The flowers are unisexual, and arranged in spiral bands around the spadix, the bands consisting alternately of male and female flowers. The former have many stamens with four-celled anthers; the latter several ovaries, which become blended into a fleshy many-seeded fruit. The spadix is protected by a spathe which consists of four overlapping bracts. [M. T. M.]

CYCLE. A term employed in the theory of spiral leaf-arrangement to express a complete turn of the spire which is assumed to exist.

CYCLICAL. Rolled up circularly, as many embryos.

CYCLOBOTHA. A genus of Liliaceous plants, allied to *Oxiochorda*, from which they are distinguished by having all the divisions of the perianth bearded within, and furnished with a honey-pit in the centre, forming a hump or gibbosity on the outside. The species are found in Mexico and California, and are very singular and handsome objects. They have tunicated bulbs, and erect leafy stems, the leaves linear and acuminate, and the stems bearing at the top the nodding flowers, which are sometimes arranged in the form of an umbel, and have considerable general resemblance to those of certain species of *Frillaria*.



An old specimen
of some *Myria*
scutiree

b A *Scavola*

c. A *Tournefortia*

d Coconut Palm

e *Artocarpus*
cass

f An old *Baccharis*
...*...taria*

g *Pandanus*
...*...taria*

FOREST ON GUAMAN, ONE OF THE MARIANAS ISLANDS
(After K. 1912)

The perianth is bell-shaped or ventricose, with the three outer segments about half as large as the inner ones; and there are six stamens inserted in the base of the perianth, and a three-cornered ovary surmounted by three sessile stigmas. *O. lutea* grows about a foot high, and has oblong bulbs, long linear leek-like leaves, and two or three terminal yellow flowers, the divisions of which are scarcely connected at the base, the three exterior ones, which are smaller, greenish on the outer side, the three broader inner ones being bearded with purple hairs; the stem is bulbiferous in the leaf axils. *C. purpurea* is a more showy plant, growing two feet high, with the lower leaves elongately-linear, and the upper ones broader and more lanceolate; these also bear numerous little bulbs in their axils. The stem produces about three flowers, two from the point, and one from a side branch; these are large, with the sepals green marked with purple outside and yellow within, and the petaline segments brownish-purple outside, yellow within, and ciliated; the nectariferous pit is spade-shaped. [T. M.]

CYCLODIUM. A genus of polypodiaceous ferns belonging to the *Aspidiere*. They are distinguished by having pinnate veins from a central costa, these producing convicently anastomosing venules, which form arcuate or angulate areoles. The sori, which are globose, are covered by peltate indusia. The species are thick-fronded robust pinnate ferns, with the fertile fronds more or less contracted, and sometimes so much so that the sori almost cover the surface. There are two or three closely allied species found in South America, and one in the Philippine Islands. [T. M.]

CYCLOGYNE. A genus of *Leguminosae* found in Western Australia, the chief distinguishing character of which is found in the style, which is coiled inwards at the point, and much bearded. *C. canescens*, the only species known, is an astragalus-like bush with unequally pinnate leaves and leafy stipules; the leaflets (thirteen or fifteen in number) being small, oboval, smooth above, and clad underneath with white hairs. The white appearance these hairs give to the plant, together with the profusion of purple flowers, render it an attractive object. The flowers are disposed in erect racemes, and have a bell-shaped five-toothed calyx; a nearly round standard, with a green blotch at its base, two short wing petals, and a keel longer than the wings. The inflated oblong pods contain a number of seeds. [A. A. B.]

CYCLOMYCES. A curious genus of hymenomycetous *Fungi*, allied to *Polyporus*, in which the walls of the pores form gills concentric with the stem or with the border of the plicus. The species originally described was gathered in Mauritius, but another occurs in North America, and a third has been found in the Sikkim Himalaya. [M. J. B.]

CYCLOPELTIS. A name applied to two

pinnate aspidiaceous ferns, with peltate indusia and free veins, now referred to *Polystichum*. [T. M.]

CYCLOPHORUS. A name given by Desvauz to a group of polypodiaceous ferns, subsequently called *Niphobolus* by Kaulfuss, on the ground that Desvauz's name was in use among conchologists. *Niphobolus* has been generally adopted. [T. M.]

CYCLOPIA. A genus of dark-coloured South African bushes of the leguminous order, belonging to that group of the family in which the filaments of the stamens are quite free. They may be recognised from their allies by having a circular depression at the base of the calyx, round the pedicel. The leaves are sessile and made up of three generally linear smooth or pubescent leaflets, which often have their margins rolled backwards. Their bright yellow broom-like flowers are generally produced in great profusion from the axils of the upper leaves, and have their stalks always furnished with two boat-shaped bracts. The pods are oblong, compressed, and contain a number of seeds. *C. genistoides*, a plant sometimes seen in greenhouses, has smooth linear leaflets strongly recurved at the margin, and pretty yellow broom-like flowers. The leaflets of this plant are used at the Cape in infusion or decoction for promoting expectoration in chronic catarrh and consumption. It is called Bush Tea, and has an agreeable tea-like smell, with a sweet astringent taste. [A. A. B.]

CYCLOSIS. A supposed motion of fluids, occurring in the kind of tissue called cinchynus.

CYCNOCHES. A singular genus of orchids, with the habit of *Catacnum*. The name, which signifies Swan-neck, was suggested by the long curved column which in the original species rose gracefully from a broad convex lip. The character of the column is proper to all the species, but the lip varies from a broad solid oval plate to a stalked disk whose margin is broken up into numerous glandular rays. And, what is most strange, the same stalk bears flowers of both kinds, with others intermediate between the two. Here, therefore, we have a repetition of the singular variations already described in *Catacnum*. Upon this the Editor of *Paxton's Flower Garden* makes the following remarks: 'In Mr. Bateman's magnificent work we are told how the long-spiked small purple-flowered *C. Egertonianum* is only the short-spiked large green-flowered *C. ventricosum*; how the same plant at one time bears one sort of flowers, and at another time another sort; and we have ourselves shown how the same plant, nay the same spike, is sometimes both the one, the other, and neither. *C. Egertonianum* is then a 'sport,' as gardeners say, of *C. ventricosum*. But what, again, is *C. ventricosum*? Who knows that it is not another 'sport' of *C. Loddigesii*, which has indeed been caught in the very act of showing a false countenance, something wonderfully suspicious, all things

considered, and justifying the idea that it is itself a mere Janus, whose face is green and short on one side, and spotted and long on the other? Then, if such apparently honest species as *C. Egertonianum*, *ventricosum*, and *Loddigesii* are but counterfeiters, what warrant have we for regarding the other so-called species as not being further examples of plants in masquerade? For ourselves we cannot answer the question; nor should we be astonished at finding some day a *Cynoches* no longer a *Cynoches*, but something else; perhaps a *Catasetum*. If one could accept the doctrine of the author of the *Vestiges*, it might be said that in this place we have found plants actually undergoing the changes which he assumes to be in progress throughout nature, and that they are thus subject to the most startling conditions only because their new forms have not yet acquired stability.

The principal species of this curious genus are *C. Loddigesii*, *ventricosum*, and *chlorochiton*, which have a sessile perfectly entire fleshy lip; and *C. pentadactylon*, *aureum*, *maculatum*, and *Egertonianum*, with a stalked flat lip, whose edges are broken up into numerous finger-like rays. These plants are all from Tropical America, and chiefly from the central states. See LUD-DEMANNIA.

CYDONIA. A genus of the pomaceous division of the *Rosaceæ*, allied to *Pyrus*, from which it is distinguished by its leafy calyx-lobes, and the many-seeded cells of its fruit, those of *Pyrus* being dispermous. It comprises a few species, one of which is the well-known Quince; and another, *C. japonica*, one of the most ornamental deciduous shrubs in our gardens. The latter reaches some five or six feet in height, and is clothed in summer with oval crenately serrated leaves having kidney-shaped serrated stipules, and in spring with a multitude of glowing red flowers, to which it owes its beauty. [T. M.]

The common Quince tree is called *C. vulgaris*. The name of *Cydonia* was given to this by the ancients from its growing abundantly near Cydon, in the isle of Crete, now Candia. It is stated by some authors to have been introduced from Greece to Italy; but this can only refer to a particular variety, for Pliny in his fifteenth book says, 'There are many kinds of this fruit in Italy, some growing wild in the hedges, others so large that they weigh the boughs down to the ground.' Sir Joseph Banks (*Trans. Hort. Soc.* i. 153), referring to Martial (xiii. 24), states that the Romans had three sorts of Quinces, one of which was called *Chrysomela* from its yellow colour; they boiled them with honey as we make marmalade. According to the best modern botanists, the species grows spontaneously on the hills and in the woods of Italy, in the south of France, in Spain, Sicily, Sardinia, Algeria, Constantinople, the Crimea, and in the south of the Caucasus; it also grows abundantly on the banks of the Danube. It is found in Cashmere, and even in the north of India, according

to Drs. Roxburgh and Royle. De Candolle thinks its native country extends perhaps as far as Hindoo-Cooch; but it is not cultivated in the north of China. In Imiretta, a region in the interior of Mingrelia, a variety is said to have been found with fruit as big as the head of a child. It appears from the above that the Quince is indigenous over a great extent of Europe and Asia, and that it is likewise found in the north of Africa. Phillips says in his *Historical and Botanical Account of Fruits known in Great Britain*, 'The learned Gopius maintains that Quinces were the golden apples of the Hesperides, and not oranges, as some commentators pretend. In support of his argument, he states that it was a fruit much revered by the ancients, and he assures us that there has been discovered at Rome a statue of Hercules that held in its hand three Quinces; this,' he says, 'agrees with the fable which states that Hercules stole the golden apples from the gardens of the Hesperides.' Galeo, in his treatise on the Orange, has shown that the orange tree was unknown to the Greeks, and that it did not naturally grow in those parts where the gardens of the Hesperides were placed by them. The Quince tree, according to the *Hortus Kewensis*, was introduced into this country in 1573; but Gerard, who was alive at that date, says it was often planted in hedges and fences to gardens in his time, and from this it may be concluded the tree was common long before the period above mentioned.

The Quince is a hardy deciduous tree, fifteen to twenty feet high, with numerous crooked branches, forming a bushy spreading head; the leaves are roundish or ovate. The flower-buds push early in spring, and elongate into a branch, with five or six leaves, and at the extremity a single flower, white or pale red and of large size, is produced as late as May or June. The fruit is large, roundish, turbinate, pear-shaped, or irregularly oval, according to the variety. On approaching maturity it assumes a fine golden yellow colour, giving the tree a very ornamental appearance. The Portugal Quince is considered the best, but it does not bear so abundantly as the more common apple and pear-shaped varieties. All the varieties have a strong odour, with an austere flavour, so that they are unfit for eating raw; but the fruit is much esteemed along with apples in pies and tarts, and in confectionary it forms an excellent marmalade and syrup. Indeed, the name of marmalade is said to be derived from Marmelo, the Portuguese name of the Quince. The plants are much used as stocks for pear trees, especially those intended to be kept dwarf. [R. T.]

CYLINDRENCHYMA. Cylindrical cellular tissue, such as that of *Conserve*, of many hairs, &c.

CYLINDROLOBUS. *Eria*.

CYLISTA. A genus of *Leguminosæ*, found in the Bonibay districts of India,

and only represented by a single species, *C. scariosa*, which is a perennial twiner growing among bushes, with ternate leaves, having oval, pointed, and entire leaflets with short white pubescence. The yellow flowers, borne on erect bracted racemes, are remarkable for their large papery calyx, which is much more conspicuous than the corollas, and is deeply four-cleft; the upper segment being two-lobed, the lateral ones much smaller, and the lowest very large, all of them beautifully veined. The little oval one-seeded pod is completely enveloped in the peculiar calyx, which affords the most marked character in the genus. [A. A. B.]

CYMBALAIRE. (Fr.) *Linaria Cymbalaria*.

CYMBELLÆ. Reproductive locomotive bodies, of an elliptical form, found in some algae.

CYMBIDIUM. A name given by Swartz to a large group of tropical orchids, growing in the ground, with simple fleshy hairy roots, throwing up tufts of sword-shaped leaves, and producing radical spikes of flowers, which are erect or pendulous, many-flowered or few-flowered, and conspicuous for their beauty, or quite inconspicuous. All have a pair of curved ridges on the lower part of the lip: an essential character. Many plants in which this character is absent, and which have been erroneously referred to the genus, are now eliminated; nevertheless some twenty or thirty legitimate species remain. Of them the most important are *C. sinense*, a strong Chinese species with erect spikes of brown flowers emitting the most delicious fragrance; *C. giganteum*, an Indian plant with racemes of very large brown tessellated flowers; *C. eburneum* from India, with large radical ivory-white flowers smelling like lilacs; and *C. elegans*, also Indian, with great massive pendulous spikes of yellowish flowers. There are also many yellow Cape species not yet known in cultivation.

CYMBIFORM. Having the figure of a boat in miniature; that is to say, concave, tapering to each end, with a keel externally, as the glumes of *Phalaris canariensis*.

CYMBOCARPA. A genus of *Burmanniaceæ*, consisting of a single slender leafless annual, closely allied to *Dictyostegia*.

CYME. A kind of inflorescence, produced by the rays of an umbel forming one terminal flower, and then producing secondary pedicels from below it, in the centrifugal manner, as in the *laurustinus*.

CYMINOSMA. Small trees with opposite or alternate entire dotted leaves on a jointed stalk. They are of uncertain position, but are generally placed in *Rutaceæ*, and by some authorities are included in *Acrotychiæ*. The flowers are white or greenish, in axillary or terminal corymbs, and have a four-parted calyx and corolla;

eight stamens with flattened filaments, four longer than the others; an ovary with four two-ovuled cells, placed on a fleshy disc; a short style; and a berry-like fruit. The species are natives of China, the East Indies, and Australia. [M. T. M.]

CYMODOCEA. A genus of *Zosteraceæ*, containing a dioecious plant resembling *Zostera*, and found in the Mediterranean Sea. It has creeping branched rhizomes, and ribbon-like leaves faintly serrulated towards the apex: the flowers have no perianth, and consist of a pair of male flowers each reduced to a single two-celled stamen, or a pair of female flowers reduced to a single ovary, with a short style and two stigmas, which are long and thread-like. The fruit is produced in pairs. [J. T. S.]

CYNANCHUM. A genus of South European and Mediterranean herba, belonging to the order *Asclepiadaceæ*, and characterized by its wheel-shaped corolla, and by the coronet of the stamens being tubular, with from five to ten divisions at its upper margin, and with five inner segments exterior to, and parallel with, the anthers. The fruit consists of two cylindrical follicles. The Argel, the leaves of which are used to adulterate Alexandrian Senna, was formerly considered to belong to this genus, but is now included in *Solenostemma*: see also *Vincetoxicum*. [M. T. M.]

CYNARA. A genus of *Compositæ*, of which many of the species are prickly troublesome weeds, some are handsome, but scarcely any are useful besides the two familiarly known as the Artichoke and Cardoon.

The Cardoon or Chardon, *C. Cardunculus*, very much resembles the artichoke. It is a hardy perennial, a native of the south of Europe and the northern parts of Africa. The earliest writer on gardening who has noticed it is Parkinson, who calls it *Cardus esculentus* in his *Paradisius Terrestris*, published in 1629. Its introduction into this country is stated to have been in 1658, and according to Dr. Neill, it was even cultivated in Holyrood Palace Garden so early as 1683; but it has never been considered a vegetable of much excellence, and at the present day it is only to be met with in a few of our best gardens. On the continent, however, the Cardoon is regarded as a wholesome esculent, which in the hands of a skilful cook forms an excellent dish. The parts which are used are the stalks of the inner leaves, rendered white, crisp, and tender by blanching. These stalks are either stewed, or form an ingredient in soups and salads during autumn and winter. When permitted to flower, the plant has a fine appearance, and attains a greater height than the artichoke. The flowers have also the property of coagulating milk, for which purpose they are frequently used by the French, after being gathered and dried in the shade.

The Artichoke, *C. Scolymus*, is a hardy perennial, a native of Barbary and the south of Europe. Although it is mentioned

by Pliny as being a vegetable that was much esteemed by the Romans, it does not appear to have been known in this country until introduced from Italy in 1548. The plant has some resemblance to a large thistle. The leaves are numerous, ample, pinnatifid, somewhat spiny, from three to four feet long, and covered with an ash-coloured cottony down. The flower stems grow erect, and attain the height of from four to six feet. They are each terminated by a large globular head of imbricated oval apiny scales of a purplish-green colour, which envelope a mass of flowers in the centre. These flower-heads in an immature state contain the parts that are eatable; which comprise the fleshy receptacle usually called the 'bottom,' freed from the bristles and seed-down, commonly called the 'choke,' and the thick lower part of the imbricated scales or leaves of the involucre. Although Artichokes are a common vegetable, they are not so much in request with us as on the continent, where by various modes of cooking they are made to form favourite dishes. In France, the bottoms are often fried in paste, and enter largely into ragouts. They are occasionally used for pickling, but for this purpose the smaller heads which are formed on the lateral shoots that spring in succession from the main stem, are generally preferred when about the size of a large egg. The Chard of Artichokes, or the tender central leaf-stalk blanched, is by some considered to be equal to the cardoon. The flowers are very handsome, and are stated to possess the property of coagulating milk. [W. B. B.]

CYNAROCEPHALÆ. The artichoke-headed composites, a suborder of the natural order *Compositæ* or *Asteraceæ*, having numerous flowers collected in a common receptacle, and surrounded by a series of leaves or scales so as to form a compact head. The flowers are all tubular, and either have stamens and pistils, or those of the circumference (the ray) are abortive; the style is swollen below the stigma. Among the plants of this suborder are the artichoke, the cardoon, the burdock, the safflower, and thistles. They are usually bitter and tonic; some are esculent. See *COMPOSITÆ*. [J. H. B.]

CYNARRHODON. Such a fruit as that of the rose, in which many bony achenia are enclosed in a fleshy hollow enlargement of the apex of the flower-stalk.

CYNOCTONUM. A genus of *Asclepiadaceæ*, containing more than thirty species of perennial herbaceous plants or twining shrubs, natives of Africa, India, and tropical America. They have cordate leaves, and lateral peduncles springing from between the petioles, and bearing many-flowered umbels. The calyx and corolla are five-parted; the staminal corona is tubular and simple, with five or ten lobes, and without any appendages in the interior; the gynostegium short; the anthers surmounted by membranaceous append-

ages; and the projecting stigma is bilobed or with a bifid linear apex. [W. C.]

CYNODON. A genus of grasses belonging to the tribe *Chlorideæ*, distinguished chiefly by the spikes of inflorescence being in short spreading finger-like heads. The spikelets one-flowered, awnless; the glumes nearly equal, spreading; pales equal; stamens three; and styles three. Fourteen species are described, only one of which is a native of Britain, *C. Dactylon*, which inhabits the southern coasts of England. The creeping roots of this and some other grasses are said to possess some of the medicinal properties of sarsaparilla. [D. M.]

CYNOGLOSSUM. Houndstongue. A genus of *Boraginaceæ*, consisting of herbs from the temperate zones, especially of the northern hemisphere. Leaves often covered with silky-white hairs; flowers in scorpioid racemes, often bractless, dull-red or blue; calyx five-parted; corolla salver-shaped with the throat closed by five obtuse scales, and the limb five-lobed; stamens five, included; nuts four, muricately depressed externally. Two species occur in Britain, *C. officinale*, with leaves covered with soft white hairs, dull-red flowers, and strongly-margined nuts; and *C. montanum*, a much more local plant, with green roughish leaves without soft hairs, blue-veined flowers, and nuts without a prominent margin. [J. T. S.]

CYNOMORIUM. One of the genera of the singular family *Balanophoraceæ*. It is represented by a fleshy red herbaceous plant, about a foot in height, covered with scales, the flowers of which are unisexual, the males and females mixed in the same heads, and surrounded by numerous scales; occasionally the flowers are hermaphrodite. The perianth in either case consists of six divisions.

C. coccineum, the fungus *milienensis* of old writers, was formerly valued as a styptic and astringent. The plant is not confined to Malta, but extends also to the Levant, Northern Africa, and the Canary Islands, in which, according to Mr. Webb, it is esteemed good to eat. It was formerly used to procure abortion in Malta, and was so highly valued as a remedy for dysentery that the place where it grew was guarded with the utmost vigilance; and even up to a recent date the plant was gathered, and its growth secured by a person specially appointed to the office by the English Government. [M. T. M.]

CYNORCHIS. A Mascaren genus of terrestrial orchids, differing from *Habenaria* in little except the lip being connate with the face of the column. The species have testiculate roots, like the orchids of Europe. One, *C. fastigiata*, has been in cultivation (see *Bot. Register*, t. 1896). Blume's genus, *Mitostigma*, is a synonym.

CYNOSURUS. A genus of grasses belonging to the tribe *Festuceæ*, and distinguished chiefly by the inflorescence being

in crowded close thyrsoid panicles, with flowers pointing to one side; glumes nearly equal, scarious, and strongly keeled, two or more-flowered; each spikelet with a pectinated bract at its base. The genus comprises five species, only one of which, the Dog's Tail grass, *C. cristatus*, is truly a native of Britain. This is considered an excellent species for permanent sheep-pasture. The roots penetrate deep into the earth, which enables the plant to withstand droughts better than many of the other pasture-grasses; hence it may often be seen looking quite fresh when they are partially withered up. *C. echinatus* is an annual species, which is occasionally cultivated in British collections of grasses. It is a southern plant, but extends as far north as the Channel Islands. [D. M.]

CYPELLA. A genus of beautiful *Iridaceæ*, consisting of a single species, *C. Herberti*. The perianth is six-parted, concave at the base, the outer segments larger and spreading, the inner ones small convolute and reflexed at top. There are three erect stamens, united at the base of the filaments; a slender style; and a three-lobed stigma with trifid segments, which are appendiculate on both sides at the base. The chief distinction of the genus consists in its spreading not reflexed sepaline segments, and in their being deeply indented or hollowed out, as it were, at the base, so as to form a kind of bowl or cup. *C. Herberti* is a very slender plant, with fleshy corms, long lanceolate acute plaited glaucescent leaves, and a slender stem 1½ to 2 feet high, branched at top and producing in succession many flowers which last for several days, unlike those of some allied plants which are very fugacious. The flowers are bright orange yellow, the three outer segments with a central dark purple stripe, the three inner whitish in the centre, spotted with purple. It is a native of Buenos Ayres. [T. M.]

CYPERACEÆ. (*Cyperoides*, *Sedges*.) A natural order of glume-bearing monocotyledons belonging to Lindley's glumal alliance. Grass-like tufted plants, having solid, usually jointed, and frequently angular stems; leaves with their sheaths entire (not split, as in grasses); and flowers either perfect or incomplete (staminate and pistillate), each borne on a solitary bract or scale, and all united in an imbricated manner so as to form a spike. In the pistillate flowers there is often a membranaceous covering within the scale. Stamens hypogynous, varying from one to twelve, usually three; anthers attached at their base to the filament. Ovary superior, often surrounded at the base by bristles; ovule one; style two to three-cleft. Fruit a crustaceous or bony achene; embryo lens-shaped, and lying at the base of fleshy or mealy albumen. The plants are generally distributed over the world, and abound in moist situations. Some of the sedges are demulcent, others are bitter and astringent. Some by means of their creeping underground stems bind together the loose

sands of the sea-shore. Their cellular tissue is sometimes used for paper. The underground stems of several species of *Cyperus* are used as food. Carices abound in moist temperate and cold regions. *Carex arenaria* is one of the sandy-shore plants; its underground stems are used for sarsaparilla. The species of *Eriophorum*, or cotton grass, have long white silky hairs surrounding the fruit. *Papyrus antiquorum* appears to be one of the plants called bulrush in scripture. It formerly grew abundantly at the mouth of the Nile, which was hence called by Ovid papyriferous, but it is now gone. The cellular tissue of its stems was used in place of paper. *Scirpus lacustris*, the bulrush, is used for making mats, baskets, and the bottoms of chairs. In South America it is used for making balsas or boats; a similar use is referred to in Isaiah (xviii. 1, 2). There are 130 known genera, and upwards of 2,000 species. The genera *Carex*, *Cladium*, *Scirpus*, *Eleocharis*, *Eriophorum*, *Cyperus*, and *Papyrus* afford examples. A plant of this family is shown in Plate 10, fig. a. [J. H. B.]

CYPERORCHIS. A name proposed by Blume for the *Cymbidium elegans* of Lindley, on account of its having a prominent stigma and pyriform pollen masses.

CYPERUS. A genus of plants giving its name to the sedge family, *Cyperaceæ*. It is distinguished chiefly by the stem being triangular, and leafy at the base; spikelets distichous, imbricated, in clusters or heads, with a leaf-like involucre under them; glumes several in each spikelet, with one flower in each glume; seed without bristles. According to Steudel's untrustworthy *Synopsis*, the genus contains 673 species, widely distributed over the warmer parts of the earth, and gradually disappearing as the extremes of north and south are reached. Two species only are natives of Britain, both of which are rare and not found out of England. Dr. Lindley states that the roots of these plants are succulent, and filled with an agreeable and nutritive muciilage. The English species, *C. longus*, contains also a bitter principle, which gives its roots a tonic and stomachic quality. The tubers of *C. hexastachys* are said to be successfully used by Hindoo practitioners in cases of cholera, who call the plant Mootha. Those of *C. pectinatus*, or Nagur Mootha, are, when dried and pulverised, used by the Indian ladies for scouring and perfuming their hair. The root of *C. odoratus* has a warm aromatic taste, and is given in India in infusions as a stomachic. The roots of some of the species are also used as an article of diet. *C. esculentus* yields tubers which are called by the French *Bouchet comestible* or *Amande de terre*, and are used as food in the south of Europe. According to Dr. Royle, they have been proposed as a substitute for coffee and cocoa when roasted. The tubers of another species, *C. bulbosus*, are said to taste like potatoes when roasted, and would be valuable for food only they are

so small. Some are also useful for textile purposes, *C. testilis* being employed in making ropes and mats for covering the floors of houses; others are valuable for covering the sand and loose soil on the borders of rivers and streams; thus, *C. mundatus* helps to bind the banks of the Ganges, protecting them from the rapidity of the stream, and the force of the tides. (See *Lindley, Veg. King.* 118.) [D. M.]

CYPHEL. *Cherleria sedoides*.

CYPHELIA. Collections of gonidia in the form of cups; a term only used in speaking of lichens.

CYPHELLÆ. Palo wart-like spots, found on the under-surface of the thallus of some lichens.

CYPHIA. A genus of three or four South African species, intermediate, as it were, between *Campanulacæ* and *Lobeliacæ*, and therefore, when these two tribes are considered as independent families, *Cyphia* is raised to the same rank under the name of *Cyphiaceæ*. The species are all slender herbaceous twiners, with small nearly regular bell-shaped flowers, and united anthers. They possess no peculiar interest, except that the Hottentots are said to eat the tuberous roots of at least one species.

CYPHOCARPUS. A genus of *Campanulacæ*, containing a rigid scabrous piase herb from Chili, with erect stems, and oblong spinosely dentate radical leaves. Bracts three together, spinosely dentate; calyx tubular-curved, contracted at the mouth, with a five-parted limb, having spinous-toothed segments; corolla very irregular, two-lipped; capsule one-celled, resembling a follicle. [J. T. S.]

CYPHONEMA. A genus of cyrtanthiform *Amaryllidacæ*. The only species, *C. Loddigesianum*, produces scapes with about two erect flowers, which measure an inch and three quarters, and are whitish, striped with green. The perianth has a straight slender cylindrical tube, campanulate above, with a regular reflexed limb. The plant had been supposed to have been imported from Valparaiso, but Dr. Herbert, by whom it was described, suspected it to be South African. [T. M.]

CYPRESS. (Fr.) *Cupressus sempervirens*. —, CHAUVÉ or DE LA LOUISIANE. *Taxodium distichum*.

CYPRESS. The common name for *Cupressus*, especially applied to *C. sempervirens*. —, BALD. An American name for *Taxodium*. —, BROOM. *Kochia scoparia*. —, DECIDUOUS. *Taxodium distichum*. —, GROUND. *Santolina Chamæcyparissus*. —, SUMMER. *Kochia scoparia*.

CYPRESS KNEE. See *Exostosis*.

CYPRIPEDIUM. In the north of England the eye of the botanist has been now and then delighted by the discovery of one of the rarest of native plants, *C. Calceolus*,

once called *Calceolus Marianus* or the Slipper of our Lady. It has a branching fibrous root; single stems, a foot or more high, bearing three or four broad ovate rather downy ribbed leaves, clasping the stem at the base, and one or two large flowers. These consist of two lanceolate brown purple sepals, and a pair of somewhat narrow wavy petals crossing each other at right angles (decussating); from the midst of these projects a great yellow pouch or bag, within which lurks the column, for the plant is an orchid. From other orchids it differs, however, in having two lateral anthers instead of one that is dorsal, the latter being represented by a great broad angular plate, in front of which projects a stalked three-lobed stigma. This curious deviation from the ordinary state of an orchid flower is characteristic of the genus *Cypripedium* (that is to say, shoe of Venus). Great numbers of species of the same genus occur in both the Old and New World, in the ice-bound woods of Canada and Siberia, the warm glades of Mexico and Nepal, and in the torrid regions of Central India and Continental (not Insular) America. Some of them have yellow flowers, and they are the most frequent; others are white and pink; many are more or less purple; and one, *C. guttatum*, a Russian plant, is richly bloodstained. Two principal forms are to be distinguished, one having thin ribbed leaves, and the other narrow carinate veinless ones. The latter, which are all from warm countries, are easily cultivated, and are common in gardens under the names of *C. venustum*, *insigne*, *purpuratum*, *Lovet*, *Dayanum*, *Fairieanum*, *villosum*, &c. The others, though often introduced, live for only a short time and disappear. In addition to these, another race, exclusively found in Tropical America, distinguished by having a three-celled ovary, might be added. We prefer, however, to notice it under the name of *Selenipedium*. The curious *Cypripedium caudatum* belongs to that race.

CYPSELA. The dry one-celled one-seeded inferior fruit of composites.

CYPSELIA. A genus of *Tetragoniaceæ*, consisting of a small fleshy annual herb, resembling *Montia*, from St. Domingo. Stems prostrate, with small oval or obovate stalked alternate or opposite leaves, and fringed stipules; flowers small, solitary, shortly stalked, with a free five-parted calyx and no corolla, the two inner segments of the calyx broader and membranous; stamens one to three; ovary one-celled; capsule bursting transversely; seeds numerous. [J. T. S.]

CYRILLACEÆ. A small family of Dicotyledons, most nearly related perhaps to *Ericaceæ*, although differing in their free petals and anthers opening in slits; or to some of the groups connected with *Saxifragaceæ*. They have also been compared with *Olacaceæ* and with *Aquifoliaceæ*, both of which are much farther removed. They are shrubs or small trees, with alternate

evergreen undivided leaves without stipules, the flowers usually in racemes. There are four or five calyx lobes and petals, and as many or twice as many slightly perigynous stamens. The ovary is two, three, or four-celled, with one pendulous ovule in each cell, and bears as many stigmas as cells. The fruit is usually succulent; the seeds albuminous with an axile embryo. There are about six species known from North or Tropical America, constituting four genera, *Cyrtilla*, *Mylocaryum*, *Elliottia*, and *Purdiana*.

CYRILLA. A genus of *Cyrtillaceae*, consisting of plants from the warmer parts of North America, with the habit of some of the larger shrubby species of *Andromeda*. Leaves alternate, wedge-shaped; racemes lateral, elongated, aggregated; flowers small, white, with a five-cleft calyx, five petals, and five stamens; ovary two-celled; capsule fleshy, two-valved, two-seeded. *C. caroliniana* is a handsome greenhouse shrub. [J. T. S.]

CYRTANDRACEÆ or CYRTANDRÆÆ. A tribe of *Gesneraceae*, formerly considered as a separate family, including all the Asiatic genera which have no albumen in the seed, whilst the American genera were all believed to be possessed of albumen. These and some other slight distinctions have, however, all proved less constant than had been supposed, and the two groups are now acknowledged to be tribes of one family. The *Cyrtandreae* proper consist of above thirty genera, including *Rumondia* and *Uaberia* from Europe, *Aschynanthus*, *Chirita*, *Didymocarpus*, and many others from Asia, *Streptocarpus* from South Africa, *Klugia* from Eastern Tropical Asia and Mexico, and perhaps *Napeanthus* from Brazil.

CYRTANDRA. A genus of *Cyrtandreae Gesneraceae*, containing a considerable number of caulescent undershrubs or herbs, natives of the Moluccas. They have opposite leaves, equal or frequently with one side dwarfed or aborted. Their flowers are in axillary fascicles or heads, seldom solitary. The calyx is tubular, with five more or less deeply-club lobes; the corolla funnel-shaped, with the limb spreading and cleft into five obtuse lobes; there are four to five stamens, two of which only are fertile; the ovary is cylindrical, containing many ovules attached to two two-lobed revolute parietal placentae; the stigma is obtuse or emarginate. The fruit is a many-seeded ovate berry. [W. C.]

CYRTANTHERA. A genus of *Acanthaceae*, natives of Tropical America, consisting of some eight species of caulescent shrubs, with broad petiolate leaves, and large scarlet flowers like those of *Aphelandra*, arranged in a beautiful dense terminal thyrse, except in one species, in which they are in axillary cymes. The calyx is cleft into five equal coloured parts; the ringent corolla has a long tube, and the limb is divided into two lips, the lower of which is trifid: there are two stamens

inserted at the base of the tube and adherent to it beyond the middle; the anthers are two-celled; the stigma is obtuse and undivided. [W. C.]

CYRTANTHUS. A genus of handsome *Amaryllidaceae*, consisting of bulbous herbs, with two-ranked narrow elongate leaves, and many-flowered umbels of flowers. The perianth has a curved narrow funnel-shaped tube, which is often a little ventricose, and a limb of six short subequal segments; the filaments of the six stamens straight, decurrent, inserted in the upper portion of the tube. They are South African plants, the type of the genus being *C. obliquus*. This has globose bulbs as large as a man's fist, persistent lanceolate entire leaves an inch wide, and an erect scape supporting a loose umbel of numerous pendulous flowers, orange-colour mixed with yellow and green, the tube sensibly widened upwards, an inch and a half long, and the limb spreading, nearly as long as the tube. In another group of the species the leaves are deciduous. One of them, *C. striatus*, has subacute leaves a foot long, and half an inch wide, and an umbel of three or four pendulous narrow funnel-shaped flowers two and a half inches long, red, striped with yellow. *C. odoratus* has fragrant crimson flowers; whilst in *C. colinus* they are poppy scarlet. [T. M.]

CYRTOCERAS. *Centrostema*.

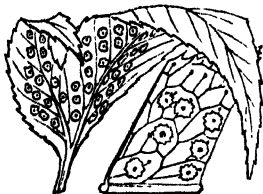
CYRTOGONIUM. *Pæciopteris*.

CYRTOGYNE. A genus of succulent-leaved undershrubs, belonging to the order *Crasnaceae*, having white flowers in cymes, with a five-parted corolla whose segments are much longer than those of the calyx. The stamens are inserted into the base of the corolla, with whose lobes they alternate, and within them are five small hypogynous scales. The ovary consists of five oblong carpels, gibbous at the top, and ending in long styles. *C. albiflora*, a native of the Cape of Good Hope, is in cultivation. [M. T. M.]

CYRTOLEPIS. A genus of *Compositae*, composed of a few small annual herbs, found in northern Africa and Asia Minor. They have much resemblance to the chamomile (*Anthemis*), and are nearly related to that genus, differing only in having winged achenes, the wings toothed, those of *Anthemis* not being winged. They have alternate pinnatisect leaves with linear segments, yellow flower-heads with an involucre of one series of roundish scales, which enclose a large number of tubular five-toothed florets. [A. A. B.]

CYRTOMIUM. A genus of polypodiaceous ferns, belonging to that series of the *Aspidiae* which have reticulated veins and petate indusia. The characteristics of *Cyrtomium*, as shown in the more typical plants, consist in the veins being pinna-to-furcate from a central costa, the lower anterior venules being free, and the rest angularly and irregularly anastomosing, forming unequal subhexagonal areoles,

within which two or three excurrent veinlets are produced. Sometimes only the upper venules are anastomosed. The species are robust evergreen pinnate ferns, of very ornamental character, the pinnae being of a



Cyrtium caryotideum.

deep shining green, broad, and of a singular rhomb-lanceolate form, sometimes approaching to hastate. The species are few, the typical ones natives of India, China, and Japan, one or two, somewhat anomalous, occurring in South America. [T. M.]

CYRTONEMA. Herbaceous plants of the gourd family, *Cucurbitaceae*, with tuberous rhizomes, simple tendrils, and monœcious greenish flowers, the males in clusters, the females solitary. The stamens are five, in three bundles, with straight anther-lobes, and curved filaments thickened at the top. The fruit is a spindle-shaped beaked gourd with three compartments and few seeds. The plants are natives of the Cape of Good Hope. [M. T. M.]

CYRTOPERA. A genus of tuberous tropical orchids with a tall radical inflorescence and membranous plaited leaves, sometimes not appearing along with the flowers. Some are American, some Asiatic, a few are South African, and one, *C. plantaginea*, is from Madagascar. *C. Woodfordi*, a plant with dense upright racemes of greenish-purple flowers, is the only one in cultivation. The genus is perhaps hardly distinct from *Eulophia*.

CYRTOPHLEBIUM. A name proposed for the species of *Campyloneurum*, a genus of polypodiaceous mostly simple-fronded ferns. [T. M.]

CYRTOPODIUM. Under this genus are collected some species of terrestrial orchids from Tropical America, with long fusiform fleshy stems, bearing membranous plaited leaves, and long racemes or panicles of showy yellow or spotted flowers, whose scape rises from the base of the stem. They are very fine objects in cultivation, well grown specimens measuring as much as five feet in height. The handsomest species are *C. Andersoni* and *cardi-ochitum*, brilliant yellow, and *C. punctatum*, the Germanus is the same as *Cyrtopodium Andersoni*.

CYRTOSIA. A remarkable genus of

leafless and usually climbing orchids, allied to *Vanilla*, but producing a more or less dry capsule instead of a fleshy aromatic fruit. Few species are known, among which are the *Dendrobium cassythoides* of New Holland, or *Ledgeria aphylla* of Mueller; and the *Erythrorchia* or *Hematerchia* of Blume. The best known species is *Cyrtosia Lindleyana* of Sikkim, admirably represented by Dr. J. D. Hooker. This is a stout erect plant, with a great woody root-stock, a strong reddish brown stem, and panicles of bright yellow flowers, succeeded by velvety brown flat pods which after a long time open into flat valves. The seeds are surrounded by a thin jagged wing, which forms a pretty microscopical object.

CYRTOSPERMUM. A name applied by Mr. Benthams to a tree growing in tropical South America, forming a genus of *Anacardiaceae*, and yielding a yellow-coloured resin. The calyx is five-parted, and there are ten stamens arising from beneath a hypogynous disc; but the chief peculiarity resides in the drupe-like fruit, whose bony inner shell is divided into two compartments by a hard curved partition; one of these compartments is small and empty, the other forms a horse-shoe-shaped cavity, containing a simple seed of the same form attached to the apex of the cavity. The same name has been applied to a genus of *Umbelliferae*, now known as *Lereschia*. [M. T. M.]

CYRTOSTYLIS. Under this name are collected a few little Australasian terrestrial orchids, with thin solitary roundish flat leaves, a slender naked scape, and two or three greenish distant flowers. They inhabit dry rocky spots on the edge of ravines.

CYST. The spore-case of certain fungals; also the hollow spaces in parenchyma in which oily matter collects, as in the rind of the orange.

CYSTANTHE. A genus of *Epacridaceae*, containing a few species, natives of the mountains of Tasmania. They are small glabrous bushes with erect naked stems, marked, as are also the lower portions of the branches, with annular scars, where the leaves, which are sheathing at the base, were inserted. They have a subfoliaceous bracteate calyx; the corolla is a closed conical calyptra, which dehisces transversely a little above its base, the upper part falling away, and the lower being very persistent; the stamens are hypogynous and persistent; the ovary is five-celled, each cell containing many ovules, attached to a pendulous placenta. The plants resemble *Eprengeia* and *Pittia* in stature and habit; from the first they are separated by the structure of the corolla, and from the second by the ab-

CYSTEAE. A fanciful alteration, which has not met with acceptance, of *Cyrtoparis*, the name of a genus of ferns. [T. M.]

CYSTIDIA. Sallent cells, accompanying the basidia or asci of fungi; by some regarded as antheridia. [M. J. B.]

CYSTIDIANTHUS. A genus of *Asclepiadaceae*, containing a few species of climbing shrubs, natives of the Indian Archipelago, with opposite leaves, and numerous pedicellate flowers in interpetiolar and terminal umbels. The calyx is five-parted; the corolla bell-shaped, five-toothed, and spreading; the staminal corona consists of five fleshy leaves attached to the short gynostegium; the anthers are terminated by a membrane adpressed to the stigma, which is convex, pentagonal, and smooth; the follicles are solitary, long and slender, with numerous comose seeds. This genus has the habit of *Centrostema*. [W. C.]

CYSTOCAPNOS. A genus of *Fumariaceae*, containing a glabrous climbing branched herb from the Cape of Good Hope, with stalked twice-pinnate leaves, having three-lobed segments, small white racemose flowers, and bladderly capsule. [J. T. S.]

CYSTOCARPUM. A case including a great many spores; the term is confined to algae.

CYSTOPTERIDÆ. A section of polypodiaceous ferns, in which the sori are punctiform or dot like, and covered by cucullate or fornicate indusia, which, being attached behind them, are inflected over them in the earlier stages. [T. M.]

CYSTOPTERIS. A genus of dwarf polypodiaceous ferns, typical of the group *Cystopteridaceae*. In that group, it is distinguished at once by its sori being medial on the veins, that is, placed some distance below the apex. The species, numbering about a dozen, are small membranaceous plants with a tufted or creeping caudex, and twice or thrice-pinnate annual fronds; *C. fragilis*, which has lance-shaped fronds, is a frequent British species; *C. montana*, with a creeping caudex and triangular fronds, has been gathered in a few Scottish habitats. The genus is scattered from the poles to the tropics. [T. M.]

CYSTOPUS. Under this name Blume has collected a few little white-flowered Java orchids near *Goodyera*.

The same name is given to a genus of *Fucosinæ*, comprising the white Uredines common on *Cruciferae*, but which occur also on *Convolvulus*, *Amaranthus*, &c. The protospores are arranged in necklaces. Oospores have been found deeply seated amongst the mycelium, and De Bary has observed zoospores in *C. candidus*. [M. J. B.]

CYSTORCHIS. A genus of terrestrial orchids, allied to *Goodyera*. Blume mentions three species with small pink or yellow flowers. They are especially known by having the glands found inside the lip in so many of these little plants enclosed in a pair of cysts or pockets, whence the name has been formed.

CYTHERIS. *Nephelaphyllum*.

CYTINACEÆ. The *Cytinus Hypocistis*, either alone or in conjunction with two African root-parasites, *Hydnora* and *Hypolepis*, has been considered as constituting an independent family of very uncertain affinities. It is a native of the Mediterranean region, growing on the roots chiefly of *Cistus monspeliensis*, and rises to a few inches above ground in the form of a tuft of succulent stems covered with imbricated scales, and terminating in a head of flowers, the whole plant of a rich yellow or orange-red colour. The flowers are polygamous, with a tubular four-lobed perianth, and four two-celled anthers, sessile on a central column attached to the perianth-tube. The ovary is inferior, one-celled, with several parietal placentas, and numerous ovules. The plants contain gallic acid, and have been used in consequence as astringents and styptics. [M. T. M.]

CYTISE A' GRAPPE or AUBOURS or DE VIRGILE. (Fr.) *Cytinus Laburnum*. —, PETIT. *Cytisus sessilifolius*.

CYTISOPSIS. A genus of *Leguminosae*, containing but one species, *C. dorycnifolia*, a small prostrate perennial plant found in the mountains of Syria and Cilicia. This has sessile leaves made up of from three to seven small oblong leaflets, which are covered with silvery hairs; and the axillary yellow flowers have a tubular calyx nearly an inch long, and a corolla of five nearly equal clawed petals, a little longer than the calyx. The pods are narrow, thick, elongated, and contain a number of seeds. The genus is nearly allied to *Anthyllis*, but differs in the sessile digitate leaves, and in the calyx and corolla falling after withering. [A. A. B.]

CYTISUS. An extensive and well-known genus of trees and shrubs belonging to the *Leguminosae*. *C. Laburnum*, with which all are familiar under the name of Laburnum, is a native of the mountains of France, Switzerland, and Southern Germany, where it attains the height of twenty feet and upwards. It was introduced into England previously to 1597, at which time Gerard appears to have had it in his garden under the names of *Anagyris*, *Laburnum*, and Bean Trefoll. This and the lilac are the commonest ornamental trees in suburban gardens; but the Laburnum is seen to the greatest advantage when planted in front of loftier trees in a park or extensive shrubbery. The heart wood is of a dark colour, and, though of a coarse grain, it is very hard and durable; it will take a polish, and may be stained to resemble ebony. It is much in demand among turners, and is wrought into a variety of articles which require strength and smoothness. The seeds, it should be remembered, act so violently as an emetic that they are justly deemed poisonous.

C. purpureus is an elegant procumbent shrub, a native of Carniola. It seldom exceeds a foot in height, and is either used for ornamenting rockwork, or is grafted on the Laburnum. *C. purpurascens* (Fr. C.

d'Adam), the purple Laburnum, is a hybrid between the two preceding. It was originated in Paris in 1823, by M. Adam, and has since been much cultivated in England. A peculiarity of this tree has often been noticed, which is interesting to the physiological botanist as showing the influence exercised by the stock on the scion. 'This purple Laburnum is a hybrid between the common yellow Laburnum and *C. purpureus*. The branches below the graft produce the ordinary yellow Laburnum flowers of large size; those above often exhibit a small purple Laburnum flower, as well as reddish flowers, intermediate between the two in size and colour. Occasionally the same cluster has some flowers yellow and some purple' (*Balfour*). *C. alpinus* differs principally in having its leaves rounded at the base, and in having the pods smooth and few-seeded; whereas *C. Laburnum* has the leaves white with down beneath, and the seed-pods many-seeded and downy. The *Cytisus racemosus* and *rhodopneus*, so generally to be observed among the plants offered for sale in spring in the streets of London, are referrible to *Genista*. [C. A. J.]

CYTOBLAST. That elementary spherule, derived from organic mucus, which produces a cell from its side, according to Schleiden. It is the nucleus of R. Brown and others.

CYTARIA. A curious genus of ascomycetous *Fungi*, consisting of a subglobose cartilaginous receptacle in which are sunk a number of ovate pits lined with the hymenium. The mouth of these at last becomes open, and the whole plant has then the appearance of a little waxlike wasps' nest, from whence the genus takes its name. There are three or four species, all of which grow parasitically upon the living branches of evergreen beeches, and one in Tierra del Fuego for several months affords the staple food of the inhabitants. It is, however, almost tasteless, and has been compared to cow-hell. The species are confined to a portion of the southern hemisphere. The individual plants are sometimes solitary, but frequently they form dense clusters, and it is probable that the same branch yields more than one crop from the same spawn. [M. J. B.]

CZAKOIA. The name of a group now generally regarded as a subdivision of the genus *Anthericum*, from which it is, however, still sometimes separated. It is distinguished by having the segments of the flower brought together, or connivent into a kind of bell-shaped form, and by having the stamens glabrous. [T. M.]

DABECIOA. A section of *Monstera*, or as it is sometimes considered a separate genus of *Ericaceae*, distinguished chiefly by its tetramerous instead of pentamerous structure, the calyx being four-cleft, the corolla limb four-toothed, the stamens eight, and the capsule four-celled, with four valves. The plant called *D. polifolia* is the St. Dabec's Heath. [T. M.]

DACHA. A Hottentot name for *Canna-bis sativa*.

DACRYDIUM. A genus of *Taxaceae*, consisting of a few evergreen trees inhabiting the East Indies and New Zealand. The distinguishing characteristics reside in the female flower, which consists of a boat-shaped bract, bearing an ovule which at first lies on the scale, but ultimately becomes erect, and when fully developed has a short outer fleshy integument, from which the inner bony investment of the seed protrudes. *D. cupressinum*, which has pendulous feathery branches and slender needle-like leaves, is a very graceful lofty tree. *D. Frankii* is the Huon Pine. *D. taizifolium* is said to acquire a height of 300 feet in New Zealand; its shoots may be made into a beverage having the same antiscorbutic properties as spruce beer. *D. lazifolium*, also a native of New Zealand, is a low growing shrub not unlike *Empetrum nigrum*. [M. T. M.]

DACRYMYCES. A genus of tremelloid *Fungi*, of which *D. stillicis* is almost universal in the form of small bright-orange gelatinous tear-like masses on decayed pine or larch rails, accompanied sometimes by a larger species, *D. deliquescens*. The former plant has often been supposed to consist of a mass of branched threads, terminated by chains of oblong spores. These, however, are merely conidia, the perfect fruit being developed in the same way as in *Tremella*, and consisting of slightly-curved septate spores, from the edge of which minute secondary spores are given off. The scarlet gelatinous fungus so common on dead nettle stems is now believed to be a condition of *Peziza fusarioides*. [M. J. B.]

DACTYLÆNA. A genus of annual herbs belonging to the *Capparidaceae*, and consisting of three species, natives of Brazil. They have a calyx of four sepals, the anterior one longer than the rest; four petals, two longer than the others; five stamens, four of them having filiform filaments without anthers, and the fifth a thickened filament with an elongated bilocular anther. The capsule is stipitate and two-valved. The leaves are alternate, trifoliate, with entire leaflets; and the flowers small racemose. [M. T. M.]

DACTYLANTHUS. A genus of *Balanophoraceae*, founded on a root-parasite from New Zealand. It is attached to the roots of beeches and *Pittospori* by a thick tuberous rhizome, the stems rising in clusters two or three inches from the ground, covered with imbricated scales. The flowers are dioecious, small and numerous, in dense spadices, of which several are clustered together at the summit of the stems surrounded by the upper scales.

DACTYLIGAPHOS. A genus of *Phanerogamaceae*, distinguished by having the two outer petals bulging out at the base, the fruit berry-like, and the seeds crested. It is considered by Drs. Hooker and Thomson as merely a section of *Dicentra*, from which

it differs only in having the walls of the fruit fleshy. It contains two Indian herbs with weak stems climbing by means of tendrils, compound triternate leaves, and racemes opposite the leaves. [J. T. S.]

DACTYLIS. A genus of grasses belonging to the tribe *Festuceae*, and distinguished by the flowers being in very crowded panicles, and subsecund, i.e., pointing nearly all to one side. The glumes are unequal and many-flowered, acute and herbaceous, with terminal setae. *D. glomerata*, the Cock's-foot Grass, is the only British species, and one of the best known of our native grasses. It is also the strongest grower among the superior kinds, and derives its English name from the fancied resemblance the three-branched panicles of flowers bear to the foot of a fowl. It forms a portion of most good pastures, particularly where the soil is loamy or chalky. It is also suitable for sowing alone on boggy land which is in the course of being reclaimed, for, although it does not grow on this sort of soil naturally in great quantities, it produces a good crop when cultivated on it artificially. Steudel describes twenty-nine species, which have a wide range of habitats over the globe. [D. M.]

DACTYLUM. A genus of filamentous moulds, of which the genuine species have hyaline threads bearing at their tips clusters of septate spores. *D. roseum*, which was formerly referred to *Trichothecium* from an insufficient knowledge of its structure, belongs essentially to this genus, and is remarkable not only as being one of the most widely-diffused species, distinguished by its delicate pink hue, but as occurring not infrequently in the closed cavities of nuts. The spawn of these delicate moulds will, however, soon penetrate the firmest vegetable tissues if there be proper conditions of moisture. Another species, *D. cogenicum*, occurs in the inside of eggs, where its presence is difficult to account for without having recourse to the wild and unphilosophical notion of equivocal generation. In *D. roseum*, besides the common large spores, there are conidia of a small size, which may have greater power of penetration than the larger. The function, however, of these bodies is uncertain, and they may be spermatia rather than conidia. [M. J. B.]

DACTYLOCTENIUM. A genus of grasses belonging to the tribe *Chlorideae*, distinguished by the inflorescence being in finger-like spikes, the flowers on the spikelets pointing to one side; the glumes two, compressed, keeled, and subherbaceous, the exterior one cuspidate; stamens three; ovary smooth; styles two; stigma hairy and branched. There are only seven species described, all natives of Africa, with one exception, *D. radula*, which is a New Holland grass. They are mostly annuals, and little known in cultivation. [D. M.]

DACTYLORHIZA. An affection of some agricultural plants, as turnips and carrots,

in which the root divides and becomes hard and worthless. It is commonly called Fingers and Toes, and must be distinguished from anbury, which arises from the attacks of insects. It is in fact not properly a disease, but a tendency to a reversion to the wild state, which can only be remedied by a careful selection of seed. It is sometimes thought that it arises from an unequal distribution of manure, but this is probably a mistake. [M. J. B.]

DACTYLOSTEMON. A genus of the spurge-wort family, composed of a number of trees or shrubs found in the tropical parts of South America, and chiefly distinguished by their flowers being destitute of a true calyx, the males containing three, or more generally from four to seven stamens. The leaves are lance-shaped, entire, and glossy; either alternate or whorled, and varying from two to eight inches in length. In their axils the little green flowers are arranged in short catkins, the males towards the apex, and the females near the base, the former entirely naked or accompanied with one or more little scales which represent the calyx, the latter also naked or having a calyx of three small divisions. The fruit is a brown polished three-lobed woody capsule, about the size of a pea, and contains three seeds. The name *Actinostema* is sometimes given to the plants of this genus. [A.A.B.]

DÆDALEA. A genus belonging to the spore-bearing section of the higher *Fungi*. In this genus the cavities, instead of being circular or only slightly distorted, are sinuous and intricate from the partial breaking-up of the cell-walls. *D. guercina*, a fungus of a hard corky texture, is not uncommon upon oak stumps or rails, and sometimes makes its appearance in buildings or conservatories, where the wood has been impregnated with its spawn before being felled. [M. J. B.]

DÆDALEUS. When a point has a large circuit, but is truncated and ragged. Or, wavy and irregularly plaited as the hymenium of some agarics.

DÆMONOROPS. A genus of palms closely allied to *Calamus*, in which the greater number of the forty species referred to it were formerly placed. Its distinguishing peculiarities consist in the flowers being loosely scattered along the branches of the flower spikes, not collected into catkins as in *Calamus*, and also in the spathe or bracts being complete, i.e., entirely enclosing the young spikes. All the species are natives of the eastern hemisphere, principally of the Malayan Peninsula and Islands; they have long thin flexible stems, furnished with pinnate leaves, the prickly stalks of which are frequently prolonged into whip-like tails.

D. Draco (formerly *Calamus Draco*) is a native of Sumatra and other islands of the Indian Archipelago, and is called the Dragon's Blood Palm, in consequence of its fruits yielding a portion of the substance known in the arts as dragon's blood. The

fruits are about the size of cherries, and, when ripe, are covered with a reddish resinous substance, which is separated by shaking them in a coarse canvass bag. The resin thus obtained forms the best kind of dragon's blood, while inferior sorts are obtained by boiling the fruits after they have undergone the shaking process. Several varieties of dragon's blood (sticks, reeds, tears, and lumps) are known in commerce, but some are yielded by plants belonging to widely different natural orders. It is chiefly used for colouring varnishes, for dyeing horn in imitation of tortoise shell, and in the composition of tooth-powders and various tinctures. [A. S.]

DAFFODIL. *Narcissus Pseudo-Narcissus*, also called Daffy-down-dilly. — **PERUVIAN.** *Imens Amancas*. — **SEA.** *Imens calathina*.

DAGGER-FLOWER. *Machatanthera*.

DAGGER PLANT. A name for *Yucca*.

DAHLIA. A well-known herbaceous plant belonging to the compound flowers, and distinguished by its chuffy receptacle, the absence of a pappus, and by the double involucre of which the outer is many-leaved, the inner of one leaf divided into eight segments. The Dahlia is named after Dr. Dahl, a pupil of Linnæus, but is also known, especially on the continent, by the name *Georgina*. Countless are the varieties of this flower, there are, at the most, only two species in cultivation, *D. superflua*, of which the outer involucre is reflexed, and *D. frutescens*, in which it is spreading; while under the name *D. variabilis* both these are united. The Dahlia is a native of Mexico, where it grows in sandy meadows at an elevation of 5,000 feet above the sea, and from whence the first plants introduced to England were brought by way of Madrid in 1789, by the Marchioness of Bute. These having been lost, others were introduced, in 1804, by Lady Holland. These also having perished, a fresh importation was made from France, when the continent was thrown open by the peace of 1814. The first introduction into France had taken place about 1800; and the plant was cultivated there for the sake of its tubers, which were said to be eatable. Owing, however, to their acrid and medicinal flavour, they found no favour with the human species, and were rejected by cattle. The roots are large, spindle-shaped, and assembled into bundles from the centre of which rises the stem. The flowers, in the examples first introduced, were single, with a yellow disk and dull scarlet rays having a velvety surface. The seeds of these soon produced flowers of various tints, some double, others variegated. Flowers of a better colour and form were successively propagated; in some the petals, or rather florets (for in what is called the 'double Dahlia' the fulness of the flower is owing to the conversion of disk into ray florets), assumed the shape of a horn or funnel with

singular regularity, in others the florets were arranged in the form of a perfect rose. Finally, in the course of years, horticulturists flatter themselves that they have brought the Dahlia to the highest point of beauty, though among the numerous seedlings raised every year, there are constantly occurring individuals which are considered as surpassing their predecessors in some point of floral excellence. A race of pompons with remarkably small flower-heads has been obtained. [C. A. J.]

DAIS. A genus of *Thymelæaceæ* or *Daphnaceæ*. Its characters are: flowers surrounded by an involucre; calyx coloured, funnel-shaped, with a four or five-divided limb, and without scales in its throat; stamens eight to ten in two rows, included within the calyx; no hypogynous scales; ovary one-celled, with a single pendulous ovule. Fruit a drupe enclosed by the persistent calyx; albumen fleshy; embryo orthotropal. Shrubby plants found at the Cape of Good Hope and in the tropical and subtropical parts of Asia. There are seven known species. [J. H. B.]

DAISY. The common name for *Bellis*. — **AFRICAN.** *Athanasia annua*. — **AUSTRALIAN.** *Vittadenia triloba*. — **BLUE.** *Globularia vulgaris*. — **CHRISTMAS.** A popular name for some of the species of *Aster*. — **MICHAELMAS.** A popular garden name for *Aster*, especially for *A. Tradescanti*. — **OXEYE.** *Chrysanthemum Leucanthemum*. — **SWAN-RIVER.** *Brachycome iberidifolia*.

DAISY-STAR. *Belldiastrum*.

DALBERGIA. A large genus of leguminous forest trees and climbing shrubs principally inhabiting the tropics of the Eastern Hemisphere. Most of the species have pinnate leaves with numerous leaflets arranged alternately, but sometimes reduced to three leaflets only. The flowers are borne in axillary racemes, and have a bell-shaped calyx, the mouth of which is cut into five divisions, a papilionaceous corolla, and nine to ten stamens, either all joined together into a sheath, which is split along the upper side, or divided into two equal bundles of five each. The pods are thin, very much flattened, not winged, and either long and straight, or short and crescent-shaped, containing one or several flat seeds.

D. latifolia, the Black-wood or East Indian Rose-wood tree, and the Sit-al of the Bengalese, is common on the Malabar and Coromandel coasts, and forms a magnificent tree, yielding one of the most valuable furniture woods. The timber is procurable in planks four feet broad, exclusive of the sap-wood, and is of a dark purplish colour, very heavy, close-grained, and susceptible of a fine polish. It comes to this country under the names of Black-wood and East Indian Rosewood, but it has not the agreeable perfume of the true rosewood, nor is it marked with the black lines of resinous matter which add so much to the beauty and value of the East-

lian wood. In India it is greatly used for making the most expensive descriptions of furniture. *D. sissooides*, is a smaller tree, but yields an equally valuable timber, which also goes by the names of Blackwood and Rosewood in Madras, where it is employed in the construction of gun-carriages. See TRIPLOLEA.

D. Sissoo is an East Indian species, but found farther north than either of the preceding, abounding principally in Bengal and the provinces as far north as the Punjab. It is a large and very rapid-growing tree, yielding a strong tenacious compact timber of a dark brown colour, but not so fine-grained as the Blackwood. This wood is called Sissoo or Sissum, and being very durable it is included among those which are authorised to be employed for the sleepers of Indian lines of railway. In Bengal it is used in the construction of gun-carriages, and it also supplies the ship-builders of that presidency with crooked timbers and knees, besides which it is extensively employed for all the ordinary purposes connected with house building. [A. S.]

DALEA. A genus of sub-shrubby or herbaceous plants of the pea family found in America, appearing in greatest numbers in New Mexico, and having their northern limit in the United States, and their southern in Chili, very few being found in the north-eastern part of the continent. Its most marked features are the flowers in terminal spikes, and the pods small, one-seeded, and not longer than the calyx. Its nearest affinity is with *Petalostemon*, in which the stamens are five, while here they are generally ten, and never fewer than nine. In the great bulk of the species the leaves are unequally pinnate, and composed of numerous small wedge-shaped or oblong leaflets, which are often covered with small glandular dots like those seen in the St. John's-wort. The white, yellow, pink, or purple flowers are about the size of those of a vetch, and arranged in terminal spikes or heads; the calyx nearly equally five-toothed or cleft; and the keeled petal and wings united with the staminal tube and jointed to it, but the standard or upper petal quite free. The little pod is wholly enveloped in the calyx.

One of the most remarkable species is *D. spinosa*, which inhabits the desert regions of California, and has simple narrow leaves, and large deep violet flowers arranged in a spiked manner on the spiny-pointed branches. The plant attains a height of four or five feet. Like many desert plants the stems have a bleached appearance. *D. arborescens*, found in the Sierra Nevada mountains, is remarkable as being the only one which attains the dimensions of a small tree. *D. Jamez* attains only a height of about six inches, and is altogether covered with silky hairs; it is also remarkable as being the only species with trifoliate leaves. Upwards of sixty species are enumerated. The genus is named in honour of Thomas Dale, an English botanist of the last century. [A. A. B.]

DALECHAMPIA. A genus of spurge-worts found in the tropics of both hemispheres. Their slender stems are generally found twining among bushes, but sometimes scrambling to a great height amongst trees. The leaves are alternate, stalked, heart-shaped, entire or three to five-lobed, sometimes divided to the base. The small green flowers are borne on stalked heads which proceed from the axils of the leaves, a circumstance that at once serves to distinguish the genus. The heads contain a number of flowers of both sexes, and are enveloped by an involucre of two leafy, beautifully veined green or coloured bracts. The male flowers have a four or five-parted calyx, and very numerous stamens; the females a calyx of five or six divisions which are often fringed with hairs, and an ovary surmounted by a cylindrical or club-shaped style, which is entire, with a terminal or lateral stigmatic opening. The fruit is a three-celled three-lobed capsule about the size of a large pea. The names *Cremophyllum* and *Rhopalostylis* are given by some authors to plants of this genus. [A. A. B.]

DALHOUSIEA. A simple-leaved Leguminous shrub found in Angola and the Himalayas, where it bears its white blossoms in May, and ripens its pods in the end of the season. Its beautifully veined glossy leaves are stalked, oval, and entire; the peduncles which arise from their axils are once or twice forked, and at the points of forking furnished with small round bracts; each flower is also supported by two similar bracts, which completely hide the five-toothed calyx. The upper petal or standard is deeply notched, and the ten stamens are quite free to the base. The dark brown polished pods are of a woody consistence, from three to four inches long, tapered at each end into a sharp point, and containing two or three flat seeds. The simple leaves, bracted peduncles, and free stamens, together with the nature of the pods, are its most marked features. [A. A. B.]

DALIBARDA. A genus of herbs or small shrubs with white or yellow flowers, belonging to the *Rosaceae*, distinguished from the allied genus *Rubus* by having dry fruit, and terminal, not lateral, styles. The herbaceous species, which are hardy, have creeping stems and solitary flowers; they may be grown in a peaty soil, and are fit for ornamenting rock-work. The shrubby species have the flowers in panicles, and being natives of Java require to be grown in a hot-house. [C. A. J.]

DAMAR. A viscid resinous product of *Canarium microcarpum*.

DAMAS. (Fr.) *Hesperis matronalis*.

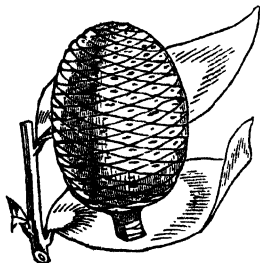
DAMASONTIUM. An aquatic herb belonging to the *Alismaceae*, better known under the name of *Actinocarpus Damasontium*. It is found, though somewhat rarely, in our ponds and ditches, and forms a tuft of radical floating or emerged long-stalked leaves, from amongst which issues the

flower-stem bearing usually two whorls of white flowers. They are each succeeded by six or eight two-seeded carpels, arranged in the form of a star. [T. M.]

DAME D'ONZE HEURES. (Fr.) *Ornithogalum umbellatum*.

DAMIER. (Fr.) *Fritillaria Meleagris*.

DAMMARA. A genus of *Coniferae* or *Pinaceae*, the name of which is derived from the native one in Amboyna. Flowers dioecious, that is, some with stamens only, and



Dammara obtusa.

others with pistils only on separate plants; the staminate flowers in catkins, the numerous stamens having very short filaments, and eight to fifteen-keeled anthers; the pistillate ones in ovate or globular cones with persistent scales without bracts. There is a single unequal-winged seed with two cotyledons under each scale. The species are large trees with scattered leathery leaves. They are found in the East Indian Islands, New Zealand and New Guinea.

D. australis, the Kauri Pine of New Zealand, is a tree from 150 to 200 feet in height, producing a hard brittle resin like copal. *D. macrophylla* is a large tree 100 feet high, found on Vanicolla, one of the Queen Charlotte Islands in the South Sea. *D. Moorit* is a tree forty feet high, found in New Caledonia. *D. obtusa* is a large timber tree used in ship-building, found in the New Hebrides. *D. orientalis*, the Amboyna Pine, is a tree of the Moluccas, 100 feet high, which yields the fine transparent resin called Dammar, [J. H. B.]

DAMMER TREE, BLACK. *Canarium strictum*. — **WHITE.** *Vateria indica*, the resin of which is called Dammer pitch.

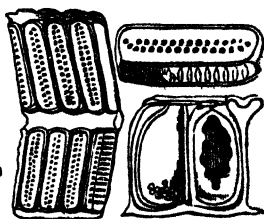
DAMOUC. An Arab name for *Nitraria frutescens*, which is believed to be the Lotus tree of the ancients.

DAMPIERA. A genus of *Goodeniaceae*, named after the celebrated navigator Captain W. Dampier. It is distinguished by having a calyx whose limb is short or ob-

solete; a monopetalous, two-lipped, blue or purple corolla, the segments of the upper lip of which are auricled on the inner margin; five stamens with coherent anthers; and a style with a stigma seated at the base of a cup, termed an indusium. The flowers are axillary or terminal; and the leaves alternate. The plants, which are shrubby or herbaceous, are natives of Australia and Tasmania. [R. H.]

DAMSON. A small austere variety of plum. —, **BITTER, or MOUNTAIN.** *Samaruba amara*.

DANÆA. A remarkable genus of ferns of the danseine division of the *Marattiaceae*. The species are not very numerous, and are all South American or West Indian. They have large woody rhizomes, and pinnate rarely simple fleshy coriaceous fronds, the pinna of which are usually articulated. The fertile fronds are more or less contracted. The sori are very remarkable; they are linear, occupying the whole length of the veins, and crowded so as to cover the whole under-surface of the divisions of the fertile fronds. The sporocases are consolidated into a fleshy mass, which represents an involucre, each fleshy case at length opening at the top by a small round pore, so that the contiguous fructiferous ridges appear to be each pierced by a double line of small apertures. In some species represented by *D. nodosa*, which has the joints of the fronds thickened, the sori are affixed to the veins by



Danæa alata (fructification).

their whole length; in others, as in *D. stenophylla*, they are said to be affixed only by the centre. [T. M.]

DANÆACEÆ. The name of a natural order of ferns, also called *MARATTIACEÆ*; which see.

DANÆOPSIS. A doubtful genus of ferns, separated from *Danæa*, on the ground of its having anastomosing veins. Nothing definite, however, appears to be known of the plant. [T. M.]

DANCING GIRLS. *Mantisia calliostoma*.

DANDELION. *Taraxacum Dens Leonis*, the Dent de Lion.

DANEWORT. *Sambucus Ebulus*.

DANGLE-BERRY. An American name for *Gaylussacia frondosa*.

DANTHONIA. A genus of grasses belonging to the tribe *Aveneae*, distinguished by the glumes being two or many-flowered; the outer pale smooth and coriaceous below, many or sometimes nine-nerved, emarginate at the apex, with an intermediate broad tooth, which sometimes terminates in a geniculate twisted awn; stamens three; styles two. Sixty species are described, nearly all natives of South Africa, and many of them useful there as pasture grasses. [D. M.]

DAPANIA. A genus considered by Korthals to belong to *Chrysobalanaceae*, but referred to *Oxalidaceae* by Planchon, who considers it closely allied to *Averrhoa*. The hypogynous flowers, and five-celled fruit with pendulous exalbuminous seeds, are sufficient to distinguish it from the *Chrysobalanaceae*. [J. T. S.]

DAPHNOCEÆ. A natural order of monochlamydeous dicotyledonous plants, synonymous with *THYMELACEÆ* or *THYMELAOCEÆ*; which see. [J. H. B.]

DAPHNADS. A name used by Lindley for the *Thymelaceae*.

DAPHNE. A well-known thymelaceous genus of shrubs, the species of which are very widely distributed, being found in the temperate and tropical parts of Europe, Asia, America, and Australia. The flowers are hermaphrodite; the calyx tubular, its limb divided into four segments; petals none; stamens eight, inserted in two rows upon the inner surface of the tube; ovary one-celled, style short, stigma button-shaped; fruit a drupe. Many of the species are remarkable for the beauty and fragrance of their flowers; while all have a more or less stringy bark, and all are more or less acrid.

D. Mesereum, the Mesereon, a common shrub in cottage gardens in this country, where it is also, though rarely, found wild, is remarkable for the appearance of its fragrant pink flowers in early spring before the leaves expand. It forms a dwarf bush with erect branches, along the sides of which the flowers are placed, while the leaves occur in tufts at the extremity of the twigs. The fruits are red and pulpy, of the size of a pea, and poisonous to human beings, though birds eat them with avidity. There is a variety with white flowers and yellowish fruits. The bark of this species, and especially that of its roots, has been used in medicine as a sudorific and alterative in scrofulous, venereal, and other diseases. It is extremely acrid to the taste, and is now rarely employed.

D. Laureola, the Spurge Laurel, occurs in woods in this country. It is a smaller plant than the preceding, and has bright green oblong evergreen leaves, and greenish flowers which are scentless; the fruits are oval and of a bluish-black colour. This species participates in the acrid properties

of the mesereon, though it is not employed in medicine. It finds a place in shrubberies, on account of its evergreen character, and because it thrives well beneath the shade of trees.

The tough fibrous nature of the inner bark of these plants is made available for the manufacture of paper in various parts of India and China. In Nepal the bark of *D. cannabina*, *D. Edgeworthii*, and other species is thus employed. For this purpose it is scraped and boiled in water, with a small quantity of the ashes of the oak; after this it is washed and beaten to a pulp on a stone, and then spread out on a mould or frame made of bamboo mats. This paper is of various qualities; the best is strong and tough, is not liable to crack or break upon being folded, is not eaten by insects, and does not suffer from damp. From its durability it is used in many parts of India for deeds and records.

Several kinds are cultivated in this country as hardy shrubs or in greenhouses. Among them are *D. pontica*, which resembles the common spurge laurel, but is of larger growth, has more fragrant flowers, and grows well under the shade of trees; *D. alpina*, a low growing shrub with deciduous leaves and white fragrant flowers, well adapted for rock-work; as also is *D. Cneorum*, a charming plant with procumbent stems, lance-shaped evergreen leaves, and clusters of pink sweet-scented flowers. The foregoing are hardy. *D. odora*, *D. indica*, *D. chinensis* and others require the protection of a greenhouse. The Spurge Laurel is the badge of the Grammas. [M. T. M.]

DAPHNIDIUM. Indian trees constituting a genus of *Lauraceae*, having unisexual flowers within an involucre of scaly bracts. The perianth is six-cleft; the male flower has nine stamens in three rows, the three innermost having glands at each side of their filaments. Fruit berry-like, one-seeded, partly enclosed within the persistent base of the perianth. [M. T. M.]

DAPHNIDOSTAPHYLIS. A small group of shrubby plants, separated by some from *Arctostaphylos*.

DAPHNOPSIS. A genus of *Thymelaceae*, consisting of diocious Brazilian plants. The male flowers have a four-cleft perianth, with eight stamens, and a rudimentary ovary. The perianth of the female flower is persistent at the base of the drupe, which is of a fibrous texture. [M. T. M.]

DARBYA. A North American tree or shrub, described by A. Gray as constituting a distinct genus of *Santalaceae*, but reduced by A. De Candolle to a section of *Comandra*.

DAREA. A section of *Asplenium*, sometimes called *Campopteris*, and characterised by the prevalence of unisporiferous segments to the fronds. [T. M.]

DARLINGTONIA. A remarkable one of *Sarraceniacae* found in California; only species, *D. californica*, known as

Californian Side-saddle flower or Pitcher plant, is a perennial herb growing in marshy places. Its leaves all rise from the root, the adult ones being from eighteen inches to a foot or more in length, the stalk or pitcher tubular, gradually tapering downwards and singularly twisted on the axis about half a turn, marked with strong veins and slender veinlets, and the summit vaulted and formed into a sac about the size of a hen's egg, on the under side of which is an oval orifice about half an inch in diameter opening into the cavity of the pitcher; the upper part of this tube is of a dull orange colour. The blade, which is borne on the end of the stalk or pitcher, is narrowed at the base and deeply divided into two spreading nearly lance-shaped lobes, which are curved downwards, and also often backwards, resembling the lop-ears of some varieties of rabbit. The pitcher inside the hood is furnished with short conical hairs which point downwards, and towards the base there are long slender hairs also pointing downwards; remains of insects are sometimes found at the bottom. Dr. Torrey writes 'The orifice of the pitcher being placed directly under



Darlingtonia californica.

the vaulted summit, cannot receive either rain-water or dew, and yet Mr. Brackenridge thinks he found some of the leaves containing water; still I cannot think the water was secreted by the hairs in the tube. The flowers are single and nodding at the apex of a smooth stalk, which is furnished with straw-coloured scales, and varies from two to four feet in length. When fully expanded the flower is about two inches in diameter; the calyx consists of five straw-coloured acute sepals; the petals, of a like number, and pale purple in colour, are narrowed and concave at the apex and broad below; the twelve to fifteen stamens are nearly hidden by the projecting summit of the ovary, which is top-shaped, slightly five-angled, and crowned by a short style with a five-lobed stigma. The fruit is a five-celled capsule about an inch in length, with numerous seeds. The forked blade of the leaf and the form of the stigma distinguish the genus from

Sarracenia, which has an umbrella-shaped stigma. The genus is named in honour of Dr. Darlington, of Pennsylvania.

This account is chiefly abridged from a paper of Dr. Torrey's in the *Smithsonian Contributions to Knowledge* (Washington 1853), where a full history of this interesting plant is given. It is met with as a rarity in cultivation in England. [A. A. B.]

DARNEL. *Lolium temulentum*.

DARWINIA. A small genus of *Chamaelauceae*, named after Dr. Darwin. It has a five-cleft calyx, the lobes of which are roundish-cordate, concave, and full of pellucid dots; petals wanting; stamens from ten to fifteen, often joined in threes, inserted in the limb of the calyx, and having very short flat glabrous filaments, and anthers inserted by their bases; style tapering, bearded at the apex; stigma a pruinose dot; ovary one-celled, single-seeded; seeds pentagonal pitted on the surface. Heath-like shrubs of lowly growth found in the extra-tropical portions of Australia. The leaves are marked with pellucid dots, [R. H.]

DASYA. A lovely genus of rose-spored *Algae*, allied to *Polysiphonia*, from which it differs in its more compound stem, with persistent coloured branchlets, which originate the pod-like receptacles of the tetraspores or stichidia. The species are far more common in the Southern Ocean. We have, however, a few fine species, of which *D. coccinea* is well known to most collectors of *Algae* from its bright scarlet tint; and there are representatives in the Northern Hemisphere of four out of the five sub-genera into which Dr. Harvey has disposed the species in his *Nereis Australis*. In *Polysiphonia*, it may be observed, the tetraspores are imbedded in the branches themselves, and not in distinct organs. [M. J. B.]

DASYCLADEÆ. A small natural order of green-spored *Algae*, which are either naked or coated with carbonate of lime, and have a one-celled simple or branched axis which is whorled either throughout its whole length or near the summit with jointed branchlets. The fruit is contained in free or laterally united sporangia. In *Acetabularia* the stem is filiform, and ends in a target-shaped disc composed of spore-bearing cells; from the centre of this the stem is continued bearing whorls of forked fibres, and as the fruit cells fall off below, new discs are formed above. *Dasycladus*, the typical genus, has threads free from any crust, and the axis is clothed everywhere with whorls of jointed trifid branchlets. The thread-shaped forked distinctly jointed frond of *Cymosopia*, on the contrary, is densely incrustated, the crust being pierced with pores, and the nodos fringed with hyssoid multifid fibres. We have no representative of this curious order on our coasts. Both *Dasycladus* and *Valoniaceae* were first separated by Kützinger from *Siphonot*, and are adopted by Dr. Harvey in his admirable work on North

American *Alga*, to which we have been largely indebted, [M. J. B.]

DASYLIRION. A genus of *Bromeliaceae*, consisting of Mexican plants with short stems, and densely crowded linear leaves which droop gracefully, and generally have a little brush-like tuft of fibres at the point. From amid these leaves the flower-stalks rise to a considerable height, the upper portion being crowded with a dense panicle of flowers, which are dioecious. The perianth consists of six nearly equal segments in two rows; and there are six stamens with filaments thickened in the middle, and having a gland at the base. The female flowers differ in having antherless stamens, a superior six-seeded one-celled ovary, with membranous angles, the six ovules in pairs; a short style with a dilated three-lobed stigma; and a nut-like fruit, one-seeded by abortion. *D. acrotrichum* is a handsome kind grown in greenhouses. [M. T. M.]

DASYLOMA. The generic name of plants belonging to the umbelliferous order, characterized by having five ribs on each half of the fruit, three on the back smaller than the two at the sides, the latter being larger and thicker, a character indicated by the name, which is derived from two Greek words signifying 'thick border.' The species are natives of India, and are herbaceous plants, with hollow stems, and twice pinnate leaves, the leaflets of which are wedge-shaped, toothed at the end. [G. D.]

DASYMALLA. A genus of small West Australian bushes of the *Myoporum* family, having their leaves and stems covered with dense white wool. The forked style and bracted flower-stalks, together with the woolly nature of the stems and leaves, are its chief distinguishing features. The four-angled stems are furnished with opposite entire leaves, oblong obovate in form. In the axils of these the flowers are found in little bundles or cymes shorter than the leaves. The calyx is five-parted, and the purple tubular corollas are widened at the top and two-lipped, the upper lip two-lobed, the lower three-lobed. In the inside of the tube and near its base the four stamens (two long and two short) are inserted. The ovary is densely hairy and crowned with a filiform style forked at the top; when ripe it becomes a somewhat dry four-celled berry with one seed in each cell. Two species are known. [A. A. B.]

DASYNEMA. A name once given to a few South American trees of the lime-tree family; they, however, belong to *SLOANEA*: which see. [A. A. B.]

DASYPHYLLUM. *Flotovia*.

DASYPOGON. A genus referred to *Juncaceae*, in which it is distinguished by its capsular one-celled fruit with basilar ovules, and longitudinally dehiscent incumbent anthers with filaments thickened at the apex. It comprises two undershrubs from South Australia, with simple leafy stems, and grass-like leaves rough at the

margin; flowers sessile in a globular terminal head. [J. T. B.]

DASYSTEMON. A name given by De Candolle to a plant from the *Jardin des Plantes*, which was supposed to have been raised from Australian seeds. Mr. Bentham, however, shows that it is founded on a mistake. The stamens, with thick ovoid filaments, forming the chief character of and giving the name to the genus, are not so figured by De Candolle in his *Plantas Grasses*: probably on a first hasty examination the carpels were taken for stamens. The plant is *Crassula capensis*, a South African, not an Australian, species—an error as to origin very common in botanic gardens. [J. B.]

DATE. *Phoenix dactylifera*. WILD., *P. sylvestris*.

DATISCAEÆ. (*Datisceae*.) A natural order of dicotyledonous plants included in the sub-class *Monochlamydeæ*, and referred by Lindley to the cucurbital alliance. Herbs or trees with alternate leaves having no stipules; some flowers have stamens only, others have pistils only; the corollas wanting; the calyx or perianth adheres to the ovary, and is divided into three or four parts; stamens three to seven; ovary one-celled, with three or four many-seeded parietal placentas. Fruit a one-celled capsule, opening at the top; seeds having a reticulated skin, and a cup-like swelling at one end; there is no separate albumen. The plants consist of few species, which are scattered over North America, northern India, Siberia, the Indian Archipelago, and the south-eastern part of Europe. They have bitter and purgative qualities. It is said that the ovary of *Datisca coccinea* can produce perfect seeds without the application of pollen to the pistil. *Tetrameles Horsfieldii* is a large tree of the order. There are but three known genera, *Datisca*, *Tetrameles*, and *Tricardata*, and these comprise but four species. [J. H. B.]

DATISCA. A genus of plants typifying the *Datisceae*. The characters are: flowers dioecious; calyx five-parted in the staminate flowers, three to five-toothed in the pistillate flowers; no corolla; stamens five to fifteen, collected in the middle of the flower; ovary united with the calyx, inferior, one-celled, with three to five parietal placentas; styles three to five. Fruit a one-celled capsule opening by a round hole at the apex. Seeds numerous, striated, with a cup-like covering at the base. Annual herbaceous plants found in Nepal and in Asia Minor. They have unequally-pinnate alternate leaves, and racemose bracteated greenish flowers. There are two known species. [J. H. B.]

DATLIER COMMUN. (Fr.) *Phoenix dactylifera*.

DATURA. A genus of *Solanaceæ*, or, according to Mr. Miers, of *Astropaceæ*, the species of which are eminently poisonous; while in small quantities they act as valuable remedial agents. They are known by their tubular calyx, the upper part of

which falls off as the fruit ripens, while a small portion remains as a circular rim around the base of the fruit; the corolla is funnel-shaped and plaited. The fruit is a capsule with four compartments and four valves.

The best known plant of this genus is the common Thorn Apple, *D. Stramonium*, which springs up in a half wild state on the borders of cultivated fields, rubbish heaps, &c., in this country, and is found in similar situations in all the warmer parts of the globe. It is a coarse strong-smelling annual, growing one or two feet high, with widely-spreading forked branches, and large ovate leaves with irregularly-waved or sinuately-toothed margins. The flowers are large, placed on short stalks arising from the forks of the stem; the calyx is tubular and angular; the corolla is double the length of the calyx, funnel-shaped, with a large plaited five-toothed limb, generally of a pure white colour, but sometimes in hot climates pink or purple; the capsule is ovate, of the size of a walnut, somewhat four-celled, bursting by four valves, which are covered with stout triangular spines, whence the name Thorn Apple. The poisonous principle of this plant is an alkaline crystalline substance called *daturin*. The effects produced by medicinal or poisonous doses of *Stramonium* are similar to those induced by belladonna, but to this is added a certain degree of acridity and of anodyne power not possessed by the other plant. *Stramonium* has been found beneficial in neuralgia, epilepsy, mania, &c.; while in some cases of asthma relief has been experienced from smoking the leaves.

D. fastuosa, a common Indian plant, is possessed of properties similar to those of *stramonium*, and is employed by the native doctors for the relief of rheumatic and other painful affections. The seeds are used in India and China to stupefy or even poison an enemy. *D. alba* or *D. Metel*, also an Indian plant, produces similar effects. The Rajpoot mothers are said to smear their breasts with the juice of the leaves, so as to poison their newly-born female infants. It has been conjectured that the seeds of *D. Stramonium* were used by the priests of Apollo at Delphi to produce those frantic ravings which were called prophecies, a suggestion which derives some support from the fact that in the temple of the Sun, in the city of Sagomozo (Peru?), the seeds of the Floripondio, *D. sanguinea*, are used for a similar purpose. The Peruvians also prepare an intoxicating beverage from the seeds, which induces stupefaction and furious delirium if partaken of in large quantities. The Arabs of central Africa are said by Lieut. Burton to dry the leaves, the flowers, and the rind of the rootlet, which is considered the strongest preparation, and smoke them in a common bowl, or in a water-pipe. It is esteemed by them a sovereign remedy for asthma and influenza, and although they do not use it like the Indian *Datura* poisoners, accidents

nevertheless occur from its narcotic properties. See BRUGMANIA. [M. T. M.]

DAUBENTONIA. A genus of bushy plants of the pea family, comprising three species found in Texas and Buenos Ayres. They are chiefly remarkable for their curious quadrangular pods, which are three to four inches long, stalked, pointed, and furnished with wings along the angles. The only other genus with four-angled pods nearly related to this is *Pisclidia*, which has *unequally* pinnate leaves; while here there is no odd leaflet, but the leaves are made up of ten to twelve pairs of oblong leaflets, each about an inch in length. The red or yellow flowers, a good deal like those of the laburnum, are borne on axillary racemes shorter than the leaves. *D. punicea* is a common plant on the banks of the Uruguay, and in various parts of Banda Oriental and Rio Grande, where it grows into a large handsome shrub with leaves like those of the false acacia, and bears abundant racemes of brilliant red flowers, between cherry and orange-colour. The genus is named in honour of M. Daubenton, an eminent French naturalist and physician. [A. A. B.]

DAUBENYA. A genus of one or two species of bulbous *Liliaceae* from the Cape of Good Hope. *D. aurea*, the typical species, has a pair of oblong leaves seated close to the earth, and in their sinus a sessile umbel of yellow flowers, whose perianth is tubulose with a two-lipped limb, both lips being three-toothed, the upper short, the lower one larger in the ray flowers and decapitated in those of the centre or disk. There are six stamens with unequal declinate filaments, somewhat joined at the base; and a filiform style with a capitate stigma. The genus is dedicated to Prof. Daubeny of Oxford. [T. M.]

DAUCOSMA. A North American genus of *Umbelliferae*, represented by an annual herb, with the odour of the wild carrot, whence its name. Its distinguishing characters are its petals, which are bent inwards; its five-toothed calyx; and its distinct carpophore or stalk bearing the two halves of the fruit. The first of these characters separates it from *Cynoscactidium*, the second from *Ethusa*, and the last from *Eranthe*. [M. T. M.]

DAUCUS. A genus of *Umbelliferae*, consisting of several species of dwarf weedy-looking plants, having thin deeply-cut pinnatifid leaves; and flower-stems rising from two to three feet high, and bearing in a terminal umbel a number of small white or rosy-coloured flowers. It is distinguished by the long prickles to its carpels, the prickles being long, flat, and straight. Of one of its species cultivated as a vegetable, there are many varieties.

The Carrot, *D. Carota*, is a biennial, a native of Britain, usually found, in its wild state, in light sandy soil. Notwithstanding the great difference between its dry sticky root, and that of the large succulent root of our garden Carrot, it is

generally admitted to be the stock from which all the cultivated varieties have sprung; although Miller states that he in vain endeavoured to improve the quality of the wild plant by cultivation. As an esculent, the Carrot was known to the ancients; and Pliny says the best came to Rome from Candia. Gerarde, writing in 1597, tells us they do not grow in Candia only, but are found upon the mountains in Germany, and about Geneva. How or when they were first introduced into this country is unknown, but it is generally believed to have been by the Dutch during the reign of Queen Elizabeth (1558), and that they were first grown about Sandwich in Kent.

Scarcely any vegetable is better known, or in greater demand for culinary purposes than the Carrot. Its root contains a large portion of saccharine matter, and is used in soups and stews, as well as a vegetable dish during winter. In order to supply the demand for young carrots during the spring and summer, large quantities are grown by artificial heat. The various sorts of Carrots in cultivation are divided into two classes, known as Horn Carrots and Long Carrots: the former short and early; the latter becoming mature in autumn for winter use.

Parkinson, writing in 1629, says, that in his day ladies wore Carrot leaves in place of feathers; and Loudon states (*Encycl. of Gard.*, p. 835) that in winter an elegant chimney ornament may be formed by cutting off a section from the head or thick end of a Carrot, containing the bud, and placing it in a shallow vessel of water. Young and delicate leaves unfold themselves, forming a radiated tuft of a very handsome appearance. [W. B. B.]

The Carrot yields two British species, *D. Carota* and *maritima*; but we agree with Sir W. J. Hooker in deeming them 'scarcely permanently distinct.' The Carrot of the garden and farm is a well known derivation of one of these; we almost think of the latter, as our experiments in ennobling the common *D. Carota* have been unfortunate, though we have had reports of success in this experiment by those with whom the ennobling of the parsnip has not succeeded as it has with us. [J. B.]

DAUPHINELLE. (Fr.) *Delphinium*.

DAURADE. (Fr.) *Ceterach officinarum*.

DAVALLIA. A fine and extensive genus of polypodiaceous ferns, typical of the group *Davalliee*. They have scaly creeping rhizomes, which feature has given rise to the name of Hare's Foot Fern, applied to *D. canariensis*. The fronds are sometimes pinnate, but more frequently pinnately compound, very elegantly cut into multitudes of small divisions, and bearing numerous fructifications, which form a series of cups or cysts at the margins of the segments. These cysts assume two somewhat different forms: the one, rather shallow cup-shaped, represented by *D. tenaxifolia* and *D. aculeata*, the latter of which is

quite scandent and bramble-like in habit; the other tubulose, represented by *D. elegans* and *D. solida*. The genus is well marked by natural features, and is one of the most elegant to be found in our gardens. Several offshoots have been separated from it, as *Acrophorus*, *Humata*, *Loxoscaphe*, and *Microlepia*. [T. M.]

DAVIESIA. A large genus of New Holland and Tasmanian bushes of the pea family, easily recognised among their allies with ten free stamens and two ovules, by the form of their pods, which are short, nearly triangular, with a straight upper and a much curved under edge. In some species the leaves are much like those of the juniper, and in a large number they take the form of spines like those seen on the furze, to which plant many of them bear a strong resemblance. In a few the leaves are heart-shaped and embrace the stem; in others they are oblong; and a few are entirely destitute of leaves, but in these the stems are usually flattened and perform leaf functions. The flowers are small, usually yellow, sometimes blue or purple, arranged in little tufts or racemes or stalked cymes arising from the axils of the leaves, or from those of little scales where no leaves exist.

A very common plant in greenhouses, and one of the most beautiful in the genus, is *D. latifolia*, a native of Tasmania and the south parts of New Holland. This plant has smooth oblong leaves, in the axils of which the pretty yellow flowers are found disposed in dense erect racemes. Another scarcely less beautiful species is *D. cordata*, the leaves of which, about the largest in the genus, are sessile, heart-shaped, acute, and embrace the stems at the base; they are quite smooth and beautifully veined. The flowers are in stalked corymbs, each supported by two leafy bracts which envelope a number of stalked flowers having a yellow standard and a purple keel. *D. epiphyllum*, a West Australian species, is remarkable for having white flattened and variously lobed stems without leaves, but having much the appearance of the antlers of a stag. The flowers are curiously placed on the middle of the flattened portion, and arise from the axils of little scales, two or more together. *D. juncea* has rush-like branches devoid of leaves, and furnished at distant intervals with bundles of yellow flowers; and an allied species has similar but much thicker stems, nearly half an inch in diameter, with soft pith-like wood. It would be difficult to point to a genus comprising more diversity of form among its species, of which there are fifty-five known. It bears the name of the Rev. Hugh Davies, a Welsh botanist. [A. A. B.]

DAYA. A genus of small opposite-leaved trees or scandent bushes of the *Melastomacee*, found in various parts of tropical America, and numbering about a dozen species. They are chiefly characterised by the capsular (not horrid) fruit, and the peculiar structure of their sta-

mens, which are eight to ten in number, nearly equal in height and similar in form; the anthers linear or awl-shaped, curved outwards and opening at top by a little pore; the connective or point of junction of the anther with its stalk produced behind into an obtuse or acute horn, sometimes forked at the point and parallel to the anther. The leaves are stalked, lance-shaped, oval or elliptical, entire or toothed. The flowers are yellow, rose, or purple, disposed in terminal panicles or cymes, and having an entire or five-toothed calyx; five obovate petals, and a filiform style crowning an ovary which becomes, when ripe, a five-celled capsule with numerous seeds. The genus bears the name of Sir H. Davy, the eminent chemist. [A. A. B.]

DAY-FLOWER. An American name for *Commelyna*.

DEAL. The wood of various pine and fir trees.

DEALBATE. Covered with a very opaque white powder.

DECA. In Greek composition = ten.

DECAISNEA. A genus of plants named after Decaisne, a celebrated French botanist.



Decalman insignia.

ist, by Drs. Hooker and Thomson. It belongs to the natural order *Lardizabalaceæ*, and is an erect shrub with large pith, pinnate leaves, racemose inflorescence, and greenish flowers; sepals six, linear and awl-shaped; petals none; flowers sometimes abortive or becoming staminate or pistillate; stamens six, free or united by their filaments; ovaries three with an oblique style; ovules very numerous, on two thread-like placentas. The fruit consists of follicles filled with pulp. The only known species is *D. insignia* found at Sikkim and Bhotan in the Himalaya at the height of 6,000 to 10,000 feet, flowering in May and fruiting in October. The fruit is very palatable, and is eaten by the Lepchas of

Sikkim. The name is also a synonyme of *Onemidia*. [J. H. B.]

DECAMALEE or DIKAMALI. A gum obtained in India from *Gardenia lucida*.

DECANEMA. A genus of *Asclepiadaceæ*, containing a single species from Madagascar. A leafless branched undershrub, remarkably like *Sarcostemma aphylla*, except in the structure of the flower. The flowers are small in terminal or lateral umbels; the calyx is five-parted; the corolla rotate and five-cleft; the staminal crown consists of two series of five lobes, the outer being opposite to, the inner alternating with, the lobes of the corolla, and its lobes are rounded and terminate in a long linear blade exceeding the corolla. The long round follicles contain comose seeds. [W. C.]

DECASTORA. A small Tasmanian genus of *Epacridaceæ*, having small ovate or lanceolate leaves, and flowers in terminal spikes of a reddish hue. The calyx with two bracts at the base; corolla campanulate, the limb slightly bearded; stamens exerted with five scales united at the base; a ten-celled ovary with a single seed in each cell. The fruit is a violet-coloured berry. [R. H.]

DECIDUOUS. Finally falling off; as the calyx and corolla of crucifers.

DECKERIA. A name recently proposed for a genus of palms, but the characters upon which it is founded not being of sufficient importance to warrant its adoption, other botanists have since referred the species to the older genus *Livistona*, to which three of them originally belonged. They are natives of tropical South America, and are remarkable on account of the singular shape of their trunk, which,



Deckeria ventricosa.

though cylindrical throughout its entire height, like that of numerous other palms, while young, after attaining a certain age, swells suddenly out at a point about mid-

way between the ground and its crown of leaves, to more than double its previous diameter, again contracting to its original size and cylindrical form at a short distance from the summit. This peculiarity is more particularly evident in the species called by the Indians on the Amazon *Paxiuba* *barriguda* (i.e. pot-bellied *Paxiuba*; *Paxiuba* being a general term applied to the *Iriarteas*), the *Deckeria* or *Iriartea ventricosa* of botanists, a common palm in the forests bordering the Amazon and Rio Negro, where the natives take advantage of its swollen trunks in the construction of their canoes, its natural shape saving them much labour. They also use the hard black wood of the outer portion of the trunk to make harpoons for spearing the cow-fish. [A. S.]

DECLINATE. Bent downwards.

DECODON. A genus of *Lythraceæ*, nearly related to *Lythrum*, and differing chiefly in the calyx-tube being shortly bell-shaped, instead of cylindrical. *D. verticillata*, the Swamp Loosestrife, grows on the borders of swamps in the United States, and is the only known species. It is a pretty bush six to eight feet high, having slender recurved stems furnished with privet-like leaves, placed in whorls of three round the stem, and bearing in their axils clusters of stalked rose-coloured flowers much like those of *Lythrum Salicaria*. The plant is also called *Nesaea verticillata*. According to Torrey it is used as an emmenagogue. [A. A. B.]

DECOMPOUND, DECOMPOSITE. Having various compound divisions or ramifications.

DECUMARIA. A climbing shrub of the Southern States of North America, forming a genus of *Philadelphaceæ*. The flowers are white, arranged in corymbs, sweet-scented, and in gardens are observed to be sometimes unisexual, though this has not been found to be the case in wild specimens. The calyx-tube is adherent to the ovary, and is marked by from seven to ten prominent nerves; the style is consolidated, expanded above into a stigma, with seven to ten rays. The capsule is divided into seven to ten compartments, and is crowned by the persistent style and limb of the calyx. It contains not only numerous seeds, each surrounded by an aril, but also, at least in dried specimens, a quantity of small crystals (raphides) interspersed among them. [M. T. M.]

DECOUMBENT. Reclining upon the earth, and rising again from it.

DECURRENT. Prolonged below the point of insertion, as if running downwards.

DECURSIVELY PINNATE. When a petiole is winged by the elongation of the base of the leaflets; hardly different from pinnatifid.

DECOSSATE. Arranged in pairs that alternately cross each other.

DEDUPLICATION. The supposed unlining process which some botanists believe in when one organ in a flower is produced opposite another.

DEER BALLS. A synonym of Hart's Truffles, Lycoperdon Nuts, and *Elaphomyces*. [M. J. B.]

DEERBERRY. *Gaultheria procumbens* also an American name for *Vaccinium stamineum*.

DEERINGIA. A genus of *Amaranthaceæ*, distinguished by its fruit being a many-seeded berry. They are smooth weak-stemmed shrubs from India and Australia, with alternate leaves, and spikes of small flowers, having a five-leaved calyx, five stamens united below into a cup, a short style, three stigmas, and an inflated berry. *D. celosioides*, from New Holland, bears long spikes of red berries, about the size of currants. [J. T. S.]

DEFERENT. Conveying anything downwards.

DEFOLIATION. The casting off of leaves.

DEFORMATION. An alteration in the usual form of an organ by accident or otherwise.

DEGRADATION. A change consisting of an abstraction, loss, abortion, or non-development of usual organs.

DEHAASIA. A genus of *Lauraceæ*, consisting of trees with hermaphrodite or monocious flowers, the perianth of which is six-cleft, the three outer divisions being much smaller than the inner ones. Stamens nine or twelve in three or four rows, the inner row sterile; of the fertile stamens, the two outer rows have their anthers opening inwardly, while those of the inner row open outwardly, the filaments of this latter series having glands on each side at the base. The fruit is a one-seeded berry placed upon a thickened fleshy flower stalk. [M. T. M.]

DEHISCENCE. The act of splitting into regular parts, or in some manner dependent upon organic structure.

DELABECHEA. The Bottle-tree of North-eastern Australia, *D. rupestris*, is the only plant of this genus, which belongs to the *Reterulliacæ*, and is very nearly related to *Brachychiton*. The Bottle tree is of middling stature, and is chiefly remarkable for the curious form of the trunk, which is bulged out in the middle in the form of a barrel. The stem abounds in a mucilaginous or resinous substance resembling gum tragacanth, which is wholesome and nutritious, and is said to be used as an article of food by the aborigines in cases of extreme need. Dr. Lindley, in describing the tree, says, 'the wood has a remarkably loose texture; it is soft and brittle, owing to the presence of an enormous quantity of very large tubes of pitted tissue, some of which measure a line and a half across; they form the whole inner

face of each woody zone. When boiling water is poured on shavings of this wood, a clear jelly resembling tragacanth is formed, and becomes a thick viscid mass; iodine stains it brown, but no trace of starch is indicated in it. Usually the leaves are from two to four inches long, entire, stalked, and lance-shaped; sometimes, however, they are digitate and composed of seven to nine sessile leaflets of the same form as the simple leaves. The digitate leaves are probably found only on young plants. The flowers are inconspicuous, and borne on short panicles arising



Delabechia rupestris.

from the axils of, and shorter than, the leaves; in the males the calyx is five-cleft, and the stamens numerous; the females are not known. The fruit is composed of five stalked smooth brown leathery foliicles, covered internally with a thick fur of starry hairs; each of these contains about six seeds, which have their lower portion covered with similar hairs, and are smooth above. The genus is named in honour of the late eminent geologist, Sir H. T. De la Bèche. [A. A. B.]

DELAIREA. The name sometimes given to a trailing South African Groundsel (*Senecio mikanioides*), with stalked, smooth, and fleshy leaves, which are cordate at the base, and five to seven-lobed. The flower-heads are numerous, and disposed in axillary corymbs longer than the leaves. In gardens it is called German Ivy. [A. A. B.]

DELASTREA. A genus of *Sapotaceae*, represented by a lofty tree native of Madagascar, distinguished from its allies by the lobes of its corolla, which are eighteen in number, twelve external, six internal, opposite to which latter are six stamens, all of them fertile; and by its ovary, which contains twelve compartments. [M. T. M.]

DELESSERIA. A genus of rose-spored Algae, belonging to the section in which the spores form little necklaces (*Desmogiarmas*) containing many of the most beautiful and delicate species which adorn

our coasts, a great part of their beauty arising from the symmetry of the frond, and the contrast between the dark midrib and the membranous border. The capsules contain a placenta formed of branched threads bearing short chains of spores, the ultimate members of the chains being the first to ripen. The species are numerous, and many of them are widely dispersed. The beautiful ash-leaved seaweed formerly called *D. sanguinea*, has fruit of a different structure, and is now referred to a distinct genus, *Wormskioidia*. [M. J. B.]

DELIMA. A small genus of *Dilleniaceae*, all, with the exception of one Asiatic species, natives of the tropics of the Western hemisphere. They have very small flowers disposed in loose panicles at the ends of the young branches; the calyx consisting of five permanent sepals, and the corolla of four or five white petals, which soon fall away. The ovary is solitary, nearly globular, and terminated by a curved tapering style; it ultimately becomes a small dry oval fruit, which splits open along the inner edge when ripe, exposing a solitary arillate seed.

D. sarmentosa is widely distributed throughout the eastern countries of tropical Asia, including Ceylon, Malaya, Ava, Silihet, Java, Southern China, the Philippine Islands, &c. Its leaves vary very much in shape, but are generally somewhat oval; their edges either entire or cut into teeth tipped with short hard points; the upper surface of these leaves is completely covered with little asperities, which are so hard and render the leaves so rough that they are commonly employed in most of the above-mentioned countries as a substitute for sand-paper, and are thus used for polishing various domestic utensils, and other articles made of either wood or metal. In Ceylon the plant is called *Korasawel*, and in the Philippine Islands, *Bois de râpe*. [A. B.]

DELIQUESCENT. Branched, but so divided that the principal axis is lost trace of in ramifications; as the head of an oak tree.

DELISSEA. A genus of shrubs, natives of the Sandwich Isles, and included in the order *Lobeliaceae*. The main characteristics of the genus are a hemispherical calyx tube, which is united to the ovary, and is surmounted by a limb with five very short teeth; a tubular corolla with a two-lipped limb; filaments and anthers combined into a tube; fruit a somewhat globular berry, two-celled, crowned by the limb of the calyx. [M. T. M.]

DELOSTOMA (including *Codazzia*). A genus of *Bignoniaceae*, remarkable for its double calyx, and flat oblong capsule divided into two cells by a partition placed contrary to the direction of the valves. There are four species, all confined to the Andes of South America, where they range from New Granada to Peru. They are small trees, with simple oblong leaves generally covered with hair, and terminal panicles

bearing fine pink or purple blossoms. The outer calyx is five, the inner three-cleft; the corolla tubular, slightly curved; the stamens four in number; the capsule smooth, with the winged seeds arranged in several rows. One of the handsomest species is *D. integrifolium* (*Codazzia spectosa*), frequent in the Andes of Quindiu. *D. latifolium* is identical with *Culicliamys riparia*, and *D. stenolobium* with *Stenolobium stans*. *Amphilophium* is the only other bigoniaceae genus which has a double calyx. [B. S.]

DELPHINIUM. A genus of *Ranunculaceae*, commonly known by the name of Larkspur. The species are numerous, and widely distributed over the temperate regions of the Northern hemisphere. They are herbaceous plants, with erect branching stems, and finely cut or palmately-divided leaves. The flowers are in loose racemes towards the end of the branches; they have a calyx of five-coloured sepals, the upper one prolonged at its base into a long tapering spur, and four (or two) petals concealed partially within the spur of the calyx. The fruit consists of from one to five many-seeded follicles. The flowers resemble those of some species of *Aconite*, but they have a spurred, not a hooded calyx, and they have not the peculiar hammer-like petals of the *aconite*. Larkspurs partake largely of the acrid properties for which the order is in general so remarkable.

D. Staphisagria, or *Stavesacre*, was used medicinally by the Greeks, and until recently found a place in the British pharmacopœia, though now rarely used. The seeds contain the active principle in greatest abundance, and hence are ordered to be used in the form of ointment to destroy vermin. Delphinia is an extremely acrid bitter white powder prepared from the seeds, and used externally in cases of rheumatism and neuralgia. Numerous species and varieties of this genus are cultivated in gardens. *D. Consolida* is a common European plant; its name was given in reference to its power, real or imaginary, of healing or consolidating wounds. *D. Ajacis*, a common garden plant, occasionally found in a half-wild state on the borders of fields, derives its name from certain markings on the petals, presenting more or less resemblance to the letters A I A I; hence also it has been conjectured to be the 'hyacinth' of the ancients, described as possessing similar markings. Dr. Daubeny, the latest commentator on the plants mentioned in ancient Greek and Latin writers, concludes, 'that the term *hyakinthos* was in general applied to some plant of the lily tribe; but that the poets confounded with this the larkspur, which has upon it the markings alluded to; and that the name hyacinth was given, in the first instance, to the plant which most distinctly exhibited them.'

Some of the cultivated species, such as *D. grandiflorum*, *D. chinensis*, *D. sibiricum*, &c., are called Bee Larkspurs, from the re-

semblance of the petals, which are studded with yellow hairs, to a humble bee whose head is buried in the recesses of the flower. One of the most beautiful species in cultivation is *D. formosum*, with large rich blue flowers; and *D. cardinale* is remarkable for its scarlet flowers. [M. T. M.]

DELTOID. A solid, the transverse section of which has a triangular outline, like the Greek Δ. Also applied to the outline of thin bodies.

DEMATIEL. A natural order of filamentous moulds, separated from the white or brightly-coloured species by the dark threads, which look as if they were smoked or carbonised; and in the more typical species have an investing membrane. Some of our common moulds, as *Cladosporium herbarum*, belong here. [M. J. B.]

DEMERSED. Buried beneath water.

DEMIDOVIA. A genus of *Trilliaceae*, founded on the *Paris incompleta* of Bieberstein. It differs from *Paris* by not having any inner series of perianth segments. The leaves are six to twelve, oblong or oblong-oblancoate, acuminate; the perianth segments green, ovate acuminate, twice as long as the eight to twelve stamens; styles four, longer than the stamens. The only species, *D. polyphylla*, is a native of southern Russia. [J. T. S.]

DENDROBIUM. A well-known genus of epiphytal orchids, comprising more than 200 species, of which upwards of eighty have been cultivated in hothouses for the sake of their beautiful flowers. The great mass comes from India and its Archipelago; a few are found in East Australia and the Pacific Islands; and one in New Zealand. 'The genus varies extremely in the habit of its species, some being little larger than the mosses among which they grow; while others are surpassed in stature by few in the order. Like the *Oncidia* of the New World, there are some species of which the foliage is ancliptous, others having it terete, while in the majority it is in the usual flat condition. A few have no other stem than a wiry creeping rhizome; others have small conical pseudo-bulbs; many form clavate horny stems, leafy only at the summit; but the greater part produce long leafy branches. In the majority the colour of the flowers is some shade of purple; a few are destitute of all colour except green; and a rather considerable group is especially distinguishable by the rich yellow tint of their blossoms.'—*Lindley*. In arrangement, the flowers are either solitary, fascicled, or in racemes. According to Dr. Lindley, all agree in having a two-celled anther with four pollen masses, which have no caudicle or separate stigmatic gland, and are of uniform breadth at either end; the latter character separating them from *Bria*, which bears pear-shaped pollen masses; whilst, from the nearly-related genus *Sobophyllum*, they may be recognised by the sessile and not unguiculate (clawed) lip.

Of cultivated species, with flowers in which purple predominates, we have *D. nobile*, perhaps the most beautiful in the genus. It has erect stems one to two feet high, bearing at intervals two or three-flowered peduncles, the flowers when expanded being two to three inches across. The petals and sepals are faintly rose-coloured at the base, and bright purple towards apex; the lip rolled up so as to be nearly trumpet-shaped, with a recurved border which is greenish-yellow at the edges and purple at the end, while the tube is of a deep blood-red colour. There are a number of fine varieties of this plant cultivated. *D. macranthum*, from Manila, has rich rose-coloured flowers, sometimes five inches across; the ovate lip is margined with a delicate fringe of hairs, and marked at the base on either side with a deep purple blotch. *D. Macarthur*, called in Ceylon Wiasak-mal, meaning rainy-month flower, has slender stems one to two feet long, and three to five-flowered racemes; the flowers of a pale purple, three inches wide. *D. Falcneri*, from Bhutan, is readily recognised by the markedly tumid joints of its slender stems; the beautiful large solitary flowers have pale rose-coloured petals and sepals tipped with dark purple, the lip having a deep purple blotch at the base bordered by a yellow ring. These are all lovely plants. In the yellow-flowered group we have *D. Ambriatum* from Nepal, with racemes of fine yellow flowers from near the apex of the naked stems; a variety of this occurs with a deep red spot at the base of the beautifully fringed lip. *D. densiflorum* has stout stems which end in a tuft of glossy leaves, setting off to great advantage the fine dense clusters of drooping golden-yellow flowers: this is one of the finest in the genus. Mr. Darwin, in his book on orchids, gives an account of the self-fertilisation of *D. chrysanthum*, which belongs to this group. Amongst a host of species with drooping stems, we have *D. Pierardi*, with delicate pale lilac flowers; and the beautiful little *D. Devonianum*, named after the late Duke of Devonshire, the lovely flowers of which have a white ground colour, the sepals and petals tipped with pink, and the heart-shaped frilled lip marked with a pink blotch at the apex, and two yellow spots near the base. No collection should want the *D. Hillii*, of Australia, which is an improvement on the better known *D. speciosum*. Its stout stems bear a number of large glossy green leaves, and a profusion of dense flowered racemes, the creamy-white narrow-petaled flowers of which have a highly agreeable odour. The generic name is derived from the Greek, signifying tree and life, from the plants living on trees. [A. A. B.]

DENDROCHILUM. A genus of orchids found growing on branches or trunks of trees in the Malayan Archipelago. They have short and fleshy pseudo-bulbs, each with a single coriaceous leaf, and their small green, white, or yellowish flowers are arranged in slender, terminal, or lateral

spikes six to eight inches long; the bracts arranged in a two-ranked manner. The anther is two-celled, with four incumbent pollen masses; while the column has two short horns in front, and the lip is entire. About a dozen species are known; of which one is *D. glumaceum*, a very pretty Philippine island plant, cultivated in orchid houses for the sake of its graceful drooping spikes of ivory-white flowers, the leaves resembling those of the lily of the valley; and another is the graceful little *D. filiforme*, in which the flowers are bright yellow. [A. A. B.]

DENDROID. Divided at the top into a number of branches, so as to resemble the head of a tree; only applied to small plants like mosses.

DENDROLOBIUM. A genus of small leguminous trees found in the tropical countries of the eastern hemisphere, but in greatest abundance in India. They only differ from *Desmodium* in their small jointed pods, about an inch in length, being somewhat rounded, and in the disposition of the flowers. The leaves are made up of three oblong or oval leaflets, usually downy or covered underneath with silvery hairs. The flowers, in little axillary fascicles or umbels, are white and inconspicuous. [A. A. B.]

DENDROMECON. A genus of shrubby *Papaveraceæ* found in California, and having two ovate caducous sepals, four petals, numerous stamens with filiform filaments and linear anthers, two short thick sessile stigmas, and a silique-form one-celled two-valved pod, with a marginal placenta and numerous seeds. *Dendromecon*, literally Tree Poppy, is a most appropriate name, the plant having all the aspect and character of the poppy tribe, combined with a woody stem and branches. The species, *D. rigidum*, has lance-shaped glaucous leaves, and yellow flowers resembling those of *Meconopsis cambrica*. [T. M.]

DENDRON. In Greek compounds = a tree.

DENDROPEMON. A genus of *Loranthaceæ*, parasitic shrubs from the Antilles, with small white or purplish flowers in simple racemes, rarely paniculate or corymbose. It differs from *Loranthus* in having the alternate anthers abortive, the style filiform, and the flowers conspicuously bracteated. [J. T. S.]

DENDROPTHOE. A genus of *Loranthaceæ*, natives of Australia, Asia and the Cape of Good Hope, distinguished from *Loranthus* and its near allies by having the petals united into a tube. They are parasitic shrubs, with long green yellowish or purple flowers, the peduncles several flowered, racemose or fasciculate. [J. T. S.]

DENDROSERIS. A few small trees peculiar to the island of Juan Fernandez make up this composite genus, which is nearly allied to the hawk-weeds, though the plants have more the appearance of gigantic sow-

thistles, from which they are, however, easily recognised by their tawny pappus hairs, those of sow-thistles being silvery white. The stems seldom exceed twelve feet in height. The leaves vary much in form and size, some being entire and two or three inches long, while others are a foot or more in length, and pinnatifid. The flower-heads few and large in some, or numerous and small in others, are arranged in terminal panicles, and the numerous florets are either of a white or tawny-yellow colour. The achenes, compressed or triangular with winged angles, are crowned with a pappus of rough unequal hairs.

The most striking species of the genus is *D. macrantha*, whose lower leaves are stalked, oblong, coarsely toothed, and obtuse, while the upper ones are small and entire, and clasp the stem by their base. The flower-heads are more than an inch in diameter. Seven species are enumerated. The name *Rea* is sometimes given to these plants. [A. A. B.]

DENHAMIA. A genus of tropical Australian trees or shrubs of the spindle-tree family, chiefly distinguished by their bony capsules and numerous seeds. Their pale-green stalked leaves are oval or lance-shaped, and have entire or spiny margins. The flowers are small, green, arranged in terminal panicles, and have a five-cleft calyx, five petals, and five stamens, inserted on a sinuate fleshy ring. The fruits are imperfectly three or five-celled bony capsules, the seeds being enveloped in a beautiful red aril. *D. heterophylla* has some of its branches furnished with lance-shaped entire leaves, and others with oval leaves having spiny teeth like those of the holly. Three species are known. [A. A. B.]

DENISONIA. The only species of this genus, which belongs to the vervain family, is *D. ternifolia*, a North Australian bush, with straight stems clad with glandular hairs, and a great abundance of mint-like leaves, which are sessile, oval and sharply toothed. The little rose-coloured flowers are single in the axils of the leaves and shortly stalked, the corollas being two-lipped. The genus bears the name of Sir W. T. Denison, governor of New South Wales. [A. A. B.]

DENNSTÆDTIA. A genus of herbaceous ferns of the group *Dicksonia*, distinguished from *Dicksonia* itself, chiefly by having a cup-shaped instead of a two-valved indusium, this being reflexed so as to stand at a right angle to the plane of the frond. They have creeping rhizomes, and for the most part large herbaceous bipinnate or decomposed fronds. *D. punctilobula*, *D. cicutaria*, *D. apifolia*, &c., are familiar examples. The same group has been sometimes called *Sitobolium*, or by error *Sitobolium*. [T. M.]

DENS. A toothing; adj. **DENTATE.** Having sharp teeth with concave edges. When these teeth are themselves toothed, the part is *duplicato-dentate*; not *bidentate*, which means two-toothed.

DENTARIA. A genus of herbaceous perennials belonging to the *Crucifera*, and closely allied to *Cardamine*, from which it differs in having broad seed-stalks, and in its creeping roots being singularly toothed; hence the systematic name, and the English one of Toothwort. There are many species, which inhabit mostly the temperate regions of Europe and America, and are ornamental plants with terminal corymbs of light purple, sometimes white or yellow flowers. The roots of *D. diphylla* have a pungent mustard-like taste, and are used by the natives of the mountains of North America, from Pennsylvania to Canada, instead of mustard, under the name of Pepperwort. The genus is represented in England by *D. bulbifera*, a slender plant about eighteen inches high with pinnate leaves and a few pretty light purple flowers. In the axil of every stem-leaf is a small bulb of a purple hue, by which the plant, which rarely perfects seeds, is propagated. It is confined to the woods of Kent, Surrey, Middlesex, Herts, and Bucks, creeping extensively by means of its curiously toothed white roots, and forming dense patches. The root-leaves are all pinnate, those of the stem pinnatifid, the upper ones nearly simple. [C. A. J.]

DENTATO-CRENATE. The same as *Crenato-dentate*.

DENTATO-LACINIATE. When toothings are irregularly extended into long points.

DENTATO-SERRATE. When toothings are taper-pointed and directed forwards, like serratures.

DENT DE CHIEN. (Fr.) *Erythronium Dens Canis*.

DENT DE LION. (Fr.) *Taraxacum Dens Leonis*.

DENTELAIRE. (Fr.) *Plumbago europæa*.

DENTELLA. Little creeping annuals, natives of marshy places in India and the Indian Islands, constituting a genus of *Cinchonaceæ*. The flowers are small, white, on axillary flower-stalks, with a roundish hairy calyx-tube united to the ovary; the limb of the calyx is five-cleft; the corolla is funnel-shaped with a dilated throat, its limb five-cleft, each of the petals having on either side a small acute tooth-like process; the stamens are concealed within the corolla; and the fruit is a two-celled berry, surmounted by the lobes of the calyx. [M. T. M.]

DENTICULATE. Having very fine marginal teeth.

DENUATE. When a surface which has once been hairy, downy, &c., becomes naked.

DEODAR. *Abies*, or *Cedrus*, *Deodora*.

DEOPERCULATE. A term used in describing mosses, when the operculum will

not separate spontaneously from the spore-cases.

DEPAUPERATE. When some part is less perfectly developed than is usual in plants of the same family; thus, when the lower scales of the head of a cyperaceous plant produce no flowers, such scales are said to be depauperated, or starved.

DEPPEA. The name of a Mexican shrub of the cinchona family, the wood and bark of which are of a red colour. The flowers are yellow arranged in cymes; the limb of the calyx has four small teeth; the corolla is wheel-shaped; the filaments are very short, nevertheless, the anthers project from the corolla; the fruit is a capsule bursting by two valves. [M. T. M.]

DERMA. In Greek compounds = the bark or rind.

DERMIS. The skin of a plant.

DESCENDING. Having a direction gradually downwards.

DESERT ROD. *Bremostachys*.

DES'ESPOIR DES PEINTRES. (Fr.) *Saxifraga umbrosa*.

DESFONTAINEA. The name of a genus of Peruvian shrubs of doubtful affinity, but somewhat allied to *Solanaceae* and *Gentianaceae*. The leaves are thick with spiny margins like those of a holly; the flowers are axillary, stalked, five-parted; the corolla tubular, more than twice the length of the calyx, the lobes of its limb imbricated before expansion; stamens five, concealed within and attached to the corolla; anthers opening longitudinally; ovary one-celled with five parietal placenta; style thread-like. The fruit is berry-like with numerous seeds. *D. spinosa*, with its deep green spiny leaves, and splendid scarlet flowers, is a most ornamental greenhouse plant. [M. T. M.]

DESICCATIO. In very hot countries, and in dry seasons in those which have a more temperate climate, not only is the duration of annual plants cut short, but many perennials fall a sacrifice. Trees which send their roots down deeply into the soil may stand the trial better, while those with more superficial roots suffer; but even in climates like our own, two years of annual drought like 1858 and 1859 will cause the death of many a deep-rooting tree, where the vitality was previously low. Where plants have suffered from want of water, a too liberal supply at once is apt to bring mischief; and in young trees which have been long kept out of the ground, the application of damp moss to the bark in a shady place is better than immediate planting. [M. J. B.]

DESMANTHUS. A genus of tropical and subtropical Indian and American herbs of the leguminous family. The stems seldom exceed three feet in height, and are furnished with twice-pinnate leaves composed of numerous small leaflets like those of the sensitive plant; the

leaf-stalks are furnished with one or more glands, and at their base are two small setaceous stipules. The small green or white flowers are numerous, and borne in round stalked heads which arise from the axils of the leaves, and consist of a bell-shaped calyx, five petals, and five or ten stamens, though sometimes flowers are found in which there are neither stamens nor pistil. The pods are flat, smooth, membranaceous, several-seeded, and about an inch in length; when ripe they split into two portions, while in *Mimosa*, to which this genus is nearly allied, they break up into as many portions as there are seeds. The little brown polished seeds of *D. virgatus* are in Jamaica strung like beads, and used for making bracelets, work bags, &c. *D. brachylobus* is a Texan plant, sometimes known as *Darlingtonia*; but that name is now given to the Californian pitcher plant. [A. A. B.]

DESMIDIACEÆ. A natural order of green-spored *Algae*, remarkable for their mode of reproduction, and for the eccentric and varied forms assumed by many of the species. The more typical species of the group, as the name implies, consist of a chain of connected joints, increasing by the continued addition of two new half-joints in the centre, so that the two extreme members of the chain are the oldest and the two in the centre the youngest. In the majority of instances, however, the disarticulation takes place on the formation of the first new half-joints, in such a manner that the two new individuals consist of half the old plant connected with half of the new, a mode of increase which obtains also in *Diatomaceæ*. Fructification takes place, though rarely, by the conjugation of two individuals by means of lateral tubes or simple contact, as in *Conjugata*, the spore affecting a variety of interesting forms, and being often strongly spinulose, the spines being occasionally complicated in structure. The new individual is produced from this by the formation of a vertical partition in the centre, and the subsequent formation of two new half-joints, so that the proper form of the species is not attained till the third generation, if so soon.

Desmidiaceæ differ from *Diatomaceæ* in their green colour, and the absence of silic. The general appearance of the plants, moreover, is totally different. They occur in pools, running streams, &c., and appear to be more frequent in Europe than elsewhere; though North America produces many species, and *Closteria* occur in the Himalayan collections. We are not aware that they are ever attached at any period of growth. In one or two instances the endochrome is spiral or not equally diffused. In general the joints are deeply constricted, but this is not always the case, and in *Closterium*, in which the plant consists of two elongated curved cones applied to each other by thin bases, there is not the slightest constriction. In this genus the joints are often as distinctly

grooved or striate as in *Diatomeae*. Besides the increase of the species by means of cell division and spores, minute zoospores with lash-like appendages have been discovered in *Pediastrum*, a genus which belongs to a small group in which the cells remain united so as to form a little flat frond. In *Oosterium* there is, moreover, an organ at the extremity of the frond consisting of a cell inclosing active molecules. This is probably the male apparatus. The armed spores are sometimes found in a fossil state enclosed in films and other transparent minerals. Like *Diatomeae*, Ehrenberg has attempted to refer them to the animal kingdom, but all good authorities seem now convinced that the proper place is amongst the *Algae*. Mr. Ralfs' beautiful work on *Desmidiaceae* may be consulted by those who wish for fuller details. It does not appear that any individual of the order can be applied to any economical purpose. [M. J. B.]

DESMIOSPERMEZ. One of the main divisions of rose-spored *Algae*, in which the spores are not scattered or simple, but form distinct chains like little necklaces. These are attached to a placenta, which may either spring from the walls or their base, or may be strictly central. Far the larger portion of the more compound species belong to this section. [M. J. B.]

DESMOBRYA. A term proposed to designate that group of ferns in which the fronds are produced terminally, that is, from the apex of the caudex, and are adherent to it: see *ENMOBRYA*. [T. M.]

DESMOCLADUS. An Australian genus of *Restiaceae*, a sedge-like plant, with the branches of the stem rigid, the barren ones awl-shaped, the flowering ones with a single ovate few-flowered spike. [J. T. S.]

DESMODIUM. An extensive genus of herbs, shrubs, or small trees, of the pea family, found more or less in all extra-European countries, but chiefly confined to the tropics. They are easily recognised by the form of their pods, which are flat, straight or curved, with two or many joints, each jointed portion enclosing one seed; in form, size, and thickness, they are much like the blade of a pen-knife, but the under edge is always notched, and occasionally the upper also. The leaves are commonly made up of three leaflets, but sometimes they are simple and lance-shaped or linear. The flowers are white, pink, purple, or blue, and usually disposed in terminal or leaf-opposed racemes or panicles; they have a bell-shaped four or five-toothed calyx, five narrow petals, and ten stamens, all inserted into a tube or one of them free. The most interesting, although by no means the most beautiful, plant in the genus is *D. gyrans*, the Moving plant, a native of India, and often found in cultivation in plant stoves; its leaves are made up of three oblong or lance-shaped smooth leaflets, the two lateral ones much the smallest. The flowers are violet, and arranged in terminal racemes. The singu-

lar rotatory motion of the leaflets of this plant renders it an object of great interest. In the trembling poplar, the leaf-stalk is so constructed that the least breath of wind causes the leaf to whirl; in the sensitive plant when the leaves are touched,



Desmodium gyrans.

they are perceptibly affected; but in this the motion in the leaves goes on if the air be quite still, and they are scarcely influenced by mechanical irritation. The leaflets move in nearly all conceivable ways, but do not fold on themselves; two of them may be at rest and the other revolving, or all three may be moving together. Sometimes one leaf or two on the plant only are affected, and at others the movement is nearly simultaneous in all the leaves. More commonly the lateral leaflets are seen to move up or down, either steadily or by jerks. The movements are most evident if the plant be in a close hothouse with a strong sun shining. It is said that by arresting the vital action going on in the leaflets, by giving them a coating of gum, and thus preventing transpiration and respiration, the movements are stopped, but that they recommence when the gum is removed by water. Upwards of 130 species are known, chiefly from the tropics of America, Africa, and India. [A. A. B.]

DESMONCUS. A genus of palms inhabiting the forests of tropical America. They have long slender flexible stems, and pinnate leaves with the leaf-stalks prolonged into whip-like tails, resembling in general appearance the culms of the Eastern Hemisphere, and like them also, they climb over and amongst the branches of trees, and support themselves by means of the hooked or recurved spines attached to all parts of their leaf-stalks. The flower spikes are simply branched, and have male flowers upon the upper, and females upon the lower part of the branches. The males have a thin three-cornered calyx, a corolla

of three petals of thicker substance than the calyx, and six stamens with narrow erect anthers; and the females have a cup-shaped calyx with the rim entire or divided into three small teeth, a bell-shaped corolla with the mouth drawn in, and an ovary with one perfect and two imperfect cells, surmounted by a short style and three sharp stigmas. The fruit is small and nearly round.

D. macracanthos, the Jacitara of the Amazon and Rio Negro, grows fifty or sixty feet long, with a stem not thicker than an ordinary cane, and either climbs up trees or trails among the underwood, where it offers an annoying obstruction to persons wearing clothes, the sharp curved spines upon its leaves taking such firm hold of the garments that great care and patience are required to detach them. The Indians use strips of the stem for plaiting the tipitis or strainers used for squeezing out the poisonous juice of the mandioc root. [A. S.]

DESMOPODIUM. A subgroup of *Podium*.

DESMOS. In Greek compounds=anything bound to another or brought into close contact with it.

DESMOSTACHYS. A genus of *Ucainaceae*, founded on a climbing shrub from Madagascar, with alternate, ovate or lanceolate smooth leathery stalked leaves, and several slender spicate racemes growing out of each axil. The flowers are very small, bracteated, with a five-toothed calyx, five linear oblong thin petals, and five stamens. [J. T. S.]

DESVAXIACEÆ. (*Centrolepidæ*, *Bristlewort*.) A natural order of monocotyledonous plants with incomplete flowers, included in Lindley's glumal alliance. They are small tufted herbs with bristly leaves, and flowers enclosed in a spathe or sheath. Glumes one or two; pales either none or represented by one or two delicate scales; stamen one, rarely two; ovaries one to eighteen, attached to a common axis, distinct or united partially, one-celled, with a single stigma to each; ovules single orthotropical. Fruit consisting of one-seeded carpels, opening lengthwise; seed pendulous; embryo having a lens-like form. They are found in the South Sea Islands and in New Holland. There are about fifteen species described, and four genera, of which *Centrolepis* and *Aphelia* are examples. [J. H. B.]

DETARIUM. A genus of West African *Leguminosæ*, of which only one species is known. The four-lobed calyx, absence of petals, and rounded succulent fruit distinguish it from most genera; and from *Dialium* to which it is most nearly allied, it is readily recognised by having ten stamens, five of which are longer than the others. *D. senegalense* is a tree of twenty to thirty feet high, with pinnate leaves, having oval entire leaflets, and small white fragrant flowers

arranged in axillary panicles shorter than the leaves. The fruits are between oval and orbicular, slightly compressed, and about the size of an apricot. Underneath the thin outer covering there is a quantity of green farinaceous edible pulp intermixed with stringy fibres that proceed from the inner and bony covering which encloses the single seed. According to M. Richard there are two varieties of this fruit, one bitter, the other sweet. The latter is sold in the markets and prized by the negroes as well as eagerly sought after by monkeys and other animals. The fruits of both are so similar that the negroes often mistake the one for the other, and do not find out their error until after having tasted them. The bitter variety they regard as a violent poison. The wood of the tree is hard and resembles mahogany in colour. [A. A. B.]

DEUTZIA. A genus of *Philadelphaceæ*, consisting of shrubs, whose leaves are rough with star-shaped hairs. The flowers are handsome, arranged in panicles, with a bell-shaped calyx, five petals inserted beneath a disc which surrounds the top of the ovary, ten stamens inserted with the petals, the five between the petals longer than the others, the filaments flat, awl-shaped at the top or three-lobed, the middle lobe bearing the anther; ovary inferior, three to four-celled; styles three or four, thread-shaped, erect; stigmas club-shaped; capsule leathery, surmounted by the disc, bursting in the middle by three or four slits. *D. scabra* is a hardy shrub, whose clusters of white flowers give it a very ornamental character. Its leaves are used by polishers in Japan on account of their rigid star-shaped hairs; these latter, too, and especially those of *D. staminea*, are sought after by microscopists, as affording objects of great beauty. *D. gracilis* is a particularly elegant early-flowering green-house shrub. [M. T. M.]

DEVEREA. The generic name of plants belonging to the umbelliferous order, characterised by the fruit being round or ovate and covered with scales or hairs. The species are natives of Africa, usually of small size and of a bare rigid aspect, broom-like; hence named *Deverra*, after the 'goddess of brooms.' In the earlier stages the plants usually have small linear leaves; at more advanced periods of growth few of these remain, hence the peculiar habit of the species. [G. D.]

DEVILLEA. A genus of *Podostemaceæ*, comprising Brazilian herbaceous species, with hermaphrodite flowers unprotected by a bract; one stamen, whose anther opens inwardly; small globular stigmas; and smooth fruit, dividing by two unequal-sized valves. *D. flagelliformis* has in its leaves somewhat the appearance of *Ranunculus aquatilis*. [M. T. M.]

DEVIL IN A BUSH. *Nigella*.

DEVIL'S APRON. The American name for the very broad form of *Laminaria sac-*

charta. Dr. Harvey says of the United States plant, 'numerous varieties, which perhaps demand future study, occur on the American coast. *L. Lamourouzi*, which has been sent me from Boston Harbour and from Newfoundland, looks almost like a species with its thick broadly-elliptical scarcely waved frond and its slightly-branching root.' The species, in fact, varies from one foot to six or ten feet in length, and from one to twelve inches in breadth. [M. J. B.]

DEVIL'S BIT. *Scabiosa succisa*; also *Chamaelirium luteum*, sometimes called *Helonias dioica*.

DEVIL'S GUTS. A vulgar name for the species of *Cuscuta* or Dodder.

DEVIL'S LEAF. *Urtica urentissima*.

DEVIL'S MILK. *Euphorbia Peplus*.

DEVIL TREE. *Alstonia scholaris*.

DEWAZ. The Caspian name for the grape Vine.

DEWBERRY. *Rubus cæsius*, and *R. canadensis*.

DEWEYA. A genus of the umbelliferous order, having five sharp tooth-like projections on the top of the fruit; the latter is oblong and oval, each half with five elevated ribs. The only species is perennial, herbaceous, a native of North America, with the leaves simply divided into pinnæ: the divisions large, ovate or heart-shaped, with numerous sharp teeth; the flowers pale-yellow. [G. D.]

DHAEE. The flowers of *Grislea tomentosa*, used in India, mixed with *Morinda*, for dyeing.

DHAK TREE. *Butea frondosa*, which yields *Butea kino*.

DHAL or DHOL. *Cajanus indicus*.

DHAMNOO. The timber of *Grewia elastica*.

DHAROOS. A Bengalee name for *Abelmoschus esculentus*.

DHENROOS. A Bengalee name for the fibre of *Abelmoschus esculentus*.

DHOONA. The balsamic resin of *Shorea robusta*.

DHOONA-TIL. The Cinghalese name for the balsam obtained from *Dipterocarpus*.

DHOOP. *Vateria indica*.

DHOORIA. An Indian name for worm-wood.

DHURRA DOURAH or DURRA. An Indian name for the grain-bearing *Sorghum vulgare*.

DI. In Greek compounds = two.

DIACHYMA. The green cellular matter of leaves.

DIACALPE. A beautiful eastern fern allied, on the one hand, to *Peranema* (the

Sphaeropteris of some authors), from which it is distinguished by having the globose involucre, which enclose the spore-cases, sessile instead of being stalked; and on the other to *Woodia*, from which it may be known by the hard texture of the Indus, and by their irregular mode of bursting. *D. deparioides* is a herbaceous species, with finely divided decompound fronds, and is found in Java and some parts of India. Two other species have been described, one from Java, the other from Madagascar, but little is known respecting them. [T. M.]

DIADELPHOUS. Consisting of two parcels or fraternities of stamens.

DIADENIUM *micranthum* is a stemless orchid about a span high, found growing on trees in Peru. The leaves are oblong-lanceolate, seldom more than two or three in number, and the small, rose-coloured flowers are arranged in a loose panicle. The anther is two-celled with two waxy pollen masses attached to the end of the caudicle which is dilated above, and furnished with two glands at the apex, whence the generic name. *Comparrhia* is the most nearly related genus, but that has two instead of one caudicle to the pollen masses. [A. A. B.]

DIAGNOSIS. The short character or description by which one plant is distinguished from another.

DIALIUM. A genus of leguminous trees found in tropical India, Africa, and America, and numbering about seven species. The chief distinguishing features of the genus are found in the flowers having but two stamens (most leguminous plants have ten), and in the fruits being round or slightly compressed, and containing an edible pulp surrounding the seeds. All have unequally pinnate leaves, and terminal panicles of small white or rose-coloured flowers. These have a five-parted calyx, and are usually destitute of petals; some flowers, however, are found with a solitary petal. *D. guineense*, the Velvet Tamarind of Sierra Leone, is a tree of about twenty feet high with slender branches, and pinnate leaves of five to seven smooth oval entire leaflets; the flowers are pale rose-colour; and the pod, about the size and form of a filbert, is covered with a beautiful black velvet down, while the farinaceous pulp which surrounds the seeds has an agreeable acid taste, and is commonly eaten. The fruits of *D. ovoides*, a Ceylon plant, are sold in the bazaars; they have also an agreeable acid flavour. The wood of this plant is said to be strong, durable, and suitable for ornamental furniture. *D. floribundum*, a Brazilian species, has round smooth fruits about the size of a marble, containing one or two seeds surrounded with a pulp which has a taste and smell like that of currants. The Tamarind Plum of the East Indies, *D. indum*, has a delicious pulp resembling that of the tamarind, but not quite so acid. [A. A. B.]

DIALYPETALÆ. Plants with *distinct* petals, in contradistinction to *Gamopetalæ*, which have the petals united into a single corolla. The term is a modern one proposed to be substituted for *Polyptetalæ*, which is more generally used in the same sense, although it signifies literally plants with many petals.

DIALYPETALOUS. The same as *Polyptetalous*.

DIALYPHYLLOUS. The same as *Polysepalous*.

DIAMORPHA. The name of a small crassulaceous North American herbaceous plant, with whorled branches, alternate cylindrical leaves, and small white flowers with four-parted whorls. The ovary consists of four carpels adherent at the base, but divergent at the top; the fruit is a four-celled capsule. [M. T. M.]

DIANELLA. A genus of *Liliacæ*, containing herbs from Australia and Tropical Asia, distinguished by their fruit being berry-like, their stem leafy, the flowers perfect, the stamens inserted at the very bottom of the six-parted perianth, and the filaments incurved, thickened at the apex. They have fibrous roots, grass-like leaves, and paniculate blue flowers on drooping pedicels. The berries are blue, many-seeded. [J. T. S.]

DIANTHUS. The Pink. An extensive genus of *Caryophyllacæ*, distinguished by having two styles, and a cylindrical calyx tube bracteated at the base. Most of the species are natives of Europe, temperate Asia, and the North of Africa. The leaves are often rigid, glaucous and grass-like; the flowers crimson or pink in more or less regular dichotomous cymes, sometimes reduced to fascicles or compact heads; in these latter the central flowers have no bracts at the base of the calyx tube, but in this case the lateral flowers, and in by far the greater number of species, all the flowers have two or more close-fitting scales or bracts, often like a small outer calyx. In Britain the following occur: *D. prolifer* and *D. Armeria*, both annuals with clustered flowers; and *D. plumarius*, or Pheasant's Eye; *D. Caryophyllus*, or Clove Pink; *D. carsius* and *D. deltoides*, all which are perennials with separate or solitary flowers. *D. Caryophyllus* is the original of the garden Carnations. *D. barbatus*, which has fasciculate corymbose flowers and broad leaves, is often seen in cultivation under the name of Sweet William. [J. T. S.]

DIAPENSACEÆ (Diapensiade.) A small order of corollifloral dicotyledons, established by Lindley in 1830, and by him referred to his gottlandian alliance; and recently reconstructed by Dr. Asa Gray. Perennial herbs, sometimes suffrutescent, with alternate leaves, and pentamerous gamopetalous flowers. Calyx persistent; pistivation quinacinal; stamens adnate to and alternating with the segments of the corolla, the fila-

ments often dilated; ovary 3 (rarely 4) locular, style one, stigma naked subtrilobate; ovules numerous indefinite, placentas axillary; capsule loculicidal; albumen fleshy; cotyledons very short. As thus defined, the order includes *GALAX* and *SMORZIA*; which see, besides *Pycnanthera* and *Diapensia*, as when first established. The plants inhabit the northern parts of Europe and North America. [J. Br.]

DIAPENSIA. Two beautiful little Alpine plants are the only representatives of this genus, which gives the name to its family. The best known is *D. lapponica*, originally discovered in Lapland, but since found in many parts of Northern Europe, Asia, and America, where it has been gathered as far south as the White Mountains in New Hampshire: it is also found in Japan. *D. himalaica* was found by Dr. Hooker in Sikkin growing on rocks and in moist places in the sub-Alpine valleys at an elevation of 8,000 to 10,000 feet. Both are evergreen, and grow in dense tufts scarcely rising more than an inch above the ground. The stems are clad with closely imbricated spatulate, and entire leaves, which in *D. lapponica* are nearly half an inch long, and in *D. himalaica* much smaller; in the former the stems are terminated by a peduncle about an inch long bearing a solitary white bell-shaped flower about half an inch across, surrounded by a five-leaved calyx; the border of the corolla has five rounded flat lobes, and alternating with these lobes are five stamens which have their filaments dilated upwards. The Himalayan species has much the habit of the procumbent *Azalea* of the Scotch mountains, and its purple flowers with short stalks call to mind those of the opposite-leaved saxifrage. The flower-stalks continue growing after the flower withers, and when the capsule is ripe are frequently more than two inches long. The allied genus *Pycnanthera* is distinguished by having awned points to the anther-cells, while in *Diapensia* the anthers are awnless. [A. A. B.]

DIAPHANOUS. Transparent, or nearly so.

DIAPHYSIS. A præternatural extension of the centre of the flower, or of an inflorescence.

DIARRHENA. A genus of grasses belonging to the tribe *Festucæ*, distinguished by the panicles of inflorescence being simple and contracted; the spikelets roundish, two to five-flowered; glumes two, unequal, acute, mucronate; stamens two or three; styles two, feathery. Only one species is described, *D. americana*, which has creeping stoloniferous roots, and erect simple stems, three to five feet high. [D. M.]

DIASCIA. A genus of *Scrophulariacæ*, consisting of South African herbs, mostly annuals, very nearly allied to *Nemesia* and *Hemimeris*. They differ from the former in the corolla, which is flattened or cou-

cave, with two spurs or pouches at the base instead of one, and in the capsule, which is not flat; while from *Hemimeris* they are chiefly distinguished by their four stamens, all usually bearing anthers, the filaments of the lower ones curved round at the base so as to embrace the upper ones. There are about twenty species known.

DIASPASIS. A genus of *Goodeniaceae*, containing a single species, *D. filifolia*, a native of the south-west coast of Australia. This has an adnate calyx with five short teeth, a nearly regular salver-shaped rose-coloured corolla with a five-parted limb, and free included stamens. The peduncles are axillary and single-flowered; the leaves alternate and nearly terete. [R. H.]

DIATEMELLA. A genus of *Gesneraceae*, containing a single species from Costa Rica. It is a slender hairy herbaceous plant, with ovate serrate and petiolate leaves, and flowers in axillary racemes. The corolla is slightly oblique and ringent, and the limb bilabiate, with the upper lip two-lobed, and the lower one trifid. The four stamens are included, and with the rudimentary fifth are inserted on the base of the corolla. The capsular fruit is membranaceous. [W. C.]

DIATEMMA. A genus of *Gesneraceae*, containing thirteen species natives of South America. They are perennial stoloniferous scaly herbs with opposite leaves, and small flowers in axillary corymbs. The calyx is adherent to the base of the ovary; the corolla is oblique, erect in the calyx, with a tube subcylindrical or increasing upwards, and a five-lobed spreading limb; the four stamens are included, the fifth rudimentary; the anthers are small and coherent. The ovary is surrounded by five elongate glands, and surmounted by a bilamellate stigma. [W. C.]

DIATOMACEÆ. A very distinct natural order of green-spored *Algae*, remarkable for the enormous quantity of silicx contained in their frond, and for their yellow-brown colour. The mode of increase so closely resembles that of *Desmidiaceæ*, that in this respect, we refer for information to that article. Their claims to a place amongst animals was even more strongly contested than in that order, but Mr. Ralfs' discovery of the formation of spores by conjugation in several genera has effectually put an end to controversy. The species are often attached by a slender peduncle when young, and in some genera this is repeatedly dichotomous. The joints often remain connected for a long time, separating in some instances alternately above and below so as to form a curious chain. When connected they form various shaped fronds, as linear, flabelliform, circular, &c.; but in a multitude of instances disarticulation takes place with the formation of each new individual. The separate joints which have received the name of frustules exhibit frequently a totally different outline when seen dorsally and laterally, and they are almost always adorned with del-

cate streaks and other markings. In *Coccinodiscus* they form a disk with circular apertures like a colander. In many cases the frustules have distinct external apertures in the siliceous coat, without which it is not easy to see how there could have been a proper communication with the surrounding medium from which they must derive their nourishment. In consequence of the large proportion of silicx which they contain, the frustules are capable of retaining their form after all vegetable constituents have fled, and thus they are admirably adapted for preservation in a fossil state. Vast beds accordingly occur, many feet in thickness, consisting entirely of effete frustules, known under the name of Tripoli, and affording an admirable material for polishing, for which they are used extensively. 'The phonolite stones of the Rhine,' says Dr. Hooker, 'and the Tripoli stones, contain species identical with what are now contributing to form a sedimentary deposit, and perhaps at some future period a bed of rock extending in one continuous stratum for 400 measured miles. I allude to the shores of the Victoria barrier, along whose coasts the soundings examined were invariably charged with diatomaceous remains constituting a bank which stretches 200 miles north from the base of the Victoria barrier, while the average depth of water above it is 300 fathoms or 1800 feet. Vast quantities again occur in bed under the guise of a white powder, which is called mountain meal, and is actually mixed with flour in some parts of Sweden, though it is perfectly inert, and can serve merely to increase the bulk of the food, a circumstance of some importance where it is scarce.* The walls of the frustules are so thin, and the little cells of silicx so light, that they are often wafted to great distances by the trade and other winds, so that species of remote regions may occasionally occur in a dead state in countries where they could not maintain their existence. *Diatomaceæ* form a large portion of the food of some of the lower mollusks, which in turn are preyed on by sea birds; and as the shells are capable of resisting digestion, they are found, frequently in great quantities, in the beds of manure which are collected for agricultural purposes under the name of guano. Many unique species have been obtained by travellers from the stomachs of fish, which sometimes afford an abundant harvest for the microscope. *Diatomaceæ* occur in all parts of the world, and abound amongst the ice and in the deep sea of polar regions. They probably are the plants above all others capable of enduring extreme degrees of cold without annihilation; while, on the contrary, several occur in springs of high temperature. The striae on the walls

* Experiments in cattle-feeding show that the relative quantity of nutritious matter in food, independent of the bulk, is not the only point worthy of observation. The stomach must be properly filled, or, as it is termed in French, *lesté*, or the due effect of the nutriment will not be obtained.

are often so regular that the frustules form admirable tests for ascertaining the comparative merit of microscopes.

Though *Diatomaceæ* are for the most part free or only attached for a time, there are a few genera in which an enormous quantity of mucous is thrown out by the frustules, which accordingly, as in *Schizone-ma*, *Dickiea*, &c., form variously shaped filiform or alveolar fronds. In *Cymbellea*, a suborder, the quantity of siliceous is comparatively so small that the plants are more easily destructible than in the other sections. The peculiar motions in the genus *Bacillaria* have been noticed above. In many other genera motion has been observed, but it is now well known that even active motion is not incompatible with the nature of vegetables. For full information we refer to Mr. Smith's beautiful work on *Diatomaceæ*. [M. J. B.]

DIBLEMMA. The name of a Philippine Island fern, in which the sort are of two kinds: the first linear continuous, seated on a submarginal receptacle; the second roundish or oblong, and irregularly scattered. *D. samarensis* has simple fronds and uniformly reticulated venation, short free venulets being included in the unequal areoles. [T. M.]

DICALYX. The name given by Loureiro to a few Asiatic bushes which were described as belonging to the tea family. Modern authors have shown, however, that they are genuine species of *SYMPLOCOS*: which see. [A. A. B.]

DICELLA. A genus of Brazilian climbing shrubs belonging to the *Malpighiaceæ*. The calyx has five segments each provided with two glands at its base; the petals are stalked, unequal in size, and downy on the outside; the stamens are ten, united below into a tube, the anthers hairy; the ovary is two-celled, surmounted by two hook-like styles. Drupe woody, one-celled, one-seeded. [M. T. M.]

DICENTRA. A genus of *Fumariaceæ*, the *Dicentra* of De Candolle, afterwards changed to *Dicentra*. They are known by the two outer petals being spurred or bulging at the base, the seeds crested, and the capsule with two dry valves. The species are natives of the Northern Hemisphere, and are generally stemless herbs with ternately compound leaves, and succulent stems terminating in a raceme of large nodding flowers, which are white, rose-coloured, or purplish. The section *Eucapnos* has the outer petals merely bulging at the base, and the racemes compressed; while *Cucullaria* has the outer petals produced backwards into two long spurs at the base, and its racemes are simple. The two most common American species, which belong to the second group, have white flowers. *D. Cucullaria* is known in the United States as Dutchman's Breches, from the shape of the spurred flower, and *D. canadensis*, which is fragrant, as Squirrel Corn. A stemless species from Virginia and North Carolina, with rose-coloured flowers, *D.*

formosa, is often cultivated in gardens; but the best known and most beautiful is *D. spectabilis*, from Northern China, which has a leafy stem, and flowers nearly an inch long, of a beautiful rose colour, with the narrow constricted inner petals white; the leaves are like those of the Mountain peony in miniature. [J. T. S.]

DICERANDRA. The name of a genus belonging to the labiate order, chiefly distinguished from its congeners by the presence of two straight and pointed appendages on the upper part of each stamen, hence the name, derived from Greek words which together signify 'two-horned stamens.' *D. carolinensis* is a small shrub, a native of the United States, having erect stems and narrow entire leaves. [G. D.]

DICEROS. A name successively given by different authors to species of *Artisanema*, *Limnophila*, and *Fandellia*.

DICILEA. A genus of orchids found growing on tree stems in the West Indies and the adjoining mainland. They are small tufted plants having short erect or creeping stems, thickly clad with small ovate-oblong or linear leaves arranged in a two-ranked manner, and solitary inconspicuous axillary greenish flowers. About a dozen species are known. [A. A. B.]

DICHÆTA. A genus of small annual Californian composite herbs, of which two species are known. They seldom exceed six inches in height, and are found on the margins of pools or in wet places. The stems and leaves are covered when young with loose white wool. The lower leaves are generally pinnatifid with linear segments, and the upper entire; and the yellow flower-heads are single on the ends of the stems. The genus is nearly allied to *Burrielia*, but differs in the pappus being composed of from four to eight oblong-obtuse scales, with generally two which are awl-shaped and awned. [A. A. B.]

DICHASIMUM. A name once given to an Indian fern which proves to be the same as the English *Lastrea Filix-mas palacæa*.

DICHERANTHUS. A genus of *Illecebraceæ* allied to *Pteranthus*. Small shrubs from the Canary Islands, with opposite or verticillate fleshy linear-cylindrical leaves, dilated and clasping at the base; and flowers in small dense compound corymbose cymes at the apex of the branches; calyx segments mucronate, hooked when in fruit; corolla none. [J. T. S.]

DICHILIS. A genus of slender erect or prostrate South African leguminous herbs, nearly related to *Argyrolobium*, but differing in the keeled petal being rather longer than the vexillum, and in the pods being swollen at intervals (torulose), not flat, and clad with silky hairs. The stalked leaves are made up of three narrow leaflets. The little yellow flowers are either solitary or racemed in the axils of the leaves, their calyx distinctly two-lipped, and the pod is smooth, narrow, and

inch or more in length. Three species are known. [A. A. B.]

DICHLAMYDEOUS. Having both calyx and corolla.

DICHOGAMOUS. When the florets of an inflorescence are of two separate sexes.

DICHONDRA. A genus of *Convolvulaceae* containing two species, one a native of the tropical and sub-tropical regions both of the Old and the New Worlds, the other found in tropical America. They are prostrate herbs with small flowers. The calyx five-parted; the corolla campanulate and deeply five-lobed; the ovary consisting of two distinct carpels with one ovule in each of the two cells. The two styles are distinct from the base, with thickened stigmas. [W. C.]

DICHORISANDRA. A genus of *Commelynaceae* with the habit of *Tradescantia*, but with the filaments neither hairy nor dilated at the apex. They are Brazilian herbs, with lanceolate acuminate leaves, and racemose flowers, either terminal or produced from the base of the stem. [J. T. S.]

DICHOSEMA. There is a group of small leguminous West Australian bushes in which the stamens are ten in number and quite free, and the pods have their margins rolled inwards, so that they are imperfect or altogether two-celled, and a cross section of them would be somewhat like the figure 8. To that group *Dichosma* belongs. It differs from the others in having a very broad vexillum which is bilobed at the apex, and much longer than the wings; these in their turn being a little longer than the keel. There are about half a dozen species, all of them little spiny bushes seldom more than two feet high. The slender stems are clad with minute linear or oblong leaves generally arranged in parcels of three, and accompanied by slender spines which often exceed them in length. The flowers are small, yellow, or purple, solitary in the leaf-axils or arranged in short racemes. [A. A. B.]

DICHOTOMIA (adj. **DICHOTOMOUS**). Having the divisions always in pairs; a term equally applied to branches, or veins, or forks.

DICHROCEPHALA. A genus of Asiatic, African, and Australian *Compositae*, which differs from its near allies chiefly in the convex receptacle of the flower-heads. They are branching herbs, with oval coarsely toothed or lyrate sometimes pinnatifid leaves; the branches being terminated by panicles of nearly globular flower-heads, about the size of a small pen. The achenes are compressed, those of the outer florets without pappus, as those of the inner series with a pappus of one or two short hairs. Of the five species known, all are common weeds in the countries where they grow, and of no beauty. [A. A. B.]

DICHYNCHOSIA. A genus of *Cunila* from Celebes. A tree with opposite pinnate leaves, the few leaflets of

which are oblong ovate, coarsely serrated, with the under surface (as well as the branchlets and inflorescence) covered with stellate down. The stipules are large and kidney-shaped. The flowers grow in axillary panicles, which are much branched in a corymbosic manner; the calyx five or six-parted, persistent; stigmas two, diverging; capsule two-beaked; seeds numerous, with a membranous wing. [J. T. S.]

DICKIEA. A curious genus of *Diatomaceae*, in which the frond assumes an ulvoid form, as it does a filiform in *Monema* and *Schizonema* and a globose in *Berkelia*. When the gelatinous element in these genera is removed, the frustules are found to be of precisely the same nature as those in genera where the gelatinous element is extremely reduced, or where it only tends to keep a quantity of frustules together in an irregular stratum. [M. J. B.]

DICKSONIA. A genus of noble mostly arborescent ferns of the polypodiaceous group, and typical of the section *Dicksonia*. Their stems are often thick and trunk-like, but sometimes decumbent. The fronds are large, generally decompound, and leathery, forming a noble tuft or crown; and the sori are globose or shortly oblong, transverse, and marginal, with a coriaceous indurium of two valves, of which the outer, formed of a lobe of the frond, is cucullate, and the inner usually smaller and less convex; the veins are free. *D. antarctica* is a very beautiful tree fern often seen in green-houses, having been freely imported from our Australasian colonies. Others occur in St. Helena, Brazil, Juan Fernandez, Columbia and Java. One pinnate species, *D. abrupta*, which is only found in Bourbon, has quite the aspect of a *Nephrolepis*. The sori are always more or less recurved from the plane of the frond. [T. M.]

DICLESIMUM. A one-seeded indehiscent fruit enclosed within a hardened perianth, as in the marvel of Peru.

DICLIDANTHERA. A genus of dicotyledons, founded on two Brazilian shrubs which are in many respects allied to *Sapotaceae*. Differing, however, as it does in a slight irregularity in the flowers, in the curious two-valved anthers, and in the structure of the ovary, some eminent botanists have proposed associating it severally with *Polygalaceae*, *Hamamelidaceae*, or even *Ettneuriaceae*. Benthall and Hooker regard it as being allied to the *Styracaceae*.

DICLIDIUM. A genus of plants belonging to the *Cyperaceae*. Only one species is described, namely, *D. serotum*, a native of South America. [D. M.]

DICLIDOGARPUS. A synonym of *Taxodermum*; which see.

DICLIDOPTERIS. A genus of polypodiaceous ferns belonging to the *Pleurogrammaeae*, having linear continuous sori, sunk in a deep oblique furrow on each side and near to the costa, towards which the opening is directed. The veins are

reduced to the costa, and the intermarginal receptacle parallel with it. The only species, *D. angustissima*, found in the Pacific Islands, is a very small plant, with narrow simple fronds. The genus is related closely to *Monogramma* and *Pleurogramma*. [T. M.]

DICLIDOSTIGMA. — cucurbitaceous plant of Cuba, with the aspect of *Bryonia*. Both calyx and corolla are five-cleft, the segments of the latter, in the male as well as in the female flowers, being rough and glandular: there are five stamens in three parcels with separate wavy anthers; in the female flowers there is a five-lobed glandular disk surrounding the base of the style, which latter is terminated by three stigmas, each of which is divided into two plates. The fruit contains six to nine seeds. [M. T. M.]

DICLINOUS. Having the stamens in one flower and the pistil in another.

DICLIPTERA. A considerable genus of *Acanthaceae*, containing nearly seventy species, dispersed over the tropical and subtropical regions of the New and Old Worlds. They are herbs with entire leaves, and with flowers in axillary clusters and short cymes, usually surrounded by four bracts, of which the outer two are the larger. The calyx consists of five sepals; the corolla is two-lipped, and the tube is so twisted that the upper entire or two-toothed lip becomes the lower; there are two stamens whose anthers have each two similar cells, but with the one inserted much below the other. [W. C.]

DICLIS. A genus of *Scrophulariaceae*, consisting of slender herbaceous creepers resembling in habit *Lénaria Cymbalaria*, and with very similar corollas, but the anthers have only one cell, and the capsule is nearly globular, opening loculicidally in two valves. There are three species known, all from south-eastern Africa or Madagascar.

DICLISODON. A name proposed for a curious genus of ferns, in which the sori occupy small projecting marginal teeth, and have scale-like covers. Hence it has been regarded as having a two-valved indusium, and as associating with the *Dicksonia*, the outer valve being described as a small rounded herbaceous projecting lobe of the frond; and the inner a proper indusium, larger than the lobe, membranaceous, and distinctly reniform, affixed by the sinus. The sori, though not stalked, project from the margin so as to resemble those of *Deparia*, but instead of a marginal cup, as in that genus, the involucre consists of the two valves lying flat in the plane of the frond; the veins are free. Some writers, however, regard the plant as a *Laetia* with exserted sori. *D. deparioides* is a very beautiful bipinnate fern, found in Ceylon. [T. M.]

DICLYTRA. The name of a genus of *Fumariaceae*, afterwards changed to *Dielstra*.

DICOCCOUS. Splitting into two coed.

DICOLORATIO. As petals are mere modifications of leaves, we need not be surprised if leaves themselves, though not in a state of transmutation to petals, occasionally exhibit vivid colours, especially in variegated plants. It does not appear, however, that coloured varieties grafted on those which are not coloured, communicate their colour in the same way in which variegated grafts affect the stock. The change of colour observable in leaves as autumn advances, appears rather to be a chemical than a vital action, and is owing, doubtless, to some change in the chlorophyll on which the healthy green tint of the leaves depends. The contents of the cells, like the cell walls themselves, have performed their office, and are therefore, like other inert bodies, subject to chemical changes, which would not affect them while their vital powers were active. [M. J. B.]

DICOMA. A genus of *Compositae* consisting of small undershrubs chiefly natives of the Cape of Good Hope, whence eleven species are enumerated, but represented also in India and Senegal. They have alternate entire or toothed leaves, and solitary heads of whitish flowers. The involucre is ——— panulate, equaling the disk, with the scales imbricate in many rows, coriaceous, entire, acuminate, often pungent; pappus in two or many rows. The name signifies 'twice-haired,' referring to the double pappus of the first described species, *D. capensis*. *Schaffnera* and *Xeropyppus* are now included. [J. Br.]

DICORYNIA. A genus of large trees of Brazil and Guiana belonging to the Leguminous family. Some attain a height of sixty, and a diameter of three to four feet. All have pinnate leaves a foot or more in length, made up of five or seven smooth leaflets. The branches are terminated by very large panicles of numerous white flowers, which are interspersed with fawn-coloured bracts. Each flower is about half an inch long, and composed of a calyx of three divisions; five unequal petals, the two exterior like the calyx leaves, the upper broadly orbicular at the point and narrowed below into a claw, and the two lateral obliquely orbicular and shorter; two stamens with broad and thick filaments of unequal length; and an ovary crowned by a curved style. The pods are obliquely oval, thin, about one and a half inch long, and contain one or two seeds. Four species are known. [A. A. B.]

DICORYPHE. A genus belonging to the order of witch-hazels. The name indicates one of its obvious characters, viz., the presence of two horn-like appendages on the upper part of the fruit. *D. stipitata* is a native of Madagascar, having slender branches with oblong, entire, and shortly-stalked alternate leaves, and below

each, a pair of unequal heart-shaped appendages, the stipules. [G. D.]

DICOTYLEDONOUS. Having two cotyledons.

DICOTYLEDONS, DICOTYLEDONEÆ. Plants having two seed-leaves or seedlobes, which are called cotyledons. This is one of the primary divisions or classes of the vegetable kingdom, including about 7,000 known genera, and about 70,000 known species of flowering plants. The class also receives the name of *Ezogonæ* or *Exogonæ*, from the structure of the stems. The plants in this great class have spiral vessels; their stems are formed by additions externally in the form of zones or rings; stomata or pores exist in the leaves, which have a reticulated or netted venation. The plants have stamens and pistils, either in the same or in different flowers. The symmetry of the flowers is represented by five or two, or multiples of these numbers. The ovules are contained in an ovary, or more rarely are naked; and the embryo has two, sometimes more, cotyledons.

In De Candolle's system this class of Dicotyledons is divided into four sub-classes:—1. *Thalamifloræ*, petals distinct; stamens hypogynous; 2. *Calyctifloræ*, petals distinct or united; stamens perigynous or epigynous; 3. *Corollifloræ*, petals united; stamens usually attached to the corolla, which is hypogynous; 4. *Monochlamydeæ*, including *Gymnospermeæ*, a calyx only, or no floral covering. Lindley divides the class into four subclasses: 1. *Dicotylous*, those plants which have separate staminate and pistillate flowers. Those which have stamens and pistil in every flower are divided into—2. *Hypogynous*, stamens not adhering either to calyx or corolla; 3. *Perigynous*, stamens adhering to either calyx or corolla; and 4. *Epigynous*, stamens, calyx, and corolla, all adhering to the side of the ovary. Gymnogens, or plants with naked seeds, represent a separate class according to Lindley. The age of Dicotyledonous trees can be computed by counting the number of annual concentric rings of wood. [J. H. B.]

DICRÆA. Herbaceous plants, natives of Madagascar, &c., constituting a genus of *Podostemaceæ*, characterised by hermaphrodite flowers unprotected by a bract; monadelphous stamens; and ribbed fruit opening by two equal valves. [M. T. M.]

DICRANODRUM. *Gymnogramma leptophylla*.

DICRANOGLOSSUM. A genus of polypodiaceous ferns of the group *Tantidea*, in which the sori are naked, linear, continuous, and submarginal as in *Tantopsis*; but the veins, instead of being straight and free, or combined by the transverse receptacle, describe a series of simple elongated arcs, each one uniting with the next, and thus forming a continuous irregular curved sub-marginal receptacle to which the spore cases are affixed. *D. subpinnatifidum*, a South American and West

Indian plant, with furcately-lobed fronds, is the only species. [T. M.]

DICRANOLEPIS. A genus of thymelaeaceous plants, the flowers of which have a salver-shaped perianth with a five-parted limb, and ten scales inserted in its throat; stamens ten, attached to the perianth; ovary stalked, with a cup-like disk at the base, one-celled, containing a single pendulous ovule. There is only one species, *D. disticha*, which grows at Sierra Leone: a shrubby plant with distichous leaves, and solitary axillary flowers. [J. H. B.]

DICRANOPTERIS. A synonyme of *Gleichenia*; also applied by some writers to a section of *Polypodium*.

DICRANOSTIGMA. A genus of *Papaveraceæ*, represented by a plant indigenous in the Himalayan mountains. It has numerous radical pinnately-lobed leaves covered with short hairs; the stems are about a foot in height, and bear at the top two or three golden-coloured flowers, with a flask-shaped ovary, surmounted by thickened stigmas with two erect awl-shaped arms alternating with the placentas. It is now united by its authors (Hooker and Thomson) with Nuttall's North American genus *Seytophorum*. [M. T. M.]

DICRANUM. A large and important genus of acrocarpous mosses, distinguished by the unequal cernuous capsule, the hood-like calyptra, rostrate lid, and single peristome consisting of sixteen equidistant teeth which are confluent at the base, and split half way down or more into two unequal portions, the medial line being continued to the base, and occasionally perforated. *Leucobryum* is distinguished by the peculiar structure of the leaves, and their consequent pallid hue. The species, from the different habits which they assume, are distributed into several distinct sections. They grow variously on rocks, or on the ground, or more rarely on the trunks of trees. Some of them, as *D. scoparium*, are amongst the larger mosses, and remarkable for their long and often curved leaves, while others are minute. It is observed by Wilson, in his *Bryologia*, that in several of the larger species, which have the stem covered with a dense layer of radical fibres, the male plants appear to be replaced by minute bulbæ, nestling among the fibres; and this is all that is known of the male inflorescence of certain species; but in *D. scoparium* the inflorescence may sometimes be traced from these radicular gemmæ up to the perfect development of male plants. A somewhat analogous process is observable also in a few species of *Lypnum*. [M. J. B.]

DICTAME BLANC. (Fr.) *Dictamnus albus*. — DE CRÈTE. *Origanum Dictamnus*.

DICTAMNUS. A small genus of *Rutaceæ*, found in southern Europe, Asia Minor, &c. *D. Fraginella* and *D. albus* are both cultivated in gardens for their fragrant leaves, as well as for the hand-

some appearance of their flowers. They are perennial plants with unequally-pinnate leaves, the main stalk between the four or five pairs of leaflets being winged and leaf-like. The inflorescence, as well as the outer parts of the flowers themselves, is covered with glands secreting a resinous or oily matter, so volatile, that their surrounding it becomes inflammable in hot weather. The calyx has five sepals, the two lowermost of which are longer than the rest; the five petals, which are stalked and inserted into the stalk bearing the ovary, are of unequal size, the four upper ones erect, and the lowest one bent downwards; the stamens are ten, bent downwards; the five ovaries are placed on a short stalk, each one-celled. The fruit consists of a capsule, the constituent carpels of which are confluent below but separate above, and when mature burst each into two pieces: they contain two or three seeds. [M. T. M.]

DICTYANTHUS. A genus of *Asclepiadaceæ*, containing twenty species, natives of Central America. They are twining undershrubs, with cordate membranaceous leaves on long petioles, and one or two-flowered peduncles. The corolla is campanulate, spreading, and five-cleft, and the staminal crown consists of five small lobes adnate to the tube; the stigma is fleshy with five prominent angles, and very small glandular corpuscles. [W. C.]

DICTYDIUM. A beautiful genus of *Fungi* allied to *Cribbaria*, but distinguished by the outer coat of the peridium disappearing so the very base, and leaving behind a beautiful net-work. In *D. umbellatum*, which is not uncommon on decayed fir stumps, the peridium is deeply umbilicate, and looks like an elegant balloon. [M. J. B.]

DICTYMIA. *Dictyopteris*.

DICTYOCALYX. Creeping pubescent herbs, allied to *Nicotiana*, but constituting a distinct genus of *Solanaceæ* or *Atropaceæ*, characterised by the presence of a cylindrical five-lobed calyx, the tube of which becomes distended after the expansion of the corolla, and is marked by a network of prominent veins. The corolla is membranous and funnel-shaped. [M. T. M.]

DICTYOCLINE. A genus of interesting hemionitoid ferns, which grow in India and China. *D. Griffithii*, found in Assam and Khasya, is a coarse herbaceous pinnate fern, with three or four pairs of pinnae, and having the sori reticulated between the primary pinnate veins, which transversely anastomose so as to form two or three series of roundish hexagonal areoles between them. The aspect of the plant approaches that of some of the larger species of *Aspidium*. [T. M.]

DICTYGENS. (*Dictyogena*.) A sub-class of monocotyledons or Endogens according to Lindley. The plants are characterised by having net-veined in place of parallel-

veined leaves, which usually disarticulate with the stem. The woody matter on the rhizomes of the plant is often disposed in a circular wedge-like manner. The name is derived from the Greek word *dictyon*, a net. This subclass includes *Dioscoreaceæ* or *yams*, *Smitaceæ* or *sarsaparillas*, and *Trilliaceæ*, *Rozburghiaceæ* and *Philistaceæ*. Some *Araceæ* and *Liliaceæ* have, however, net-veined leaves. [J. H. B.]

DICTYOGLOSSUM. A genus of acrostichoid ferns, now called *Hymenidium*.

DICTYOGRAMMA. A genus of polypodiaceous ferns, found in Japan and the Feejees, and belonging to the group *Hemionitideæ*, with naked linear reticulated sori, among which *Dictyogramma* is distinguished by having the primary veins arcuate so as to form costal areoles, and the venules reticulated, except those of the margin, which are free. The sori are narrow, linear, and sub-parallel, the lines sparingly united towards either end. The fronds are pinnate and somewhat leathery, with a few large pinnae. *D. japonica*, the typical species, is, as its name implies, found in Japan. *D. elongata*, from the Feejees, is the same fern which has been called *Syngamma pinnata*. The name has been used in place of *Selliguea*. [T. M.]

DICTYOLOMA. A genus of Brazilian trees belonging to the *Simarubaceæ*. The flowers are unisexual; calyx minute five-parted; petals five, sharply-pointed, or prolonged into a linear appendage; stamens five, attached below to a two-cleft scale. In the female flower there are five ovaries, five styles, and a five-toothed stigma. [M. T. M.]

DICTYOPTERIS. A genus of ferns belonging to the reticulated division of the *Polypodiææ*, and comprising a few species found in the East and in Australia. They have either simple or bipinnate fronds, sometimes of large size; and dot-like naked sori, which are seated at the confluence of several veinlets (compital). The areoles of the reticulated veins are without free included veinlets, which, together with their uniformly reticulated, not confluent-anastomosing venation, separates them from all other genera of ferns with netted veins, and naked dot-like sori. [T. M.]

DICTYOSTEGIA. A genus of *Burmanniaceæ*, consisting of a very few species from tropical America, all small slender leafless annuals, with very small flowers in a terminal cyme or head. They grow on rotten leaves in damp shady woods, and differ from *Burmannia* chiefly in their capsules opening by lateral pores.

DICTYOTA. A small genus of dark seeded *Algae*, with thin flat ulva-like forked fronds, producing spores in little superficial disks. The species are of an olive-green, and are widely diffused in either hemisphere. *D. dichotoma* is one of the commonest *Algae* on our coast, and assumes a great variety of forms as regards the length, breadth, and division of its fronds.

The development of the frond is curious, each division ending in a 'single cell by the constant division of which at its lower side the other cells of the frond are formed, the terminal cell being then continually pushed onwards.' This is the same mode of growth as that which obtains in exogenous stems. [M. J. B.]

DICTYOTÆ. An order of dark-seeded *Algae* with superficial spores or cysts, disposed in definite spots or lines. The fronds are sometimes flat, sometimes thread-like, and occasionally branched and tubular. In *Hydroclathrus* it is pierced with large holes. Some beautiful *Algae*, as *Padina*, *Zonaria*, *Hatieria*, belong to this order, which has representatives in every part of the world, but very few are found in high latitudes. *Padina pavonia*, the turkey feather laver, is common in warm countries, but extends to our own coasts as far as lat. 51°, though in North America it does not pass farther than lat. 25°. In *Cutleria* there is reason to believe that true spermatozooids are produced; but in some other genera, as *Stelophora*, two kinds of fruit occur, the one of which produces large, the other small zoospores, both of which have lash-like appendages. The cysts, which produce the large zoospores, are called *Trichosporangia*; those which produce the smaller, *Oosporangia*. [M. J. B.]

DICTYOXIPHIMUM. A genus of poly-podiaceous ferns related to *Lindsaea*, from which it is distinguished in the first place by its compoundly-reticulated veins having free included veinlets in their areoles; and in the second, by its indusium exceeding and being inflexed over the margin of the frond. The fronds are simple, narrower in the fertile parts, and the sori are linear continuous and marginal, with the indusium opening outwardly. There are only a couple of species, which are found in Panama and New Grenada. [T. M.]

DICYPELIUM. The name of a Brazilian tree of the laurel family. The flowers are dioecious. The male flowers are not described, but the female ones have a six-parted perianth; twelve barren stamens in four rows, the outermost petal-like, the innermost small and scale-like, the intermediate ones glandular. The fruit consists of a one-seeded berry, surrounded by the thickened fleshy perianth, which, with the sterile stamens, is persistent. The bark of *D. caryophyllatum* furnishes Clove Cassia. [M. T. M.]

DICYRTA. A genus of *Geonaceæ*, containing a single species, a native of Guatemala. It is a perennial stoloniferous herb, with opposite leaves on long petioles, and solitary axillary flowers, the small corollas of which have a slightly-curved tube and an equally five-lobed limb. There are four didynamous stamens, with the rudiment of a fifth, inserted at the base of the tube. The disk is fleshy five-lobed; the stigma capitate, depressed. [W. C.]

DIDERMA. A genus of myxogastrous

Fungi, characterised by a double peridium, of which the outer is quite smooth and crustaceous; the inner delicate and attached to the straggling hairs amongst which the spores are seated. In some species the peridium bursts by regular radiating fissures, so as to look like a little flower, while in others it is ruptured irregularly. One of the most common species, *D. vernicosum*, is characterised by its obovate shining chestnut-coloured outer peridium. It is common in woods, on mosses, twigs, &c., and is often very conspicuous. The flower-like species are by no means common. The genus is found more or less frequently in all temperate regions. [M. J. B.]

DIDICLIS. *Selaginella*.

DIDISCUS. A genus of umbellifers, characterised by the fruit being very much flattened laterally, each half with five ridges, the middle ridge most prominent. The name of this genus is intended to indicate the double disk-like fruit. The species are herbaceous and natives of Australia. *D. cernuus* is a showy plant, covered with hairs; its leaves three-parted, each division again subdivided; its flowers blue. The fruit when mature is covered with small tubercles. Another species, *D. albiflorus*, has no hairs, and the flowers are white. [G. D.]

DIDISMUS. A genus of *Cruciferae*, with pods breaking across into joints which have one or two seeds in each, the uppermost joint ending in a striated beak, the lower one truncate at the apex. Flowers white or yellow. The species occur in Greece, Syria, and N. Africa. [J. T. S.]

DIDYMIUM. A genus of myxogastrous *Fungi*, distinguished by the outer coat of the peridium being scurfy, mealy, scaly, tomentose, &c., and bursting irregularly. The species are numerous and sometimes beautiful. One of the most common is *D. cinereum*, which occurs everywhere, and is easily known by its stemless cinereous peridium, and the snow-white flattish hairs amongst which the dark spores are dispersed. The genus belongs essentially to temperate climates. [M. J. B.]

DIDYMOCARPUS. A genus of *Cyrtandraceæ*, containing fully thirty species, natives of India. They are caulescent or stemless herbs or undershrubs, with the leaves serrate or crenate petiolate, those on the stem being opposite or rarely alternate; the flowers blue or white, in cymes; the calyx five-cleft; and the corolla funnel-shaped and unequally five-lobed. There are four stamens, two of which only are generally fertile; the long capsule bursts longitudinally, and contains many naked sessile pendulous seeds. [W. C.]

DIDYMOCHETON. A genus of *Melastomaceæ* trees, now united with *Discochymum*, natives of the Moluccas. They have soft compound leaves, and flowers in axillary spikes or heads. The corolla has five linear petals, attached below to the tube of the stamens,

which is divided at the top into ten lobes, and contains within it ten anthers. The ovary is sessile, five-celled, surrounded by a gourd-shaped five-lobed disk; and the fruit is berry-like. [M. T. M.]

DIDYMOCHLÆNA. A genus of poly-podiaceous ferns, having indusiate sori of an oblong form attached longitudinally along its centre to a crest-like elevation of the receptacle, and free all round the margin; besides which the veins are free. *D. lunulata* is a fine South American arborescent fern with bipinnate fronds, the articulated pinnules of which are dark green, coriaceous, and shining. *D. dimidiata*, a South African plant, differs in having ecostate pinnules. [T. M.]

DIDYMOGLOSSUM. A division of the genus *Trichomanes*, in which the funnel-shaped involucre are two-lipped instead of truncate at the mouth, which is, in fact, an approach towards the two-valved involucre of *Lymnophyllum*. The group is considered by some writers to form a distinct genus. [T. M.]

DIDYMOTHECA. A genus of *Phytolaccaceæ*, from Tasmania. A smooth-branched undershrub with scattered linear semicylindrical leaves and axillary divisions; flowers on short stalks; the perianth four-lobed, two of the lobes larger than the others. [J. T. S.]

DIDYMOUS. Double; growing in pairs, as the fruit of umbellifers.

DIDYNAMOUS. Having two stamens longer than the two others.

DIEFFENBACHIA. A genus of arads, consisting of about fifteen species, all inhabitants of tropical South America and the West Indian Islands, where they flourish in moist shady places in the woods. Their stems are fleshy, and vary from two to six or eight feet long, partly lying upon the ground and partly erect, the erect portion bearing the greatest number of leaves. The leaves have fleshy foot-stalks, the lower part of which expands and forms a sheath round the stem; they are generally of an oblong form; in most species they are green, but some are marked or variegated with white or yellowish irregularly shaped spots, and all have numerous veins diverging from the midrib, and running parallel with each other until near the margin, where they curve upwards and unite. The spadix or flower spike is enclosed in a green or yellowish spathe, which does not wither like that of some allied genera, but remains fresh until the fruit is ripe; the lower part of the spike bears female flowers only, each consisting merely of an ovary surmounted by a stalkless stigma, and surrounded by from two to four rudimentary or imperfect stamens; the upper part is free and thickly covered with male flowers only.

D. seguina has acquired the name of Dumb Cane in the West Indies, in consequence of its fleshy cane-like stems rendering speechless any person who may happen

to bite them, the juice of the plant being so excessively acrid as to cause the mouth to swell, and thus to prevent articulation for several days. It is said that the West Indian planters were formerly in the habit of punishing their refractory slaves, by cruelly forcing them to bite a piece of this plant; and accidents have occasionally occurred with it in this country, where, however, it is only to be found growing in the hothouses of the curious. The negroes in the West Indies make an ointment for rubbing dropsical swellings, by boiling the juice of the plant in hog's lard; and a physician in the reign of Charles II. recommended the juice to be administered internally as a cure for dropsy, but it is so excessively acrid that it is almost impossible to swallow it. Notwithstanding the acidity, however, a wholesome starch has been obtained from the stem. The plant grows from six to eight feet long, and has a stem an inch and a half thick, bearing green leaves about ten inches long by four broad. When the leaves are pulled away the stem has a cane-like appearance. [A. S.]

DIELLIA. *Schizoloma*.

DIELYTRA. The name sometimes given to a very handsome genus of *Fumariaceæ* made familiar in gardens by the beautiful Chinese perennial called *D. spectabilis*. It was originally written *Diclytra*, and is now referred to *Dionura*. [T. M.]

DIENIA. A small genus of terrestrial orchids, the species of which are found in the Himalayas, Siberia, and Mexico. They seldom exceed a foot in height; the stems in some being furnished with one leaf, in others with several. These are membranaceous, plaited, and usually ovate or ovate-lanceolate in form. The flowers are minute, green or yellowish, and disposed in slender erect spikes.

The four pollen masses are collateral (oooo), while in the nearly-related British genus *Malaxis* they are incumbent (88). *Microstylis*, also nearly related, has the lip at right angles to the column instead of parallel with it, as in *Dienia*. [A. A. B.]

DIERVILLA. A genus of caprifoliæ, distinguished from the honeysuckle and others allied to it, by its funnel-shaped three-cleft corolla, and one-celled fruit. The name was assigned by Tournefort in compliment to Dierville, a Frenchman, who discovered a species in Acadia, and sent it to that botanist. The species are erect shrubs, natives of North America and of Japan. That best known in cultivation is *D. canadensis*, a shrub from three to four feet high, with the leaves shortly stalked, smooth, sharply ovate, the edges serrate; the flowers are yellow and appear in early summer. In its wild state it is widely distributed in Canada, and is found about Hudson's Bay and on part of the Rocky Mountains.

Those which are natives of Japan are reported by Siebold, in his account of the plants of that country, as notable on account of the beauty of their flowers. These

showy eastern species are the *Weigelas* of our modern gardens. [G. D.]

DIFFUSE. Spreading widely.

DIGITALIFORM. Like campanulate, but longer and irregular, as the corolla of *Digitalis*.

DIGITALIS. A genus of *Scrophulariaceae*, represented in this country by the well-known Foxglove; which is the badge of the Farquharsons. The genus consists of several species, which are biennials or perennials, with flowers having a calyx deeply divided into five unequal segments; an irregular tubular corolla, the tube of which is distended in the middle, the limb four or five-lobed, the lowest lobe the longest; four concealed stamens; and the fruit a capsule opening by two valves.

D. purpurea, the common foxglove, is a well-known ornament of woods and roadsides in this country and the central parts of Europe. It has an erect stem three to four feet high, marked with a few longitudinal ridges and covered with greyish down; the leaves are alternate, ovate-lanceolate or oblong, covered with down, especially on the under surface, their margins crenate or divided into small rounded lobes, and the base tapered gradually into the leafstalks. The raceme is at the extremity of the stem, and consists of a number of flowers each protected by a bract, and all drooping on one side of the stem; the corollas are irregularly bell-shaped, and upwards of an inch in length, and of a pinkish-purple colour, marked in the interior with circular dark spots, which are interspersed among a number of delicate light-coloured hairs. This plant from its stately beauty is cultivated in shrubberies and gardens, where likewise a variety with white flowers may be frequently observed. In cultivated plants there frequently occurs a malformation, whereby some one or two of the uppermost flowers become united together, and form an erect, regular, cup-shaped flower, through the centre of which the upper extremity of the stem is more or less prolonged. All parts of this plant possess powerful medicinal properties, which are due to an extremely poisonous substance called *digitalis*. In medicine the leaves are the parts used, in the form of tincture and infusion. The effects of this drug are various and remarkable; that most frequently observed is a lessening of the force and frequency of the pulse. This occasionally takes place to a dangerous degree, and more than one instance is recorded, of a patient under the influence of this medicine, having died immediately on making a sudden effort to change his posture. The heart, enfeebled by the drug, has been unequal to the fulfilment of its functions under the increased requirements made upon it by the change in position. Hence, although it may be, and is sometimes used in large doses with impunity, its action must always be watched with great care, the more particularly as occasionally when employed in small but

frequently repeated doses dangerous symptoms accrue. Foxglove likewise acts as a diuretic, and in large doses causes vomiting, purging, and fainting. It is now most frequently employed in certain cases of dropsy and of heart disease with great benefit, though its use demands care and vigilance on the part of the practitioner. Lately it has been recommended in large doses in delirium tremens.

Several other species are grown in gardens, such as *D. grandiflora* and *D. lutea*, with yellow flowers, and *D. ferruginea* with brown flowers, but none rival our indigenous foxglove in beauty, though they may do so in their poisonous qualities. [M.T.M.]

DIGITARIA. A genus of grasses belonging to the tribe *Panicæ*, distinguished by the inflorescence being in fingered spikes; spikelets in pairs, on one side of the flattened rachis, awnless, one-flowered with an inferior rudiment of a second; seed invested with the hardened pales. This genus is nearly allied to *Panicum*, under which all the species are described by Steudel. They are mostly natives of the middle and south of Europe, one, *D. humifusa*, reaching to the southern counties of England. [D. M.]

DIGITATE. When several distinct leaflets radiate from the point of a leaf-stalk.

DIGITINERVED. When the ribs of a leaf radiate from the top of the petiole.

DIGITUS (adj. **DIGITALIS**). The length of the Index finger.

DIGLOTTIS. A name applied to a Brazilian shrub of the rue family, characterised by its bell-shaped calyx; its corolla of five partially united petals; its five stamens, three of which are sterile and adherent to the tube of the corolla, while the two fertile stamens have flattened filaments, hairy at the top, and anthers whose connectives are prolonged into acute hairy strap-like processes; ovaries five. [M. T. M.]

DIGRAMMARIA. A genus of polypodiaceous ferns proposed by Presl, and figured by him in his *Tentamen Pteridographiæ*, but somewhat doubtful as to its identity, no fern with indusia such as he describes being known to possess venation such as he figures. Some regard *Callipteris ambigua* as the plant intended by Presl; while others consider it to be the plant he afterwards named *Heteropontium*, which latter view we adopt. This fern has linear oblong naked sori, borne on the two branches of the forked veins, and looking like double lines of spore-cases united below; hence appropriate to the name. The veins too are arcuate, forming costal areoles, with free venules. [T. M.]

DIGRAPHIS. *Phalaris*.

DIKA. *Iringia Barteri*, the seeds of which furnish a kind of grease analogous to the butter of *Cacao*.

DILIVARIA. A small genus of *Acrostaceae*, containing probably not more than three species, erect shrubs, natives of

India and Africa. They have entire or generally spinose and dentate leaves, and showy bracteate flowers in leafless spikes; the corolla consisting of a single three-lobed lip enclosing four didynamous stamens, with one-celled anthers, the margins of which are ciliated. [W.C.]

DILL. *Anethum graveolens*.

DILLENIACEÆ (*Dilleniaceæ*). A natural order of thalamifloral dicotyledons included in Lindley's ranal alliance, consisting of trees, shrubs, or undershrubs with exstipulate alternate leaves; five persistent sepals in two rows; five deciduous imbricated petals; stamens more than twenty, often turned to one side. Fruit consisting of two or five distinct or united carpels; seeds surrounded by an aril; albumen homogeneous. There are about thirty known genera and 230 species. They are found chiefly in Australia, India, and Equinoctial America. They have astringent qualities. Some are large timber trees. *Dillenia sperosa* is an Indian tree with showy flowers and an edible acid fruit. There are two suborders: 1. *Dilleneæ*, connective of the anthers equal or narrow at the point, found in Asia and Australia; 2. *Delimeæ*, connective of the anthers dilated at the point, found chiefly in America. Illustrative genera: *Dillenia*, *Cundollea*, *Delima*, and *Tetracera*. [J.H.B.]

DILLENIÆ. The species of this genus of dilleniads are handsome lofty trees inhabiting dense forests in India and the Malayan Peninsula and Islands, one only reaching as far as the base of the Himalayan mountains. They have large alternate generally oval or oblong leaves, strongly marked with parallel veins running from the midrib to the margin, where they form the points of sharp teeth. The flowers, which are frequently large and showy, have five fleshy concave sepals, and five white or yellow petals, the sepals increasing in size after flowering and eventually closely covering the ripe fruit. The stamens are very numerous, and arranged in several series round the pistil, those composing the inner rows facing outwards, while the outer ones face inwards, the anthers opening by pores or holes at the top. The fruit consists of from five to twenty cells (or carpels) growing together round a fleshy centre, and surmounted by as many radiating styles; each cell containing numerous seeds, surrounded by a gelatinous pulp.

D. pentagyna is common throughout the peninsula of India, Birmah, and Malaya, and forms a handsome forest tree, with a broad spreading head. Its leaves are of extraordinary size, averaging from one to two feet long, but in young trees sometimes as much as four or five feet; they are pointed at the top, and gradually taper from the middle to the base, the edges being either toothed or waved. The flowers are yellow, about an inch in diameter, and produced in clusters upon the naked branches before the appearance of the

leaves; they have only ten stamens and five styles. According to Dr. Cleghorn, it is probable that this tree, and not the *Calophyllum inophyllum*, as generally supposed, furnishes the valuable poon spars used for Indian shipping.

D. speciosa is also a very handsome tree, growing about forty feet high, and commonly cultivated in India on account of its ornamental appearance. It is found in all parts of tropical India, as well as in the Malayan Islands and peninsula. The leaves are from ten inches to a foot in length seated upon broad foot-stalks; and the flowers are produced at the same time as the leaves, which are of great size and beauty, measuring, when fully expanded, as much as nine inches in diameter; the petals white and contrasting with the bright yellow stamens, which are extremely numerous, and form a dense globular mass in the centre of the flower, with the stigmas radiating like a white star upon the summit. The fruit is about three inches in diameter, enclosed in the swollen and fleshy calyx, which, as well as the fruit, is edible but very acid, and is also said to be slightly laxative. The natives in India use it in their curries or for making jelly, and the acid juice sweetened with sugar forms a cooling fever drink. The hard tough wood, also, is used for making gun-stocks. The fruits and calices of another species, *D. scabrella*, are likewise used in the same way as those of the last species; and the Chinese employ a decoction of the leaves of *D. retusa*, for cleansing foul ulcers. [A.S.]

DILL-SEED. The name applied by Ben-tham to *Anethum graveolens*.

DILLWYNIA. A genus of pretty yellow-flowered juniper-leaved bushes of the leguminous family, numbering about a dozen species, three of which are found in Tasmania, and the remainder in the southern and western parts of Australia. The leaves have no stipules, the pedicels are furnished with little bracts, and the vexillum or upper petal is broad. These characters taken together serve to distinguish the genus from *Pultenea*, to which it is most nearly allied. In a few the leaves are more like those of a heath than a juniper; they are either smooth or slightly rough, and sometimes covered with a grey pubescence. The little yellow pea-flowers, scarcely half an inch across, make up for their minuteness by their great profusion; they are arranged in axillary or terminal clusters which seldom exceed the leaves. The minute pods, unless carefully searched for, will be readily overlooked; they are nearly oval, ventricose, and one or two-seeded.

A number of these plants have long been in cultivation in greenhouses, and richly repay the attention of the cultivator in the great profusion of their yellow blossoms. One of the best is *D. ericifolia*, which has solitary or twin bright yellow flowers, arranged so closely towards the ends of the branches as nearly to hide the leaves: this plant is sometimes called *D. floribunda* from the abundance of its

flowers. In *D. parvifolia* the leaves are scarcely a quarter of an inch long, and the flowers are in terminal clusters of four or five, of a pale-yellow colour, with the standard marked at the base by a reddish tint. One of the most desirable species, from its flowering while not more than eight inches high, is *D. scabra*, which has linear leaves about half an inch long covered with minute tubercles; this is remarkable in having stalked corymbs of bright nearly scarlet flowers at the ends of the twigs. The genus is named after L. W. Dillwyn, Esq., an English botanist. [A. A. B.]

DILLOPHIA. A genus of *Cruciferae* from Thibet, a small annual with spatulate leaves, and the flowering racemes contracted into umbels; pouch tuberculated with a partition, having a wide opening through it. [J. T. S.]

DIMIDIATE. When one half of an organ is so much smaller than the other as to seem as if missing; hardly different from oblique except in degree; also slit half-way up.

DIMIDIATO-CORDATE. When the larger half of a dimidiate leaf is cordate.

DIMORPHANTHUS. A genus belonging to ivywort. The name means 'two-formed flower,' indicating that there are some flowers which are in every respect perfect and produce fruit, and others in which no perfect seeds are formed. The flowers of the first kind have the calyx oblong and bell-shaped, or ovate and pentagonal; the styles or appendages on the upper part of the seed-vessel are more or less spreading; in the other flowers the tube of the calyx is in the form of a hemisphere and very short, while the styles approach each other. The species are shrubs or herbs, natives of China and Japan; some are prickly, others unarmed; the leaves are alternate, once or twice pinnate, the leaflets serrate. Dr. Lindley, in his *Vegetable Kingdom*, states that '*D. edulis* is employed in China for exciting the action of the skin and producing perspiration; its young shoots are a delicate article of food, and its root, which is bitter, aromatic, and pleasant to the taste, is employed by the Japanese in winter, as we use *Scorzonera*.' [G. D.]

DIMORPHOLEPIS. An Australian genus of the composite family represented by one species, *D. australis*, an annual branching herb one to three inches high, with linear nearly smooth leaves, and stems clothed with loose tawny hairs, and terminated by small yellow flower-heads, which have an involucre of two sorts of scales, while the florets are all tubular, and the few outer female ones three-toothed. [A. A. B.]

DIMORPHOTHECA. A South African genus of herbaceous or half-shrubby Composite plants, embracing nineteen species. The heads are solitary and terminal, with yellow, brown, or rarely purple disk-florets, and rays either white above and purple

beneath, or purple and yellow. The best known species is *D. annua* (also called *D. pluvialis* from the closing of the flowers before rain), which is cultivated in gardens under the name of Cape Marigold. The name of the genus has reference to the two forms presented by the achenes. French, *Souci pluvial* or *hygromitre*. [J. Br.]

DINEMANDRA. A genus of heath-like Peruvian shrubs, belonging to the *Malpighiaceae*. They bear flowers in clusters, on small jointed stalks; the calyx in five divisions, each provided with one or more glands at its base; the stamens ten, united below, eight being sterile and short. The fruits consist of three-winged carpels. [M. T. M.]

DINKEL. (Fr.) *Triticum monococcum*.

DINOPHORA. A genus of the *Melastoma* family, nearly related to *Spennera*, from which it differs in its five, not three-celled ovary. It is represented by a single species, *D. spenneroides*, which is a smooth slender branching bush of three to five feet, found in moist places in Fernando Po, and bearing opposite stalked oval-acute leaves, the branches terminated by loose panicles of little pink flowers, which have a top-shaped calyx tube, five oval acute petals, and ten stamens. [A. A. B.]

DIODIA. A genus of *Cinchonaceae*, consisting of herbaceous plants or small shrubs, natives of Tropical America and Africa. They have small white flowers, with a calyx divided into two or four equal or unequal segments; a funnel-shaped corolla, the tube of which is lined with hairs, and the limb divided into four lanceolate divisions; four stamens inserted into the throat of the corolla; and an ovary adherent to the calyx tube, surmounted by a fleshy disk, and internally divided into two compartments, each containing a single ovule. [M. T. M.]

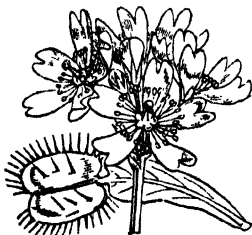
DICECIA (adj. **DICECIOUS**, **DIOICUS**). When the sexes of a plant are borne in different flowers by distinct individuals, as in willows. Expressed by the signs ♂ ♀.

DIOICO-POLYGAMOUS. When some of the flowers of a dioecious plant produce hermaphrodite flowers.

DIOLENA. A genus of *Melastomaceae* found in Venezuela, and nearly allied to *Sonerila*, but differing in having the parts of the flower in fives; and also to *Bertolonia*, from which it is recognised by the form of the anthers, which are ten in number, short obovate and open at top by two pores, while at the junction of the anther with its stalks there are two slender erect spur-like appendages. The only known species, *D. hygrophylla*, is a dwarf unbranched herb, with opposite long-stalked oval pointed entire leaves, and terminal one-sided raceme of small white flowers, succeeded by three-celled and three-winged capsules. [A. A. B.]

DIONÉE ATTRAPE-MOUCHE. (Fr.) *Dionaea muscipula*.

DIONEÆ. A singular plant referred to in most works on structural and physiological botany, as affording a striking instance of vegetable irritability. *D. muscipula*, Venus's Flytrap, the only species, belongs to the order *Droseraceæ*, and is an humble marsh plant bearing from the root, on a smooth leafless stalk a few inches high, a corymb of white flowers. The root is composed of scales almost like a bulb with a few fibres. From this proceed in a radiating manner a number of leaves on longish stalks, which are winged like those of the orange-tree. The lamina of the leaf itself is divided by the midrib into two nearly semicircular halves, each of which is fringed with stiff hairs, and furnished near the middle with three minute bristles arranged in a triangle, which bristles are extremely irritable, and when touched by a fly or other insect cause the two sides of the leaf to collapse with a sudden spring, imprisoning the intruder until it is either



Dionaea muscipula.

dead or ceases to move. Some time after all motion has ceased, they open again spontaneously. It is a native of the swamps of N. Carolina and Florida, but is often cultivated in English stoves. *Dionaea* is derived from Dione, one of the Greek names of Venus; *muscipula* is in Latin 'a fly-trap.' As might be expected, the same result is produced by touching the irritable bristles with any fine-pointed substance, as a pin or bit of straw. French, *L'attrape-mouches*; German, *Venus des flegel/fingern*. [C. A. J.]

DIONYSIA. A genus of *Primulaceæ*, closely allied to *Gregoria*, and including all the Oriental species previously described under the latter name, but distinguished by Boissier from the European *G. italiana* on account of some slight differences in the seeds and in the shape of the corolla. They are all small Alpine tufted plants, with flowers intermediate between those of a *Primula* and of an *Androsace*.

DIOX. A family of Mexican *Cycadaceæ* with a simple *Samia*-like stem clothed with woolly hairs, and bearing light-green lanceolate leaves, whose leaflets are sword-shaped, very sharp, attached to the petiole

by their whole base. The female cone is about the size of a child's head, and consists of flat lance-shaped scales, covered with wool, and two-lobed at the base; each scale bears two large seeds of the size of chestnuts. The seeds of *D. edule* yield a large quantity of starch which is used as arrowroot. [M. T. M.]

DIORYCTANDRA. This name, which has but slender claims to euphony, is applied to a shrub of the Violet family, in allusion to the passage of the style through the anthers. The genus is usually united with *Asodeta* from which it differs in the greenish petals, which are stalked, not sessile; and in the stamens which have slender filaments as long as the stalks of the petals. [M. T. M.]

DIOSCOREACEÆ. (*Yams*.) A natural order of monocotyledonous or Endogenous plants belonging to the subclass of *Dictyogeneræ*. Twining shrubs or herbs with tubers either above or below ground, usually alternate leaves with reticulated venation, and small staminate and pistillate flowers growing in spikes. Perianth six-cleft, in two rows, herbaceous and adherent; stamens six, inserted into the base of the perianth; ovary inferior, three-celled; ovules one or two, suspended; style three-cleft. Fruit compressed, three-celled, two cells often abortive; seeds albuminous; embryo in a cavity. They are found chiefly in tropical countries. *Tamus* is, however, a native of Europe and of the temperate parts of Asia.

Acridity prevails in the order, but it is often associated with a large amount of starch. Various *Dioscoreas* produce edible tubers, which are known as yams and are used like potatoes. *Tamus communis*, black bryony, has an acrid purgative and emetic tuber, and a berried fruit of a red colour. *Testudinaria Elephantopa* has a remarkably tuberculated stem, and has been called elephant's foot or the tortoise-plant of the Cape. The central part is eaten by the Hottentots. There are seven genera and 160 species. *Tamus*, *Testudinaria*, and *Dioscorea*, are examples. [J. H. B.]

DIOSCOREA. The typical genus of the order of yams. Upwards of 160 species are described, most of them being confined to tropical countries, principally in America and Asia, the majority, however, belonging to the former continent; about a dozen are found in Africa, and three or four in Australia. They are herbaceous perennials or undershrubs, with twining stems generally turning to the left hand; and fleshy tuberous roots: their leaves are usually produced alternately, but occasionally opposite, and, except in a few species where they are divided into several radiating lobes, they are always entire, and have several strongly-marked veins running throughout their entire length. The flowers, which are very small and inconspicuous, are produced in spikes from the bases of the leaves, and consist of a perianth of variable form, but usually

either bell or funnel-shaped; the males have six stamens, and the females a three-lobed ovary, surmounted by a style separating into three stigmas.

Under the name of Yams, the large fleshy tuberous roots of several species of this genus are extensively used for food in many tropical and subtropical countries, where they are largely cultivated, and take the place of our potatoes. Among the species most commonly employed for this purpose are: *D. sativa*, which is a native of Malabar, Java, and the Philippines; *D. alata* of the Moluccas and Java, and *D. aculeata* of Malabar, Cochin China, and Java, all of which are cultivated in various parts of tropical Asia, and likewise in the West Indies, where they have been introduced: besides which, *D. globosa*, *D. purpurea*, *D. rubella*, and *D. fasciculata* are cultivated in India, and other species elsewhere. Yams vary greatly in size and colour, according to the species or variety producing them; many attain a length of two or three feet, and weigh from 30 to 40 lbs.; some are white, others purplish throughout, while some have a purple skin with whitish flesh, and others are pink, or even black. Like potatoes they contain a large quantity of starch; and a nutritious meal, used for making cakes, puddings, &c., is prepared from them in the West Indies, where, also, they are commonly sliced and dried in the sun in order to preserve them.

One species, the Chinese or Japanese Yam, *D. Batatas*, has recently come into notice in this country, where it has been recommended for cultivation as a substitute for the potato; but although it succeeds very well when properly managed, it has not as yet found much favour among agriculturists. The chief drawback connected with it, is the great depth to which the roots penetrate into the earth, and the consequent difficulty of extracting them. It is extensively grown and used for food in China and Japan. [A. S.]

DIOSMA. A genus of heath-like plants, natives of the Cape of Good Hope, and belonging to *Rutaceae*. It is nearly allied to *Barosma*, but differs in that the flowers have five fertile stamens, and no sterile ones, in the style being shorter than the stamens, in the more narrow leaves, and in other minor points. They possess a fragrance not unlike that of the kinds of Bucku (*Barosma*), and many of them are cultivated for their white or pinkish flowers, the most frequently met with being *D. capitata* and *ericoides*. [M. T. M.]

DIOSPYROS. Large hard-wooded trees, or rarely shrubs, belonging to the *Ebenaceae*, which is so named in consequence of several species of this genus yielding the black wood called ebony. There are upwards of 100 species, the greater part of them natives of Asia and the Mauritius, only about a dozen being found on the American continent, and three or four in Africa; for the most part they are confined to the tropics, but a few extend as far north as

latitude 44°. They have flowers of separate sexes on different trees, and borne in little clusters, or singly at the bases of the leaves; the calyx divided into from four to six lobes; and the corolla tubular or bell-shaped. The fruit is fleshy or pulpy, generally either globose or egg-shaped, and varies greatly in size.

Ebony wood is obtained from several species of this genus. The best and most costly kind, with the blackest and finest grain, is that imported from the Mauritius, which is yielded by *D. reticulata*. East Indian ebony is mostly procured from two species, *D. Melanoxylon* and *D. Ebenaster*; while the best kind of Ceylon ebony is obtained from *D. Ebenum*. It is only the inner part of the trunk or heart-wood, as it is called, that yields the black ebony, the outer portion or sap-wood being white and soft. The chief uses of ebony are for fancy cabinet-making, mosaic work, and turnery, and for making a vast number of small articles, such as knife handles, door knobs and plates, pianoforte keys, &c.

D. guajita produces the beautiful wood called Calamander in Ceylon, and which the Cinghalese use for making the finest kinds of ornamental furniture. It is a very large tree, and the wood is so extremely hard that it is only worked with great difficulty. *D. Embryopteris* is a tree called Gaub by the Hindus. Its fruit is powerfully astringent, and is employed for tanning purposes. The juice of the unripe fruit is very viscid, and is used in India for paying the seams of boats; fishing nets are also coated with it to render them more durable.

The fruit of the Kaki or Chinese Date Plum, *D. Kaki*, is as large as an ordinary apple, of a bright red colour, and contains a yellow semi-transparent pulp resembling the flesh of a plum, both in appearance and flavour. The Chinese dry them in the sun, and make them into sweetmeats. The tree is a native of China and Japan, but is cultivated in India. *D. virginiana* is the Virginian Date Plum or Persimmon, a native of the United States, where it attains a height of fifty or sixty feet, with a trunk about a foot and a half in diameter, the heart-wood of which is of a brown colour, hard and elastic, but liable to split. The fruit of the Persimmon is an inch or more in diameter, nearly round, and of a yellowish orange colour, very austere and astringent even when quite ripe, but when blotted or softened by the action of frost it becomes eatable. In the Southern States, Persimmons are pounded and made into cakes with bran, and by adding yeast and hops to an infusion of the cakes a kind of beer is brewed; or, by fermenting and distilling them they yield a spirituous liquor. The bark of the tree is very bitter, and possesses febrifugal properties; it has been successfully employed by American physicians in cases of cholera infantum and diarrhoea. [A. S.]

DIOTIS. This name is usually applied to a genus of *Compositae*, consisting of but one

species, *D. maritima*, or *candidissima*, a native of the shores of Europe from France southwards and eastwards, of the east and south coasts of England, and of N. Africa. It is an erect branched perennial herb, everywhere clothed with dense greyish wool. Its name 'two-eared' alludes to the ear-like corolla-lobes. The name has also been given to a Siberian Chenopodiaceous shrub, which is, however, generally and more properly united with *Eunomia*: which see. [J. Br.]

DIPETALOUS. Consisting of two petals.

DIPHYLLEIA. A genus of *Berberidaceae* containing a North American herb, with thick horizontal rhizomes, sending up a large roundish petate umbrella-like leaf deeply-lobed, or a flowering stem with two alternate excentrically petate deeply-cleft leaves with wedge-shaped segments, and a terminal cyme of rather small white flowers, having six sepals, six petals, and six stamens: fruit a blue few-seeded berry. The only species, *D. cymosa*, a native of Japan, and of the southern United States, is there called the *Umbrella Leaf*. [J. T. S.]

DIPHYLLOUS. Two-leaved.

DIPHYSCIUM. A curious genus of mosses allied to *Buxbaumia*, with large oblique nearly sessile capsules, an obscure or obsolete outer peristome, the inner being formed of a conical membrane with sixteen folds thickened at the prominent angles, as though so many thread-shaped outer teeth were united with it. There is but one well-established species which occurs on shady banks and barren places in mountainous districts. The leaves are narrow and linear, and resemble somewhat those of *Polytrichum*. The plant looks like a monstrous *Phascum*. [M. J. B.]

DIPLACUS. A genus of *Scrophulariaceae*, closely allied to *Mimulus*, from which it chiefly differs in a shrubby habit, and in the capsule which, on opening, carries away the seed-bearing placenta attached to the valves. There are three or four species known, all natives of Mexico or California. *D. glutinosus*, a native of Northern California, has long been cultivated in our gardens under the names of *Mimulus glutinosus*, *M. aurantiacus*, or *D. punctatus*. It is an erect branching plant, becoming more or less shrubby at the base, the young branches being often very viscid. The leaves are opposite, varying from broadly-oblong to narrow-lanceolate. The flowers are rather large, solitary in the upper axils, and vary from a pale yellow to a rich orange or scarlet.

DIPLADENIA. The generic name of plants belonging to the order of dogbanes, distinguished principally by the presence of two blunt glands at the base of the seed-vessel, each of which is apparently formed of two conjoined. The name *Dipladenia*, "double gland," appropriately indicates the chief character. The species are climb-

ing shrubs or undershrubs, natives of Central America, having opposite entire leaves, and at their point of attachment often provided with glands or bristles; the flowers are handsome, springing from near the point of insertion of the leaves, or in terminal clusters. These plants are near allies of the well-known genus *Echites*, in which indeed some of them were formerly included.

The species of *Dipladenia* are divided into two sections: 1. Those in which the glands at the base of the seed-vessel are large and well developed, and the appendages at the insertion of the leaves, small or wanting; 2. Those having the glands small. There are some differences in the general outline of the corolla. In certain species it is almost salver-shaped, the tube slightly inflated at the top; in others the tubular part is cylindrical below, and funnel-shaped above. Some approach the herbaceous character, with narrow leaves; others are undershrubs with broader leaves. Several species must be ranked with the finest of our stove plants, and are among the more important and recent acquisitions of collectors.

The twining habit, the large and graceful flowers and general appearance of the foliage are sufficient recommendations. *D. crassinoda*, *nobilis*, *splendens*, and others, occupy a prominent place as stove climbers. The charming and finely-coloured convolvulus-like flowers of *D. splendens* succeed each other for weeks. [G. D.]

DIPLANDRA. A genus of onagrad, distinguished by having the calyx in four lanceolate divisions, two of which are often joined; the corolla has four divisions, one larger than the others, all attached to the calyx and shorter than it. The name *Diplandra* indicates another character, viz. the presence of two stamens only, opposite to two pieces of the calyx. The only species, *D. lopezoides*, a native of Mexico, is a branched hairy shrub, with opposite shortly-stalked leaves, which are oblong and narrow toward the end, almost entire, and hairy on both surfaces. The flowers are purple, forming clusters. [G. D.]

DIPLANTHERA. A scrophulariaceous tree, native of tropical Australia, with large four-lobed stalked leaves, which have two glands at their base, and terminal clusters of handsome flowers, with yellow two-tipped corolla, and four projecting stamens. [M. T. M.]

DIPLARCHE. A genus of *Ericaceae*, consisting of evergreen, heath-like undershrubs, with prostrate stems, and small rose-coloured flowers arranged in terminal heads. It is botanically characterised by the presence of ten stamens in two rows, the upper placed upon the corolla (perigynous), the lower arising from beneath the ovary (hypogynous), a most unusual circumstance. These shrubs are natives of the Himalayan mountains. [M. T. M.]

DIPLASPIA. A genus of *Umbelliferae*, consisting of two species, natives of the

South Eastern Alps of Australia and of Tasmania. They are small herbs with radical stalked cordate or reniform leaves, and simple scapes bearing a small simple umbel of flowers. They have thus the habit of *Hydrocotyle*, whilst the fruit is nearly that of a *Bolax*.

DIPLAX. A genus of grasses belonging to the tribe *Oryzæ*, distinguished by the inflorescence being in panicles, the spikelets two-flowered; glumes two, unequal, the inferior one nerved, blunt and ovate, the superior much larger; lower floret sterile; stamens two or one; styles short and smooth. *D. avenacea*, the only species, is a native of New Zealand. [D. M.]

DIPLAZIUM. A genus of polypodiaceous ferns, belonging to that group of the *Asplenæ* which have the indusia connate in pairs set back to back on the same vein, the veins in this case being free. The limit between *Diplazium* and *Asplenium* is not very definite, certain of the species bearing but few of the double sori of *Diplazium* amongst many of the single sori characteristic of *Asplenium*. On this account the two groups have been reunited by some modern botanists. It is, however, more convenient to keep them distinct. The species are rather numerous and very varied in size, form, and habit, some bearing simple fronds like *Scolopendrium*, others very large bipinnate or tripinnate fronds. There is a tendency in many of them to develop a short stem. [T. M.]

DIPLECOLOBÆÆ. A subdivision of cruciferous plants, embracing those in which the cotyledons are twice folded, and the embryo, when cut across, presents this appearance, O || || ||, in which O represents the cut radicle, which is placed on the back of the two cotyledons marked by lines || to show that they are cut across three times. Among the genera in this section of *Cruciferae* are placed *Senebiera*, *Brachycarpæa*, *Subularia*, *Heliophila*, *Schizopetalum*, and a few others. [J. H. B.]

DIPLESTHES. A name sometimes given to the Cape species of *Salacia*.

DIPLOCALYMNA. An imperfectly described genus, included by its author, Sprengel, among *Pentandria*, and subsequently referred to *Thunbergia* (*Acanthaceæ*), but incorrectly if Sprengel's description can be trusted; and also to *Convolvulacææ*, with no genus of which, however, does it seem to be allied. The genus is founded on a twining plant, without a locality, having the appearance of a *Convolvulus*. It is described as possessing a double calyx, the outer two-valved and the inner ten-toothed; the corolla infundibuliform, and subpubescent; the anthers sagittate and included; the stigma urceolate and sublobed. [W. C.]

DIPLOCENTRUM. A genus of epiphytal orchids found growing on tree stems in the Madras presidency. The three known species, *D. recurvum*, *lanatifolium*, and *compressum*, are furnished with strap-like chan-

neled leaves notched at the apex, and axillary racemes, or panicles of small pink flowers with a crimson lip, or the petals are dull brown with a lilac lip. The lip has two instead of one short spur, whence the name, and this is the only character which separates the genus from the well-known *Vanda*. [A. A. B.]

DIPLOCLINIUM. A genus of begoniads, separated from *Begonia* by Lindley, but subsequently restricted by Klotzsch. It contains plants which are found in the East Indies and in Java. The staminate flowers have four, the pistillate three sepals; anthers oblong with narrow lateral fissures; filaments slightly united at the base; style persistent with two lunate branches furnished with a continuous papillose band; placentas split lengthwise. There are five species. The name refers to the divided placenta. [J. H. B.]

DIPLOCLISIA. This genus of *Menispermaceæ*, proposed by Miers, has been referred by Drs. Hooker and Thomson to the genus *Cocculus*, from which it differs only in the elongated drupe, a character not of sufficient importance in the judgment of those authors to constitute a new genus. [M. T. M.]

DIPLOE. That part of the parenchyma of a leaf which intervenes between the two layers of epiderm.

DIPLOGENEA. A genus of *Melastomaceæ*, nearly related to *Medinilla*. The only known species, *D. viscoidea*, is found in Madagascar, where it grows on trees, and has somewhat the appearance of mistletoe, but is not like that, a parasite. It has fleshy smooth three-nerved leaves, between oval and elliptical in form, and small flowers arranged in axillary cymes. These have a bell-shaped calyx, with a nearly entire fleshy border, four oval petals, and eight equal stamens. Its leaves are said to be furnished with dots like those seen in myrtles. [A. A. B.]

DIPLOLÆNA. A genus of shrubs natives of New Holland, belonging to *Rutacææ*. They have alternate stalked dotted leaves with stellate hairs on the upper surface, and thick white down on the lower. The flowers are borne within a many-parted involucre, the bracts of which are arranged in three rows, the outermost being woolly, the inner petaloid. [M. T. M.]

DIPLOLOMA. A genus of *Borraginacææ* allied to *Cynoglossum* and more nearly to *Solenanthus*. It has a tubular corolla with five bosses at the throat and an erect five-cleft limb; stamens longer than the corolla; nuts adhering to a central column by their inner angle, crowned and margined by a ring. A native of the Altai. [J. T. B.]

DIPLOMORPHA. A name at one time given to a few plants of the daphnoid family which are now generally known as species of *Wikstramiæ*. [A. A. B.]

DIPLOPAPPUS. A genus of perennial bushes or dwarf herbs of the composite

family, very near *Aster*, and only differing in the nature of the pappus, which is double, the outer row of short stiff bristles, the inner of capillary bristles as long as the disk florets; whilst in *Aster* the pappus is single. About twenty species are known, some found in South Africa, others in China and the Himalayas, and the remainder chiefly in North America. The most of the Cape species are smooth bushes with small linear or oblong leaves, and solitary stalked flower-heads terminating the twigs. *D. asper*, of the same country, is an herb about a foot high, with sessile lance-shaped leaves, entire or toothed at the margin, and handsome flower-heads, which are solitary and supported on long naked stalks, and nearly two inches across, the ray florets being strap-shaped and purple, those of the disk tubular and yellow. A goodly number of those found in the Himalayas are handsome Alpine plants, with short unbranched stems, furnished with oblong toothed or entire leaves, and terminated by single flower-heads one to two inches in diameter, the outer florets strap-shaped and violet, the inner yellow and tubular. The North American species are mostly shrubby, with linear or lanceolate leaves, and terminal corymbs of flower-heads of which the ray florets are either blue, purple, or white. Almost the only species found in South America is *D. lavandulifolia*, a large handsome bush found on the Peruvian Andes at an elevation of 11,000 to 13,000 feet; its closely packed leaves are covered underneath with white down, and the numerous little twigs are each terminated by a purple-rayed flower-head. This plant and a few of the North American species are also known under the generic name of *Diplostaphium*, and some of the former are known also by the name *Eucephalus*. [A. A. B.]

DIPLOPELTIS. A genus of *Sapindaceæ* composed of three W. and N. Australian shrubs from one to three feet high, with alternate wedge-shaped and toothed, or sometimes pinnatifid leaves, and terminal panicles of white, pink, or violet flowers, each about half an inch across. All the parts of the plant are usually covered with a short white glandular pubescence. The flowers are male and female on the same plant, the former with a calyx of five leaves, five oblong petals, and usually eight stamens; the latter with a similar calyx and corolla, and a three-lobed ovary crowned with a simple twisted style. The somewhat herbaceous appearance of the plants is almost enough to distinguish them in the family, which is for the most part composed of bushes or trees, with pinnate or trifoliate evergreen leaves. [A. A. B.]

DIPLOPHYLLUM. A name at one time given to *Veronica orata galli*, a species much like *V. Suebaumii*, which is naturalised in Britain. [A. A. B.]

DIPLOPOGON. A genus of grasses belonging to the tribe *Pappophoræ*, distinguished by the inflorescence being in close

head-like spikes; spikelets one-flowered; glumes two, lax, membranaceous, and awned; stamens three; ovary sessile; styles two, joined at the base; stigmas feathery. *D. setaceus*, the only species, is a native of New Holland. [D. M.]

DIPLOPTERYX. A genus of *Malpighiaceæ*, consisting of a climbing shrub native of Guiana, with yellow flowers disposed in an umbellate manner, and surrounded by a series of bracts. The calyx has five segments, four of which are provided with two glands; stamens ten, slightly coherent at the base; ovary three-lobed, three-celled; styles three; fruit with five somewhat woody wings. [M. T. M.]

DIPLOSIPHON. A genus of *Hydrocharidaceæ*, an annual herb growing in rice fields in India, with radicle leaves arranged in a rosette; and axillary perfect flowers from a spathe split at the apex. The perianth tube is twice as long as the spathe, the three outer segments of the limb herbaceous, the three inner larger, petaloid, white; stamens three; style long, adhering to the perianth tube; fruit membranous, many-seeded. [J. T. S.]

DIPLOSPORA. A Chinese shrub of the cinchona family, but imperfectly known. The calyx tube is obovate, its limb somewhat bell-shaped, four-toothed: the corolla with a wide tube, hairy at the throat, and with a limb divided into four fleshy spreading segments; the anthers four, sessile, projecting. *D. dubia* or *Canthium dubium* is a shrub with axillary tufts of white flowers. [M. T. M.]

DIPLOSTEMONOUS. Having twice as many stamens as petals.

DIPLOSTEPHIUM. *Diplopappus*.

DIPLOTAXIS. A family of unimportant herbaceous plants, belonging to the *Cruciferae* and allied to *Sinapis*, distinguished by having the seeds arranged in two rows in a long compressed pod. *D. tenuifolia* is a slender glabrous perennial plant with a branched stem shrubby at the base, bluntly divided leaves, and rather large light-yellow flowers. It grows in quarries, on rubbish and walls, near large towns. *D. muralis* is a smaller species, an annual whose stems and leaves are rough with scattered hairs. [C. A. J.]

DIPLOTEGIA. An inferior capsule.

DIPLODODON. A genus of *Lythraceæ*, consisting of Brazilian herbs and shrubs with opposite often four-angled branches, opposite or verticillate entire leaves, and solitary axillary nearly sessile flowers, arranged in a racemose or even capitate manner. They have a bell-shaped twelve-toothed calyx, with the teeth arranged in two rows: six petals, and from twelve to forty stamens. [J. T. S.]

DIPODIUM. A genus of terrestrial leafless orchids of Australia and New Caledonia, belonging to the tribe *Vandææ*. They have thick branching roots, and

stems one to two feet high furnished at intervals with brown scales, and terminating in large racemes of numerous rose-coloured nearly regular flowers about an inch across. The oblong clawed lip is two-eared at the base and slightly bearded at the apex. There are two pollen masses each with a separate caudicle, whence the generic name signifying two feet. There are three known species. A beautiful figure of *D. punctatum* will be found among the illustrations to Dr. Hooker's *Flora of Tasmania*. [A. A. B.]

DIPSACACEÆ (Teazelworts.) A natural order of gamopetalous calycifloral dicotyledons or Exogens, belonging to Lindley's campanal alliance, embracing herbs or undershrubs with opposite or whorled exstipulate leaves, and flowers in heads surrounded by an involucre; calyx adherent, membranous, surrounded by a separate covering or involucrel; corolla tubular, with an oblique four to five-lobed limb; stamens four; anthers distinct; ovary one-celled; ovule pendulous. Fruit dry, not opening, crowned by the pappus-like calyx; seed albuminous. Natives chiefly of the south of Europe, Barbary, the Levant and the Cape of Good Hope. Astringent qualities reside in some of the species. Some are used in dressing cloth. *Dipsacus Fullonum* is the fuller's teazel, the dried heads of which, with their hooked spiny bracts, are used in fulling cloth. The opposite leaves of the wild teazel, *D. sylvestris*, unite at their bases so as to form a cavity in which water collects; hence the plant was called *Dipsacus* or thirsty. There are six known genera and about 170 species. *Morina*, *Dipsacus*, *Cephalaria*, and *Scabiosa* afford examples. [J. H. B.]

DIPSACUS. The Teazel family, typical of the order *Dipsacaceæ*. It forms a small genus of prickly biennial plants, natives of Europe and Northern Asia, having oblong or globular heads of flowers, surrounded by an involucre of several narrow bracts, the individual flowers separated by long prickly scales, and inserted into a small angular outer calyx (involucrel). The true calyx has a small cup-shaped border surmounting the involucrel, and the corolla is divided into four unequal lobes.

D. sylvestris, the common Teazel, is a native of the southern parts of England and Ireland, also of central and south Europe, and Russian Asia. It grows from four to six feet high, and is very prickly in all parts; the leaves long, lance-shaped, and stalked, those on the upper part of the stem growing together by their bases, and forming a cup, which is generally found full of clear water. The heads of flowers are cylindrical, and between two and three inches long, by one and a half broad, having an involucre of from eight to twelve stiff prickly bracts curved upwards, and the scales separating the flowers terminate in a long straight sharp point.

D. Fullonum, the Fuller's Teazel, is by most botanists supposed to be merely a

variety of the preceding, from which it only differs in the scales of the flower-heads being hooked instead of straight, and the involucrel bracts being shorter and spreading. The flower-heads of this plant, under the name of Teazels, form an article of considerable importance to the cloth manufacturer, who employs them for raising the nap on cloth, no machine having yet been invented to supplant them. For this purpose they are fixed in regular order upon cylinders, which are made to revolve in such a manner that the hooks of the Teazels come in contact with the surface of the cloth, and thus raise a nap, which is afterwards cut level. The plant is cultivated in some parts of this country, also in France, Austria, and other parts of Europe. In 1855 the enormous number of 18,907,120 teazel-heads were imported, all of which came from France, and were valued at five shillings per thousand. [A. S.]

DIPTERACANTHUS. A large genus of *Acanthaceæ*, containing nearly 100 described species, chiefly from Central and South America and Asia, with a few from Africa and Australia. They are creeping or erect herbs or rarely shrubs, with solitary or fasciculate flowers, collected at the ends of the stem and branches into racemes. The lower flowers have large leafy bracts, which become small and narrow in the crowded racemes; the calyx is more or less deeply five-cleft, and the corolla is funnel-shaped with a five-cleft limb; the four didynamous stamens are included, and the stigma is bilamellate. [W. C.]

DIPTERACEÆ (Dipterocarpeæ, Dipterocads.) A natural order of thalamifloral dicotyledons or Exogens, belonging to Lindley's guttiferal alliance, containing large trees with resinous juice; alternate involute leaves with convolute stipules; long unequal calyx lobes; twisted petals, and stamens above twenty, distinct or united in several bundles. Fruit leathery, one-celled, surrounded by the calyx, the enlarged divisions of which form winged appendages; seeds single, without albumen. Tropical Indian trees found especially in the islands of the Indian Archipelago. They yield a resinous balsamic juice. *Dipterocarpus laevis* or *turbinatus*, the gurgun of Chittagong, yields wood-oil which exudes from the trunk, and is used as pitch, varnish, and medicine. *Dryobalanops Camphora* or *aromatica*, a tree from 100 to 130 feet high, supplies the hard camphor of Sumatra, which exists in a solid state in the interior of the stem, sometimes in pieces weighing from 10 to 12 lbs. It also yields by incision a resinous oily fluid called the liquid camphor or camphor-oil of Borneo. Sometimes five gallons of the liquid are found in a cavity in the trunk. The wood of *Vateria* or *Shorea robusta* is used in India under the name of sal. Dhooa pitch is also procured from the plant. *Vateria indica* yields the piney resin or piney dammer of India, which is used as a varnish, and for lighting. There

are seven known genera and forty-seven species, including *Dipterocarpus*, *Dryobalanops*, *Vateria*, and *Shorea*. [J. H. B.]

DIPTERIS. A beautiful genus of polypodiaceous ferns, sometimes referred to *Polypodium* itself, but differing in the netted venation, and in the binate digitato-palmately-lobed or repeatedly dichotomously-partite fan-like fronds. Two or three species only are known, and these are beautiful plants of India and the Archipelago, with tall slender rod-like stipes, and fan-shaped palm-like coriaceous fronds, which rise from a freely creeping woody rhizome. The sori are small, round, and very numerous in *D. conjugata* and *D. Wallichii*, in which the costa is dichotomously-branched in the ultimate segments of the frond; but uniserial in *D. Lobbiana*, in which there is a simple central costa in each of the narrow and more completely separated ultimate divisions. The reticulation of the veins is highly compound. [T. M.]

DIPTERIX. One of the few genera of leguminous plants bearing a single-seeded fruit, which does not open naturally at maturity; the pod which bears this is called drupaceous. There are eight species belonging to the genus, all of them large trees inhabiting the forests of Brazil, Guiana, and the Mosquito country, and having pinnate leaves and panicles of flowers. The flower is characterised by having a two-lipped calyx, the upper lip consisting of two large lobes spreading like wings, while the lower is very small and either of three teeth or only one; the stamens are eight or ten in number and united together into a sheath, which is split on the upper side.

D. odorata yields the fragrant seed called Tonquin, Tonka, or Tonga bean, used for scenting snuff. Perfumers also obtain an extract from it, which forms an ingredient in some bouquets, and the pulverised seed is employed in the preparation of sachet powders. The odour resembles that of new-mown hay, and is due to the presence of *coumarins*. The tree producing these seeds grows sixty or eighty feet high, and is a native of Oryenne. The fruit bears some resemblance to that of the almond tree, and the seed or bean is shaped like an almond, but much longer, and is covered with a shining black skin.

D. obscuris, the Ebœe tree of the Mosquito shore, has a fruit and seed greatly resembling the preceding in appearance, but entirely destitute of the odoriferous principle. It, however, contains a large quantity of fatty oil, which the natives of the Mosquito country extract and use for anointing their hair, for which purpose it is said to be peculiarly suitable. It is a large tree, and produces an excessively heavy yellowish-tinted timber. [A. S.]

DIPTEROCARPUS. A name indicative of the two calycine wings, which surmount the fruit of these plants, which give their name to the order of *Dipteraceæ* or *Dipterocarpeæ*. The genus consists of

lofty trees, abounding in resinous juice, with leathery leaves, covered in some instances with star-shaped hairs. The flowers are in clusters, large, white or pink, fragrant; the calyx divided into five unequal segments, two of them becoming very large and leaf-like; petals five; stamens numerous, with linear anthers; ovary with two ovules in each of its three compartments, included within the tube of the calyx. Fruit woody, one-celled, one-seeded by abortion, surmounted by the persistent and enlarged calyx. These trees are natives of the Indian islands, where the resin is made use of medicinally, and for burning in torches. *D. laevis* yields in Eastern India and the Malay Islands a thin liquid balsam called wood-oil, which is employed for painting ships and houses. The resinous fluid is collected by cutting



Dipterocarpus trinervis.

a deep notch in the trunk of the tree near the ground, where a fire is kept until the wood is charred, when the liquid begins to ooze out. This wood-oil is now imported into this country as a substitute for balsam of Copaliba, which it greatly resembles. By the application of heat it becomes concentrated and semi-solid. The resin mixed with dammer is valuable in preserving timber from the ravages of white ants, according to Dr. Wight. [M. T. M.]

DIPTEROUS. Having two wing-like processes.

DIPTERYGIUM. A herbaceous plant, native of Arabia, Nubia, and N.-W. India, with thickish leaves, and flowers in terminal clusters provided with bracts. The calyx and corolla four-parted; stamens six, four somewhat longer than the other two; ovary four-cornered, one-celled, with a cylindrical style and capitate stigma; pod indehiscent, compressed, provided with a membranous wing, one-celled, one-seeded. This plant seems to have nearly equal claims to be comprised among *Cruciferae* and *Capparidaceæ*. [M. T. M.]

DIPYRENA. A genus of *Verbenaceæ*, found in Obill, and represented by *D. glabrescens*, an erect rigid bush, with narrow oblong somewhat fleshy entire

leaves, alternate on the stems, and often arranged in bundles of four or five. The twigs terminated by a loose spike of tubular sweet-scented flowers resembling those of the *Verbenas* so commonly seen in our flower-beds. Indeed the plant would be a *Verbena* were it not that the fruit is composed of two little nuts or pyrenae (whence the name) instead of four. A still closer relationship exists between this plant and *Priva*; the latter, however, has an herbaceous stem. [A. A. B.]

DIPYRENOUS. Containing two stones or pyrenae.

DIRCA. A genus of *Thymelaeae*, with hermaphrodite flowers, the perianth coloured, somewhat bell-shaped and oblique; the stamens eight, inserted in two rows in the tube of the perianth; the ovary one-celled, with a single pendulous ovule. The fruit is drupaceous. There is one species, *D. palustris*, a North American shrub called Leather-wood, Moose-wood, and Wicopy; the twigs are used as thongs; fruit poisonous; leaves alternate entire; flowers pale yellow. [J. H. B.]

DIRCEA. A genus of *Gesneraceae*, consisting of Brazilian herbs with tuberous rhizomes, and herbaceous stems bearing large opposite leaves, and long-tubed showy panicle flowers, often of a rich scarlet colour. The group is typified by the species formerly known as *Gesnera faucialis*, *bulbosa*, &c., and is distinguished by the great development of the upper lip of the corolla. [T. M.]

DIS. An Algerian name for the fibrous stems of *Festuca patula* and *Arundo tenax*, which are used for cordage.

DISA. A numerous genus of terrestrial orchids peculiar to South Africa and



Disa grandiflora.

Abyssinia. The species vary much in habit, but most agree in having the sepals

usually much larger than the petals, and the posterior sepal instead of the labellum, as in *Habenaria* and other allied genera, is furnished with a more or less evident hood-like spur. *D. grandiflora* is perhaps the most beautiful of all terrestrial orchids, and is spoken of by Dr. Harvey as the pride of Table Mountain, where it grows in great profusion on the borders of streams and water pools which are dry in summer, producing its gorgeous flowers in February and March. The stems grow two and a half feet high, and are furnished with a number of broad grassy leaves, and terminated by from one to four splendid flowers, measuring from three to five inches across. The lateral sepals are of a bright crimson, the dorsal one paler on the outside, and bluish-coloured and delicately veined with crimson within. Unfortunately this plant is very difficult to cultivate, and is therefore not so frequently seen in our gardens as it deserves to be. It is beautifully represented in *Lindley's Serium Orchidaceum*, t. 48. *D. spathulata* is a most remarkable species from the long and slender stalk of the lip, which much exceeds the flower in length, and has a trowel-shaped more or less lacerated apex. Many species have rose-coloured flowers, but in a goodly number there is a charming mixture of blue, white, green, and purple, in the same flower. [A. A. B.]

DISANDRA. A trailing plant often seen in greenhouses, referred by some botanists to *Sibthorpia*.

DISCANTHUS. A palm-like plant from the Andes of Eastern Peru, forming a genus of *Cyclanthaceae*. It has the long radical trifid leaves, and the inflorescence of a *Cariduvicia* or of a *Cyclanthus*, and most of the characters of the latter genus; but it differs chiefly in the perianth consisting of distinct disks embracing the spadix, and in the ovules being naked from their first appearance. The lobes of the leaves have also only one strong rib, and are not plicate as in *Cyclanthus*.

DISCARIA. A genus of *Rhamnaceae*, nearly allied to *Colletia*, but differing in having no petals. One species, *D. australis*, is common to Tasmania, New Zealand, and Australia, and the others are found in extra-tropical South America. All of the twelve known species are spiny undershrubs of no beauty, some almost leafless, and others with minute oblong or spatulate smooth leaves. The small opposite secondary branches terminate in a sharp spine, and towards their base are found, in twos or threes, the little flowers, which have a short bell-shaped calyx tube, and from four to five small scale-like hooded petals. [A. A. B.]

DISCHISMA. A genus of *Selaginaceae*, containing nine species from Southern Africa. They are herbs or herbaceous shrubs, with linear entire or dentate leaves, and flowers in more or less hairy terminal bracteate spikes, the corolla tube

short, and the limb fissured in front, and consisting of a single four-lobed lip; there are four sub-sessile stamens with one-celled anthers. [W. C.]

DISCIFORM. Flat and circular; the same as Orbicular. Also a name given to the chambered pith of such plants as the walnut.

DISCIPLINE DE RELIGIEUSE. (Fr.) *Amaranthus caudatus*.

DISOCCACTUS. A genus of *Cactaceæ*, consisting of two or three species, natives of the West Indies and Brazil, remarkable for having very short flat fleshy stems, which are only about two inches in height, and from four to six broad, with eight or ten ridges bearing at intervals little bundles of stiff prickles. The flowers are produced from out of a mass of silky wool and slender spines with which the plant is crowned; they have a long narrow tube, the sepals spreading and coloured, the petals white and spreading out very flat, the stamens of different lengths closing up the tube of the flower, and the style thread-like, shorter than the stamens, and divided at the top into five radiating stigmas. The flowers of *D. insignis* have a very pleasant odour, somewhat resembling that of orange flowers; while that of *D. alteolens* is not so pleasant. [A. S.]

DISOCCAPNOS. A genus of *Fumariaceæ*, distinguished by having the fruit membranous, orbicular, flattened, and winged all round. The flowers are nearly as in *Corydalis*, but with the inner petals united. It is a Cape annual with bipinnate leaves glaucous beneath, and climbing by the petioles. [J. T. S.]

DISOCCARPIUM. A collection of fruits placed within a hollowed receptacle, as in many roseworts.

DISOCCARPUS. *Disocarpus*.

DISCOIDAL. Orbicular, with perceptible thickness, slightly convex, and a rounded border.

DISCOLOR. Parts having one surface of one colour, and the other of another colour. Also any green colour altered by a mixture of purple.

DISCOPHORA. A genus of *Isacinales*, containing a shrub from Guiana, with large smooth leathery shortly-stalked leaves, and axillary racemes of small flowers articulated with the flower-stalks. [J. T. S.]

DISCOPIDIUM. The foot or stalk on which some kinds of disks are elevated.

DISCOSTEGIA. A name proposed for a few marattiaceous ferns including *Marattia alata*. [T. M.]

DISCOSTIGMA. *Garcinia*.

DISEASES OF PLANTS. Plants like animals are subject to diseases both functional and organic. They arise from various causes, being often strictly constitutional and hereditary; and frequently, on

the other hand, induced by bad food, imperfect nutriment, depraved atmosphere, defect of light, &c. A very important class again arises from the attacks of parasitic animals and *Fungi*, while others are the direct consequences of injury from external agents. Many of the objects of cultivation, in which some particular organ or element of the plant is preternaturally developed, are really in a diseased state, the peculiar condition being induced artificially, or, at least, encouraged to supply the wants of man, exactly as the livers of geese are compelled to put on a diseased action to afford materials for the pâté. The blanched stems and leafstalks of celery, the swollen stems of kohlrabi, the enlarged roots of turnips and carrots, &c., are all so many instances of diseased action compelled to administer to our necessities.

The study of vegetable diseases is essential to good cultivation, for though little can be done towards arresting disease in any individual plant, much may be done, either rationally or empirically, in preventing the spread of those which are infectious or contagious, and more by guarding against those conditions which induce disease. The principal maladies to which plants are subject will be noticed briefly under their respective heads. [M. J. B.]

DISEMMA. A genus of *Passifloraceæ*, closely allied to *Passiflora*, but distinguished from it by the coromet, which consists of an outer row of thread-like processes, and an inner tube with longitudinal plaits. They are shrubs, natives of tropical Australia, and have entirely the appearance of passionflowers. [M. T. M.]

DISEPALUM. A Borneo tree forming a genus of *Anonaceæ*, remarkable for the sepals and the petals of each series being two only, instead of three, as in the rest of the order.

DISETTE. (Fr.) A kind of Beet.

DISK. An organ intervening between the stamens and ovary; it assumes many forms, the most common of which is a ring or scales; it is apparently composed of metamorphosed stamens. Also the receptacle of certain fungals, or the hymenium of others.

DISOCCACTUS. A small Cactaceous genus, scarcely separable from *Phyllocactus*. The only species, *D. bifloris*, is a native of Honduras, and forms a weak trailing shrub or bush, with stem and older branches nearly cylindrical, gradually tapering upwards, and woody; while the younger branches are broad and flat, with blunt teeth, resembling leaves in appearance, but of a succulent or fleshy nature. Like most plants of the order, it has no real leaves. The flowers are produced singly from one of the notches at the upper end of the young branches, and are characterised by having only four sepals and four petals, both of a deep pink colour, and about two inches in length, the sepals very narrow and bent

backwards, and the petals broader and growing so close together for the greater part of their length as to form a tube. The fruit is of a beautiful shining deep crimson colour, shaped like a little Florence-flask; it contains numerous seeds, imbedded in a soft pinkish pulp, which has a sweetish sub-acid taste. [A. S.]

DISOCARPUS, more correctly **DISOCARPUS**. A small genus of South American trees, belonging to the *Euphorbiaceae*, with smooth oval entire leaves two or three inches long, a good deal like those of the Portugal laurel, and axillary bundles of small sessile flowers of which the male and female are on different plants. The males have a cup-shaped calyx of five unequal divisions, no petals, and five stamens; while the females have five petals, five rudimentary stamens, and a three-lobed ovary. Three species are known. The genus differs from its near allies in the absence of petals in the male flowers, and the presence of rudimentary stamens in the females. [A. A. B.]

DISOON. A genus of *Myoporaceae*, represented by *D. floribundum*, a smooth slender graceful bush, six feet high, found in South-eastern Australia. It has alternate linear leaves, and a great profusion of little bell-shaped flowers arranged in axillary clusters, and having a five-toothed calyx which does not grow larger after the flower withers, a five-toothed border to the corollas, and four protruding stamens. The fruit is a little two-celled drupe with two seeds. The nature of the fruit, and the calyx not enlarging after the fading of the flower, are the most marked characters. [A. A. B.]

DISPHENIA. A small set of cyatheaceous ferns, now generally included in *Cyathea* itself, but separated by some authors on account of the elevated receptacle being split into two wedge-shaped divisions. [T. M.]

DISPORUM. A genus of *Melanthaceae*, belonging to the group connecting that order with *Liliaceae*, of which *Uvularia* is the type. The species which occur in India are herbs with subsessile leaves and few-flowered axillary peduncles, the perianth six-cleft, with each division keeled and bulging at the base, the whole forming an angular tube. [J. T. S.]

DISSECTED. Cut into many deep lobes.

DISSEPIMENTS. The partitions in a fruit caused by the adhesion of the sides of carpellary leaves. — **SPURIOUS**. Any partitions in fruit which have not the origin just explained.

DISSOMERIA. A genus of *Homaliaceae*, represented by a shrub native of Western tropical Africa, the parts of whose flowers are arranged in fours, the eight petals alternate with as many glands; the stamens numerous, in eight bundles opposite to the petals, the anther-lobes separated by a thick fleshy connective: ovary one-

celled; styles four or three. Fruit indehiscent, seeds few by abortion. [M. T. M.]

DISSOTHRIX. A genus of the composite family found in Brazil. *D. Gardneri*, the only species, is a slender annual herb, a foot and a half high, with erect stems terminating in a loose panicle of small flower-heads, and furnished with stalked nearly oval leaves toothed at the margin, opposite on the lower part of the stem and alternate above. Each flower-head has from five to eight tubular five-toothed florets, enclosed in an involucre formed of two series of lance-shaped scales. The achenes are five-angled, and crowned with a pappus of numerous hairs of two sorts, the greater proportion capillary, but five longer than the rest, more rigid, and corresponding to the angles of the achenes. The nature of the pappus serves to distinguish the genus from *Stevia*, to which it is most nearly allied. [A. A. B.]

DISSOTIS. A genus of Tropical African melastomaceous plants, nearly allied to *Orobanchia*, from which it differs in having dissimilar stamens. Twenty species are described, herbs or shrubs, from one to three feet high, with opposite lance shaped three to five-nerved leaves, which as well as the four-sided stems, are clothed with soft-spreading hairs. The rosy or purple flowers generally in threes at the ends of the twigs, and about an inch across, have the tube of the calyx beset with hairy tubercles, and its border five-toothed; five rounded petals; and ten stamens, the latter of two sorts, the five opposite the petals having their anthers joined to the filament by a long slender connective, while those opposite the calyx teeth have a very short or almost obsolete connective. *D. Irvingiana*, a pretty species found in Abbeokuta, is now cultivated in England. [A. A. B.]

DISTEGANTHUS. The name of a parasitical bromeliaceous plant, with yellow flowers, which have a six-parted perianth, the three inner divisions of which form a kind of spiral tube below, while above they are petal-like and somewhat concave; stamens six, thick, hidden by the scales of the inner divisions of the perianth; style twisted at the base, divided above into papillose convolute stigmas. [M. T. M.]

DISTEGOCARPUS. A name sometimes given to a few Japanese species of hornbeam, *Carpinus*, which differ from the others in having the bracts of the male catkins narrowed into a stalk. In other respects they are very like the common hornbeam of our shrubberies. [A. A. B.]

DISTEPHANUS. A genus of shrubs of the composite family from Mauritius and Madagascar, nearly related to *Vernonia*, and differing in having appendiculate apices to the scales of the involucre. Of the three known species, the most common is *D. populifolius*, a bush with stalked oval pointed leaves covered on both surfaces with soft white pubescence. The flower-heads, each about half an inch in diameter,

are numerous, and disposed in terminal corymbs; the florets being numerous and all tubular. [A. A. B.]

DISTICHIA. A genus of *Juncaceæ*, from elevated table-land in Peru, forming small tufted plants with dichotomous stems, subulate distichous leaves sheathing at the base, and a six-parted perianth with three stamens. [J. T. S.]

DISTICHIS. A name at one time applied to a few terrestrial orchids of India and Mauritius, now shown by Dr. Lindley to belong to *Liparis*. [A. A. B.]

DISTICHOS. When parts are arranged in two rows, the one opposite to the other, as the florets of many grasses.

DISTICTIS. A genus of *Bignoniaceæ*, containing a few species, natives of America and the West Indies. They are slender climbing shrubs, with opposite petiolate leaves, sometimes trifoliate, more generally doubly bifoliate; the apex of the petiole is commonly produced into a tendril. The white flowers are in terminal few-flowered racemose panicles, the corolla funnel-shaped, cut into five unequal lobes, and enclosing four didynamous stamens, with the filaments knee and hairy on the inner surface of the angle; the fifth is sterile. [W. C.]

DISTRACHILE. Divided into two parts as if torn asunder, like the connective of some anthers.

DISTYLIS. A genus of *Goodeniaceæ*, found on the West coast of Australia, and containing only a single species. It is distinguished by having a five-parted calyx adnate to the ovary; a five-parted spreading somewhat bilabiate corolla, the segments of which have winged margins and the tube cleft behind. There are five distinct stamens and a bipartite style. The fruit is a capsule, which is crowned by the permanent calyx. *D. Berardiina* is an annual plant, with alternate toothed leaves, and yellow axillary solitary flowers on long footstalks. [R. H.]

DISTYLUM. A genus of *Hamamelidææ*, of two or three species of evergreen trees, natives of China, Japan, and Khakya. The flowers are sometimes perfect, having stamens and pistils; while others have stamens only or pistils only. One marked character implied by the name, is the presence of two cylindrical erect appendages, the styles, which remain attached to the fruit. [G. L.]

DITASSA. A considerable genus of *Asclepiadaceæ*, containing nearly forty species of small twining or erect undershrubs, natives of tropical America. They have opposite coriaceous leaves, and small whitish interpetiolar flowers, either solitary or umbellate, with rotate five-cleft corollas; the staminal crown double, its outer whorl consisting of five linear or ovate-acuminate lobes; and its inner of five generally shorter leaflets opposite the outer lobes; the foli- cles are long, round, and smooth. [W. C.]

DITAXIS. A genus of *Euphorbiaceæ*, comprising about seven species, which are found in various parts of America, south of Mexico. They are white-barked shrubs, with alternate entire or finely-toothed lance-shaped or oboval leaves, and have small green flowers, either male and female on the same, or on different plants, and arranged in little axillary racemes or cymes. The males have a calyx of five deep divisions, five fringed petals, and ten stamens arranged in a candelabra-like manner in two tiers, their filaments united below into a column, round the base of which is a disk of five glands; the females are nearly similar, having calyx and corolla; and a three-lobed hairy or nearly smooth ovary, crowned with a three-forked style. A purplish colouring matter is found in the leaves and flowers of some species. The calyx-leaves do not overlap in the buds, this serves to distinguish the genus from *Jatropha* and other of its allies. [A. A. B.]

DITTANDER. *Lepidium latifolium*.

DITTANY. *Cunila mariana*. —, **BASTARD.** *Dictamnus Frazinella*. — **OF CRETE.** *Origanum Dictamnus*.

DIURNAL, DIURNUS. Enduring but for a day, as the flower of *Tigrida*.

DIURIS. A genus of terrestrial tuberous-rooted orchids found in Australia and Tasmania. They are slender herbs, having stems one to two feet high, furnished below with several grassy leaves, and terminating in a loose raceme of pretty flowers, which are usually of a rich yellow colour marked with purple spots; more rarely white or purple. The two lateral sepals are long and narrow, suggesting the generic name—from the Greek, signifying two tails. The lip is trilobed, and the column is furnished on either side with a short erect petal-like appendage. Four of the species are well represented in Dr. Hooker's *Flora of Tasmania*. [A. A. B.]

DIVARICATE, DIVARICATING. Straggling, spreading abruptly, and at an obtuse angle, such as 140.^o

DIVERSIFLOROUS. When a plant or inflorescence bears flowers of two or more sorts.

DIVIDIVI. The astringent pods of *Cesalpinia coriaria*.

DIVI LADNER. A Cinghalese tree, *Ta-bernemontana dichotoma*.

D'JURNANG. A natural secretion of the fruit of *Calamus Draco*, commonly known as Dragon's-blood.

DOBERA. The latinised form of an Arabic name for a tree with appressed-stalked leaves, whose stalks are thickened, and of a yellow colour, and whose flowers grow in terminal panicles, and have a four-toothed calyx, four petals, and four stamens with the filaments combined below into a tube, and having four little scales between them and the petals; the ovary is

superior, and becomes an ovate fleshy one-seeded edible warted fruit. The genus is referred to the *Salvadoraceae*. [M. T. M.]

DOBINEA. An Eastern Himalayan bush of the maple family. It grows to about ten feet in height, and has opposite stalked lance-shaped or oval toothed leaves, and minute flowers, male and female on the same plant, disposed in long terminal panicles. The males have a four-toothed bell-shaped calyx, four oblong clawed petals, and eight stamens. The females are quite naked, and sit on the middle of a thin yellowish beautifully-veined bract, which is nearly round, and about half an inch in diameter. The circumstance of the female flower arising from near the middle of a veined bract is highly curious, and not paralleled in the family, nor is it met with in any family more nearly related than that of the lime tree. [A. A. B.]

DOCK. The common name for *Rumex*. — **GROVE.** *Rumex Nemolopanthum*. — **WATER.** *Rumex Hydrolapathum*.

DODARTIA orientalis is an erect glabrous herb with stiff rush-like very spreading branches, and few small leaves, forming a genus of *Scrophulariaceae*, with flowers much like those of the smaller *Antirrhinum*, but with a globular capsule opening in two short nearly equal valves. It is a native of the dry saline steppes of southern Russia.

DODDER. *Cuscuta*.

DODDER-CAKE. An oil cake made from the refuse of *Camelina sativa*.

DODDER-LAURELS. A name applied by Lindley to the *Cassythaceae*.

DODECA. In Greek compounds=12.

DODECAS. A genus of *Lythraceae* from Surinam. It consists of glabrous shrubs with four-angled branches, opposite oblong-obovate entire leaves, and axillary usually one-flowered peduncles; the calyx is urceolate with a four-cleft spreading limb, the petals four, small and round, and the stamens twelve. [J. T. S.]

DODECATHÉON. A genus of *Primulaceae*, known by the reflexed segments of the deeply-cleft corolla, and the cylindrical capsule opening at the apex by five teeth. They are smooth perennial herbs, with fibrous roots, and rosettes of oblong or obovate root leaves; the scape is simple, bearing an umbel of large nodding rose-purple or white flowers, with long reflexed segments, and five short monadelphous filaments with long anthers which are exerted and form a slender cone. The well-known American Cowslip, *D. Meadia*, grows in woods in the warmer parts of North America. In the Western States, where it is more common, it is called the Shooting Star. The name, signifying twelve divinities, is one of fanciful application. [J. T. S.]

DODONÆA. A genus of viscous shrubs

of the order *Sapindaceae*, comprising about fifty species, the greater proportion of which are found in extratropical Australia, and the remainder are thinly scattered over other tropical countries. Few of them exceed ten feet in height, and almost all have their leaves more or less covered with a clammy gum. In the most commonly diffused group these organs are lance-shaped or spatulate; in another they are linear; in a third they are wedge-shaped and toothed; while in a fourth they are pinnate, made up of numerous little wedge-shaped or linear leaflets. The apetalous flowers are unisexual or polygamous, arranged in axillary or terminal racemes or panicles. The fruits are membranous, with their angles produced into thin papery rounded wings. The leaves of *D. viscosa*, one of the most widely diffused species, have a somewhat sour and bitter taste, and the plant is from this circumstance, called in Jamaica, Switch Sorrel. According to Dr. Bennett, this plant is known in Tahiti as Apri, and 'fillets of it were once used for binding round the heads and waists of victors after a battle, and during the pursuit of the vanquished.' The leaves of *D. Thunbergiana*, a native of South Africa, are said to be used against fevers, and as a purgative. The genus bears the name of Dodonæus, a Belgian botanist and physician of the sixteenth century. [A. A. B.]

DODRANS (adj. **DODRANTALIS**). Nine inches, or the space between the thumb and the little finger separated as widely as possible.

DOGBANES. A name given by Lindley to the *Apocynaceae*.

DOGBERRY-TREE. *Cornus sanguinea*.

DOG MERCURY. *Mercurialis perennis*.

DOG-POISON. *Aethusa Oxyapium*.

DOG'S-BANE. A common name for *Apocynum*; also *Aconitum Cynoctonum*.

DOG'S-CHOP. *Meconbryanthemum caninum*.

DOGWOOD. *Cornus sanguinea* and *Rhamnus Frangula*. — **AMERICAN.** *Cornus florida*. — **BLACK.** *Piscidia orthogynensis*. — **JAMAICA.** *Piscidia Erythrina*. — **NEW SOUTH WALES.** *Jacksonia scoparia*. — **TASMANIAN or VICTORIAN.** *Bedfordia salicina*. — **WHITE.** *Piscidia Erythrina*.

DOH. A Javanese name for the horse-hair-like fibres of the Gomuti palm, *Saguerus saccharifer*.

DOLABRIFORM. Fleahy, nearly straight, somewhat terete at the base, compressed towards the upper end; one border thick and straight, the other enlarged, convex, and thin.

DOLIA. A genus of *Nolanaceae*, containing a few South American littoral plants with the habit of some of the smaller maritime *Chenopodiaceae*. Heath-like branched shrubs with fleshy linear

leaves and small flowers, with salver-shaped corollas, and eight or ten ovaries variously united. [J. T. S.]

DOLICHANDRA. A small genus of *Bignoniaceae*, inhabiting extratropical parts of Brazil, and remarkable as the only known climber of the order having a capsule the partition of which runs in a contrary direction to that of the valves. In habit it much resembles *Macfadvena*, the branches being climbing, the leaves either trifoliate or conjugate and furnished with tendrils, and the flowers in the axils of the leaves; the calyx is spathaceous; the corolla is long and tubular, whilst the stamens (four in number with the rudiment of a fifth), as well as the stigma, project beyond the corolla. The typical species is *D. cynanchoides*. [B. S.]

DOLICHANDRONE. A small genus of *bignoniaceous* trees, inhabiting tropical Asia and Australia. Their leaves are either simple or impari-pinnate, and the leaflets either ovate, lanceolate, or, in *D. fliformis* of New Holland, reduced to very narrow linear bodies. The flowers are white and arranged in panicles; the calyx is spathaceous, and the corolla has a tube twice or thrice the length of the calyx; the stamens are four in number, with the rudiment of a fifth; the fruit is a flat capsule opening at the margin, but being divided by a partition, which runs contrary to the direction of the valves. Some of the Asiatic species yield timber. [B. S.]

DOLICHOS. A genus of leguminous plants, consisting of herbaceous or shrubby species, which for the most part have twining stems. As many as 60 or 70 forms have been described, but the number of species is probably much fewer. They are distributed throughout the tropical and temperate regions of Asia, Africa, and America. The plants, formerly called *D. Lablab* (*Lablab vulgaris*), *D. sinensis* (*Vigna sinensis*), *D. bulbosus* (*Pachyrhizus angulatus*), *D. Outiang* (*Vigna Outiang*), all produce edible legumes and pulses. The species of *Dolichos* have trifoliate leaves; and their flowers are produced, either solitary or in racemes, from the bases of the leaves. The pods are generally more or less flattened, and neither winged nor prominently nerved.

D. sesquipedalis is a native of the West Indies and tropical South America, but is cultivated in warm sheltered places in France, and some parts of the south of Europe. The French call it *Dolich asperge*. It has smooth twining stems, six or eight feet in height, with large egg-shaped pointed leaflets, and yellowish-green flowers. Its pods are from a foot to a foot and a half long, cylindrical and pendulous, and of a shining light-green colour, containing from seven to ten kidney-shaped seeds. The young or green pods of this plant are cooked and used as a table vegetable, and, being without the tough parchment-like skin of the common pea-pod, they form an excellent dish. *D. tuberosus*, a native of Martinique, has a fleshy tu-

berous root, which the inhabitants cook as an article of food, and they also use the pulse for the same purpose. It has a shrubby stem, with twining branches, and leaves with roundish-pointed leaflets. *D. uniflorus* is an annual plant having an erect stem and twining branches, with leaves composed of three egg-shaped leaflets, and yellow flowers, which produce narrow flat pods curved something like a reaper's sickle, and covered with soft hairs. This plant is a native of the East Indies, where it is grown for food under the name of Horse Gram. [A. S.]

DOLIOCARPUS. A small genus of *Dilleniads*, consisting of about eighteen species, nearly all of which are climbing shrubs, inhabitants of tropical South America. It is closely allied to *Delima*, but the leaves are not rough, and the flowers are produced from the sides instead of the ends of the branches; besides which, the fruit is pulpy and does not burst open when ripe. *D. Cuneata* is a climbing shrub with woody stems, having oblong pointed leaves, and small white flowers collected into dense heads, a portion only perfect, the rest being male or female. The fruit is a small fleshy shining berry. [A. S.]

DOLOMIEA. A genus of *Compositae*, nearly related to *Saussurea*, but differing in the pappus-hairs being rough instead of feathery. *D. macrocephala*, the only known species, is a perennial stemless herb found at elevations of 10,000 to 13,000 feet in N. W. India; it has pinnately parted much-lobed leaves clothed with white down beneath, while the centre of the plant is occupied by a cluster of shortly-stalked flower-heads, each an inch or more in length, and furnished with an involucre of numerous lance-shaped scales, which enclose many purplish tubulous florets. According to Royle, it is used by the inhabitants of the hills in their religious ceremonies, and is called by them Googlian. [A. A. B.]

DOMBA-OIL. A fragrant oil obtained from the seeds of *Calophyllum Inophyllum*.

DOMBEYEA. A tribe of plants included in the natural order *Sterculiaceae*. The petals are flat; stamens fifteen to forty, united at their base, usually some of them sterile. Ovary with five or many cells, having two or more ovules in each. Fruit a capsule; embryo within fleshy albumen. Trees or shrubs growing in tropical regions of the Old World. In this tribe are included the genera, *Pentopetes*, *Kutia*, *Dombeya*, *Melhamia*, *Astrayau*, and a few others. [J. H. B.]

DOMBEYA. A genus of handsome African shrubs or small trees of the *Sterculia* family, a goodly number of them cultivated in plant stoves for the sake of their handsome foliage and flowers. They are found in the greatest number in Madagascar and Mauritius, and extend as far north as Abyssinia. The leaves are often like those of the maple or the plane, but

in some are much smaller, heart-shaped and nearly entire; while the flowers are borne in axillary cymes or umbels, each flower being supported by an involucre of three small leaves which fall early. It has a five-parted calyx, five petals, and fifteen to twenty stamens, accompanied by five filiform or strap-shaped sterile ones, all slightly united at the base into a ring. The fruits are little hairy five-celled capsules. Ropes and various sorts of cordage are made in Madagascar from the bark of *D. platanifolia*, as well as from some other of the species. *D. mollis* has large heart-shaped leaves, three-lobed at the apex, covered with a soft dense down, and its rose-coloured flowers with narrow petals, are disposed in dense stalked umbels, and smell like hawthorn. The genus bears the name of M. Dombey, a French botanist and traveller in S. America. [A. A. B.]

DOMPTE-VENIN. (Fr.) *Vincetoxicum officinale*.

DONALDIA. A genus of S. American begonias whose staminate flowers have two, and pistillate five sepals; anthers elongated, with a dark-brown small connective, the filaments not united; the style is persistent, its branches furnished with a continuous papillose band, which makes three spiral turns; the placentas are split lengthwise. There are two species, viz., *D. ulmifolia* and *D. Ottonis*, both formerly included in *Begonia*. [J. H. B.]

DONATIA. A genus of *Saxifragaceae* from the Straits of Magalhães: small herbs resembling *Saxifraga groenlandica*, with tufted stems, and thick linear lanceolate obtuse glabrous leaves having wool in their axils; flowers, terminal, sessile, white, with the calyx tube adhering to the ovary, and the limb four or five-toothed, and having eight or ten petals. [J. T. S.]

DONDIA. *Hacquetia*.

DONDISIA. The name applied to an Indian shrub of the order *Cinchonaceae*. The tube of the corolla is lined with rigid hooked hairs; its limb is divided into five acute lobes; stamens five, inserted into the throat of the corolla; style thread-like dilated in the middle; stigma ovate. [M. T. M.]

DONIA. The name sometimes applied to an American genus of yellow-flowered composite plants, better known as *Grindelia*. It has been also applied to *Chianthus*.

DONKELERIA. A garden name sometimes applied to *Centradenia*.

DONZELLIA. A genus of polypetalous dicotyledons, established by Tenore on a shrub grown in the plant-houses in the Botanic Garden of Naples. It is, however, so imperfectly described, that it has not been recognised in our own collections.

DOOB or DOORBA. Indian names for *Cynodon Dactylon*, which is there a fodder grass.

DOODIA. A group of polypodiaceous ferns related to *Woodwardia*, with which they are incorporated by many modern botanists notwithstanding considerable differences of size, habit, and aspect. They differ from *Woodwardia* chiefly in having superficial instead of sunken sori, and in having the indusium less convex or vaulted, and more lunate. These differences seem rather to indicate sectional than generic distinction. [T. M.]

DOOGHAN. *Myristica spuria*.

DOOLOO. A kind of rhubarb.

DOONA zeylanica is a large resinous dipteraceous tree with rose-coloured flowers in panicles. Three of the five sepals of its flowers are larger than the other two, and increase in size after the fall of the corolla; the petals are united at the base; there are sixteen stamens in two rows with dilated filaments, and four-sided anthers with a club-shaped appendage; ovary three-celled, six-seeded. [M. T. M.]

DOOPADA. Indian Copal or Piney Varnish, a resin obtained from *Vateria indica*.

DOORA. *Sorghum vulgare*.

DOORNIA. A genus of *Pandanaceae*, native of Bourhou or Madagascar, having the appearance of screw pines. The female flowers, which alone are known, are seated on a branched spadix, and consist of ovaries arranged in groups of three or four. The fruit consists of a number of fibrous or woody drupes arranged in groups, and separated from neighbouring parcels by a fibrous material. These collections of drupes form six-sided conical masses on a common stalk. [M. T. M.]

DOORWA. *Cynodon Dactylon*, a fodder grass of India.

DOOR-WEED. *Polygonum aviculare*.

DORADILLE. (Fr.) *Asplenium*.

DORATOMETRA. A genus of begonias, consisting of East Indian undershrubs, whose staminate flowers have four, and whose pistillate flowers five sepals; the anthers are short, rounded on both sides, with united filaments; the style is persistent, its branches surrounded by a continuous papillose band which makes two spiral turns; the placentas are undivided and stalked, their transverse sections cordate-ovate acute. The seed-vessels have three equal wings, and are attenuated at the apex. There is only one species, *D. Wallichiana*, which has been separated from *Begonia*. [J. H. B.]

DORELLE. (Fr.) *Limosyris vulgaris*.

DOREMA. A genus of *Umbelliferae* or *Apiaceae*, comprising certain Persian herbs with branching proliferous umbels, and flowers imbedded in a woolly substance, but having no involucre; the calyx is slightly toothed at the margin. The fruit is compressed, surrounded by a broad border, and marked on the back by five ridges, the three central ones thread-like,

and more prominent than the two lateral oil channels four, on the inner surface of each half of the fruit. *D. ammoniacum* furnishes the drug now known as ammoniacum. It is a native of Persia, and abounds in a milky juice which exudes upon the slightest puncture being made, and dries upon the stem in little rounded lumps, or tears as they are called. This gum resin is used as a stimulant expectorant, and as an external application, but its powers are not great. The ammoniacum of the ancients is said to have been the produce of *Ferula tingitana*. [M. T. M.]

DORINE. (Fr.) *Chrysosplenium*.

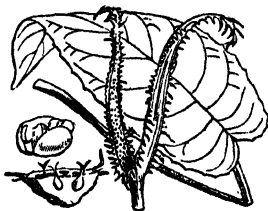
DORITIS. A small genus of caulescent epiphytal orchids found in Cochin-china and New Guinea. They have ovate or oblong leaves, and axillary panicles of small white or purple flowers. The sepals are oblong, the lateral ones decurrent with the column; the petals, nearly equal and wedge-shaped; the lip tri-lobed, with a long claw attached by an elastic joint to the produced foot of the column, and the two bilobed pollen masses are borne on the end of a long slender caudicle attached to an ovate gland. [A. A. B.]

DORONICUM. A genus of herbaceous perennials belonging to the order of compound flowers. The florets of the ray are destitute of a pappus, while those of the disk have a hairy pappus. *D. Pardalianches*, though enumerated among British plants, is not generally considered to be indigenous to the soil. It is to be found in waste ground near houses in several parts of England, and yet more frequently in Scotland. Under the name of *Pardalianches*, or *Leopard's-bane*, it had the reputation of possessing 'virtues so ambiguous,' says Gerard, 'and so doubtful: yea, and so full of controversies, that I dare not to commit that to the world which I have read. It is reported and affirmed that it killeth panthers, swine, wolves, and all kinds of wild beasts, being given them with flesh. Theophrastus saith that it killeth cattle, sheepe, oxen, and all four-footed beasts within the compass of a day: yet he writeth further, that the roote being drunke is a remedie against the stings of scorpions, which sheweth that this herbe or the roote thereof is not deadly to man, but to divers beasts onely, which thing also is found out by trial and manifest experience: for Conradus Gesnerus, a man in our time singularly learned, and a most diligent searcher of many things, sheweth that he himself, in a certain epistle written to Adolphus Occo, hath oftentimes inwardly taken the roote hereof greene, drie, whole, preserved with honie, and also beaten to powder, and that even on the very same day in which he wrote these things, he had drunke, with warme water, two drams of the rootes made into fine powder, neither felt he any hurt thereby.' The fact appears to be that the leopards and other 'four-footed beasts' were poisoned with aconite, one

of the author's synonyms for *Pardalianches*: while the human experimentalist found the powdered root of the latter plant inert. *Leopard's-bane* is a robust plant, with large roughish leaves and conspicuous yellow flower-heads. There are several species natives of Europe or Asia, some of which are cultivated as ornamental plants. French, *Doronic*; German, *Gemsenwurz*. [C. A. J.]

DORSIFEROUS. Bearing something on the back.

DORSTENIA. A genus of moraceous plants named after Dorsten, a German author. It is associated with mulberries



Dorstenia ceratosanthes.

and figs. The genus has a flat and somewhat concave receptacle bearing numerous flowers. The staminate flowers have no perianth, but two or more stamens. The pistillate flowers are also without a perianth; the ovary is one-celled with a lateral style and bifid stigma, containing one ovule. The fruit-bearing receptacle becomes somewhat succulent. There are thirty-six known species. They are herbaceous plants found in tropical America. They have radical leaves which are palmate or pinnatifid, and the receptacle terminating the scape is quadrangular or rounded, or occasionally linear and forked. *D. Contrayerva* and other species have a stimulant and tonic rhizome, which is used medicinally under the name of *Contrayerva-root*. [J. H. B.]

DORSUM. The back of anything; in the parts of the flower, that surface which looks towards the outside.

DORYANTHES. A genus of New Holland *Amaryllidaceae*, having what Herbert calls imperfect bulbs, a tall straight stem twenty feet high, springing from an aloelike tuft of broadly ensiform-spreading basal leaves, the stem itself clothed with much smaller appressed ones, and terminated by a bulky compound flower-head composed of crimson flowers emerging from great half-sheathing crimson bracts. The perianth is six-parted and funnel-shaped, the segments nearly equal; the six stamens, having long erect anthers, are inserted into the base of the perianth seg-

ments; the style is three-furrowed, with a three-cornered stigma; and the ovary grows into a three-celled turbinate oval capsule.



Doryanthes excolia.

It is a fine plant, sometimes met with in cultivation. [T. M.]

DORYONIUM. A genus of *Leguminosae*, comprising a few erect twiggy herbs, nearly related to *Lotus*, from which they may be recognised by the keeled petal being obtuse, not beaked. Their leaves are sessile, and made up of three to five linear leaflets about half an inch long. The minute pink or white flowers are collected into round stalked heads, a good deal like those of the white clover, but smaller. The pods are turgid, scarcely larger than the calyx, and contain two to four seeds. The species are confined to the countries bordering on the Mediterranean. [A. A. B.]

DORYONOPSIS. A genus of *Leguminosae*, with the habit of *Dorycnium*, but differing in the stamens being of equal instead of unequal length, as well as in the pod not bursting when ripe. The only known species is *D. Gerardii*, found in the south of Europe, a perennial branching herb one to two feet high, having slender stems furnished with unequally-pinnate vetch-like leaves, the twigs terminating in little clover-like heads of small rosy flowers. The minute one-seeded pod is quite hidden in the calyx. [A. A. B.]

DORYOPTERIS. A name proposed for a group of ferns belonging to the *Pteridea*, and having uniformly reticulated venation, which is sunk in the substance of the frond, and is on that account generally obscure. The genus is not, however, materially different from *Libocrochia*, with which it is now frequently united. [T. M.]

DORYPHEORA. The generic name of the *Sassafras* tree of New South Wales,

which belongs to the *Atherospermaceae*, and is somewhat nearly related to the *Sassafras* of Tasmania, *Atherospermum moschatum*. It differs, however, in having the anthers prolonged into a tail-like process. *D. Sassafras*, the only species of its genus, grows to a fine symmetrical pyramidal tree of sixty or one hundred feet high, with a diameter of two to three feet; and is furnished with opposite smooth lance-shaped or elliptical toothed leaves. The flowers are small, perfect, and three together, supported on axillary peduncles shorter than the leaves, and enveloped by two silky bracts, each with a calyx border of six divisions and twelve stamens, six fertile and six sterile, the fertile ones having the anthers prolonged into a tail. The ovaries are numerous and become one-seeded nuts, the styles remaining attached to the ripe fruits in the form of feathery awns. The leaves, bark, and wood emit an agreeable aromatic odour which, when fresh, is said to resemble fennel. The bark is also said to be used by the colonists as a tonic, and is much esteemed. The wood is of little value, being extremely soft and light. It is sometimes used for making packing cases and similar articles. [A. A. B.]

DORYSTIGMA. A genus of *Solanaceae*, consisting of low-growing herbaceous plants, with solitary extra-axillary flower-stalks; the corolla is funnel-shaped, hairy within, the anthers green, concealed within the corolla; the ovary is two-celled. They are natives of the Andes. [M. T. M.]

DOSSINIA marmorata is the name of a beautiful little Bornean orchid cultivated in gardens for the sake of its olive-green velvet-like leaves, the nerves and nervelets of which are of a paler colour, thus giving them a marbled appearance, whence the specific name. The creeping stems have five or six ovate leaves, two or three inches in length by one or two broad; and the flower spike is about a foot high, bearing a number of small white flowers tinged with pink. The plant is sometimes called *Cheirostylis* or *Macodes marmorata*, as well as *Anæctochilus Lowii*; it differs from *Anæctochilus* in the absence of a bearded fringe to the lower part of the lip, as well as in the boat-shaped process of the column. It is dedicated to E. P. Doossen, a Belgian botanist. [A. A. B.]

DOTHIDEA. A large genus of sphaeriaceous *Fungi*, differing from *Sphaeria* and its more immediate allies in not having the walls of the fruit-bearing nucleus so perfectly developed or so distinct in colour and structure from the stroma. *D. ribesia* is one of our commonest *Fungi*, forming little black spots on the dead stems of currants, &c.; the sporidia in *Dothidea* seldom acquire complicated forms like those which make *Sphaeria* so abundant a source of objects for the microscopist. [M. J. B.]

DOTTED. Furnished with transparent receptacles of oil, looking like dots; marked with punctures.

DOUBLE-BEARING. Producing twice in the same season.

DOUBLY. Having a form or structure repeated; doubly-toothed = teeth themselves toothed, and so on.

DOUCE-AMÈRE. (Fr.) *Solanum Dulcamara*.

DOUCETTE. (Fr.) The common *Valerianella*, which were called *Valeriana locusta*, by Linnaeus.

DOUCIN. (Fr.) Certain varieties of *Pyrus Malus*.

DOUGLASIA. A genus of primworts, distinguished from its allies by the funnel-shaped corolla, the tube of which is partly dilated. The name was given by Dr. Lindley as an appropriate compliment to David Douglas, a well-known botanical collector, to whose energy and zeal we owe the introduction of many interesting plants. *D. nivalis*, which is the best known species, was discovered by Douglas not far from the sources of the Columbia river, near snow, at an elevation of 12,000 feet; another, *D. arctica*, was found by Sir J. Richardson, on the Arctic shore between the Mackenzie and Coppermine rivers. These plants have forked and closely tufted stems, linear leaves, and are covered with numerous short stiff hairs. [G. D.]

DOURA, or DURRA. The great Millet, *Sorghum vulgare*.

DOUVE, GRANDE. (Fr.) *Ranunculus Lingua*. —, **PETITE.** *R. Flammula*.

DOUX-GUILLAUME, — also DOUX-JEAN. (Fr.) *Dianthus barbatus*.

DOUZE DIEUX. (Fr.) *Dodecatheon Meadia*.

DOVEA. A genus of *Restiaceae*, consisting of South African aedge-like plants, distinguished by their simple one-celled anthers, three-celled capsule opening at the angles, and three (rarely two) sessile stigmas. The rhizome is creeping, scaly; the stems wand-like with remote sheaths; the flowers discolorous. [J. T. S.]

DOVE-FLOWER. *Peristeria*.

DOVE'S-FOOT. *Geranium dissectum*.

DOWNY. Covered with very short weak close hairs.

DRABA. Whitlow Grass. An extensive genus of small annual or perennial herbaceous plants of the Cruciferous order, among which they are distinguished by having the pod compressed, with the dissepiment in the broadest diameter, and numerous seeds in each cell. They are most numerous in the cold mountainous countries of Europe: a few of them are natives of America, and several of Great Britain. Of these last, *D. aizoides* grows on walls near Swansen, and is remarkable for its bright yellow flowers, and glossy leaves margined with hairs. It is a pretty plant, well adapted for rock-work, as, indeed, are

several of the foreign species, being of humble growth, and tufted habit, and made conspicuous by their white or yellow flowers, which, though small, are numerous and bright. Of the other British species, *D. verna*, called also *Erophila vulgaris*, an humble little annual with scanty foliage and inconspicuous white flowers, is not without interest from its appearing very early in the year. It grows on wall-tops and dry banks. Fr. *Drave*; German, *Hun-gerblümchen*. [C. A. J.]

DRACÆNA. A genus of monocotyledons of the order *Liliaceae*, remarkable for the elegant palm-like character assumed by the greater number of the species. The genus as formerly constituted was a rather extensive one, but it has lately been remodelled by Dr. Planchon, who removes from it all but the *Dracena Draco*, or Dragon tree of Teneriffe; and refers the other species to *Dracaenopsis*, *Cordylina*, *Calodracon*, *Charlwoodia*, and *Cohnia*. Thus limited, *Dracena* is distinguished by having a bell-shaped perianth deeply separated into six equal segments, furnished with six stamens inserted at the base of the segments, and succeeded by a fleshy berry containing one, two, or rarely three seeds, the ovary, which is three-celled, with a single ovule in each cell, seldom perfecting all of them.

D. Draco has a tree-like stem, simple or divided at the top, and often when old becoming much branched, each branch terminated by a crowded head of lanceolate linear entire leaves of a glaucous green colour, which leaves embrace the stem by their base, and on falling off at maturity leave a ring-like cicatrix or scar. The flowers form a large terminal panicle, and are individually small and of a greenish-white colour. As seen in our stoves and green-houses, the plant is usually unbranched, being in its 'first age' or infancy, which lasts in its native country from twenty-five to thirty years. The 'second age,' or period of maturity and reproduction, and the 'third age,' or period of decay, are of indefinite extent. During the former of these, the scars of the leaves disappear, and the thickness of the trunk is at length increased by the formation of branches, and the consequent deposit of new matter; while in the latter stage, aerial roots appear, and glandular excrescences are formed. It is only when of great age that it branches. This tree derives its common name from a resinous exudation known in commerce as dragon's-blood. The resin has been found in the sepulchral caves of the Guanches, and has hence been supposed to have been used by them in embalming their dead. It appears at one time to have formed a considerable branch of export from the Canaries, and has never wholly fallen into disuse. The once famous colossal Dragon tree at the town of Orotava in Teneriffe was a giant amongst the plants of this type of vegetation, being according to Møyen seventy feet high, and forty-eight feet in circumference, with an antiquity which

must at least be greater than that of the pyramids. The trunk of this tree was hollow, and might be ascended by a staircase in the interior up to the height at which it began to branch. Near the ground Le Duc found it to be seventy-nine feet in circumference. Humboldt mentions that when he saw it, it had the same colossal size (16 ft. diameter) which it had when the French adventurers, the Bèthencourts, conquered these gardens of the Hesperiades in the beginning of the fifteenth century. A tree like this of slow growth, which for centuries changed so little, may well be believed to have possessed great antiquity. Unfortunately it was totally destroyed in a hurricane which occurred in 1867. [T. M.]

DRACÆNOPSIS. A genus of *Liliaceæ*, separated from *Dracæna* by Dr. Planchon, and consisting of plants agreeing in the following peculiarities: a six-parted marcescent campanulate perianth, with the segments biseriate; six stamens inserted at the base of the perianth segments; a three-celled ovary with many ovules in each cell; and a pea-shaped berry containing several seeds in each of its three cells. To this genus are referred *D. australis* and *D. indivisa*, two beautiful Australian arborescent species, with erect simple stems, and *Yucca*-like heads of crowded lanceolate-ensiform leaves. [T. M.]

DRACOCEPHALUM. This alarming name, literally Dragon's-head, has been given to a genus of from twenty-five to thirty species of herbaceous labiates, distinguished by having the throat of the corolla inflated, and the upper lip concave. They grow to the height of from six inches to three feet, and in habit somewhat resemble *Salvia*. *D. canariense* or *Cedronella triphylla* is better known as Balm of Gilead, a designation which it hardly merits, being a native of America and the Canaries, and having no healing properties, though the foliage is fragrant. It is distinguished by its pinkish spiked flowers, and ternate leaves. *D. Moldavica* is an annual with reddish stems, oblong blunt leaves, and whorled purplish blue or white flowers, forming a leafy spike. *D. virginianum*, also called *Physostegia*, bears numerous large light bluish flowers, arranged in four ranks, of which, it is said, 'the position may be altered at pleasure, and as they are placed, so they will remain for several hours.' Fr. *Dracocéphale*; Ger. *Drachenkopf*. [O. A. J.]

DRACONTIUM. A genus of *Oronticeæ*, comprising certain tropical species, with a thick fleshy rhizome, whence proceed a number of stalked pedate leaves, a sessile spadix with a hooded spathe, and very fetid flowers, which are hermaphrodite and have a five to eight-cleft perianth; stamens five to eight, the anthers with two transverse cells; ovary three-celled, each cell containing a single ovule; style awl-shaped; berries distinct, with one to three seeds. *D. polyphyllum*, a native of some parts of India, Japan, &c., possesses power-

ful stimulant properties. In Guiana it is considered as a remedy against the Labaeri snake, which it resembles in the colour of its spotted leaf-stalks. [M. T. M.]

DRACOPHYLLUM. A genus of *Epacridaceæ*, which is distinguished by having a calyx of five coriaceous leaves; a broad-tubed glabrous corolla with five spreading lobes curved in at the point; and the stamens inserted on the corolla in the New Zealand species, hypogynous in those of Australia and New Caledonia; the ovary is five-celled with five glands at its base. They have narrow grassy leaves sheathing at the base, and white flowers forming a racemose, spicate, or paniculate inflorescence. Most of them are natives of New Zealand, where their peculiar habit gives a striking character to the scenery. Some few are tall trees, the others only shrubs. [R. H.]

DRACOPIS. A genus of annual composite plants consisting of one N. American species, *D. amplexicaulis*, which has oblong-cordate stem-clasping leaves, and conspicuous flower-heads with a yellow ray and prominent black disk. It is an old garden plant, and is allied to *Rudbeckia*. [T. M.]

DRACUNCULUS. A genus of *Araceæ*, consisting of certain South European plants, with tuberous rhizomes and pedate leaves, scarcely differing from *Arum*, except in the upper part of the spathe being flat not convolute. One species, *D. vulgaris*, the old *Arum Dracunculus*, is common in gardens, where its pedately-divided leaves and spotted stems render it very ornamental. [M. T. M.]

DRAGON. *Dracunculus vulgaris*; also applied to the oronticeous genus *Dracontium*. — GREEN. *Arisæma Dracontium*.

DRAGONNE. (Fr.) *Tulipa turcica*.

DRAGONNIER. (Fr.) *Dracæna Draco*.

DRAGON ROOT. *Arisæma atrorubens*; also an American name for *Arisæma Dracontium*.

DRAGON TREE. *Dracæna Draco*.

DRAGON'S-BLOOD. A dark-red astringent resinous secretion of the fruit of *Calamus Draco*; another kind is obtained from *Dracæna Draco*. *Ecastaphyllum monstaria* yields a similar resinous product.

DRAGON'S-EYE. *Nephetium Longanum*.

DRAGON'S-HEAD. A common name for *Dracoccephalum*. — FALSE. *Physostegia*.

DRAGON'S-MOUTH. *Epidendrum macrochitum*.

DRAKEA *elastica* is a curious terrestrial orchid of West Australia with woolly roots ending in fleshy tubercles; a single orbicular leaf three-quarters of an inch across, growing quite close to the ground, and a slender erect smooth scape twelve to eighteen inches high, bearing at the apex a solitary dull-coloured flower three-quarters of an inch across. The shield-shaped labellum 'is placed on a long arm with a moveable joint in the middle,

and is stated by Mr. Drummond to resemble an insect suspended in the air moving with every breeze. This is the only species known. [A. A. B.]

DRAPETES. A genus of *Thymelaeaceae* with hermaphrodite flowers, and a coloured funnel-shaped perianth with a four-cleft limb, and no scales in its throat; stamens four, inserted on the perianth; no hypogynous scales; ovary one-celled. The fruit is a single-seeded nut, included in the base of the persistent perianth. *D. muscoides*, the only species, is found at the Straits of Magalhaens. It is a shrubby plant with opposite decussate sessile leaves. [J. H. B.]

DRAVE. (Fr.) *Draba*.

DRAYTONIA. A genus now united to *Acaurayia* (which is placed by some botanists with the dilleniads, and by others in the tea family), but differing in the styles being united to the apex. *D. rubicunda*, so called from the reddish hue of the leaves, is found in the Feejee Islands, and is the only species. It is an ornamental shrub, or sometimes tree, of forty to fifty feet high, with long alternate stalked papery oblong serrated leaves, and axillary stalked cymes of small red flowers, which have a calyx of five roundish sepals, five obovate petals, about forty stamens slightly united below, and an ovary crowned by a columnar style tipped with a three-lobed stigma. The fruit is a small capsule about the size of a pea, enclosing numerous seeds. The genus bears the name of Mr. J. Drayton, an American naturalist and artist. [A. A. B.]

DREGEA. A genus of *Asclepiadaceae*, containing two species, natives of Africa and Arabia. They are shrubs with opposite membranaceous leaves, and small glabrous flowers in umbels on interpetiolar peduncles. The calyx consists of five sepals, and the rotate corolla is five-cleft, with faintly emarginate lobes, while the staminal crown consists of five small kidney-shaped leaflets attached to the gynostegium. The two follicles are four-winged and divaricate, and contain few comose seeds. In habit and structure this genus is very near to *Marsdenia*; it differs from it chiefly in the structure of the staminal crown and in the tetrapterous fruit. [W. C.]

DRIMIA. A genus of *Liliaceae* from the Cape of Good Hope, containing bulbous herbs, with oblong orchis-like or linear root leaves, and scapes bearing a raceme of flowers, with a six-parted reflexed perianth, varying in colour in different species, being purple, yellow, white, or red, often tinged with green. The juice of the bulbs is said to be very acrid, causing blisters when applied to the skin. [J. T. B.]

DRIMIOPSIS. A genus of *Liliaceae* from the Cape of Good Hope, containing bulbous herbs with radical leaves, and a scape with a raceme of greenish yellow flowers,

which are bell-shaped, and have six equal stamens inserted on the perianth segments. *D. maculata* is a greenhouse bulb with spotted leaves. [J. T. B.]

DRIMYS. A genus of *Magnoliaceae*, consisting of trees natives of South America, New Zealand, &c. They have their carpels crowded, berry-like, and many-seeded, and the cells of the anther are separated by a thickened connective. *D. Winteri*, a native of Chili and the Straits of Magalhaens, furnishes the bark known as Winter's Bark, which both in appearance and properties is much like canella bark, but is of a darker colour internally. It is a stimulant aromatic tonic, but is seldom used. The bark was first brought to Europe by Capt. Winter in 1579, he having accompanied Sir Francis Drake to Magalhaens' Straits. In Brazil the bark of *D. granatensis* is used against colic. *D. piperita* is a native of Borneo. [M. T. M.]

DRIMYSPERMUM. A Malayan shrub with alternate leaves and umbellate flowers surrounded by an involucre. The perianth is coloured, tubular, with a four-parted limb; stamens eight, inserted into the throat of the perianth. The base of the ovary is surrounded by a membranous tube, the ovary itself being free, with one ovule in each of its two compartments, and crowned by a short style with a button-like stigma. Fruit berry-like, two-celled, two-seeded. It is included among the *Aquilariaceae*. [M. T. M.]

DROGUE AMÈRE. A bitter tincture, of which *Andrographis paniculata* is the basis; it possesses stomachic and tonic properties.

DROP-SEED. *Muhlenbergia diffusa*.

DROPWORT. *Spiræa Filipendula*; also *Potentilla Filipendula*. —, WATER. The common name for *Uranthe*.

DROSERACEÆ. (*Sundews*.) A natural order of thalamifloral dicotyledonous or exogenous plants belonging to Lindley's berberal alliance. Herbs often covered with glandular hairs. They have alternate leaves with fringes at their base, and a circinate veneration; sepals five, persistent; petals five; stamens as many as the petals, or twice or three times as many; styles three to five. Fruit a one-celled three to five-valved capsule with loculicidal dehiscence. The plants are found inhabiting marshes in Europe, India, China, Cape of Good Hope, Madagascar, North and South America, and New Holland. They have acid and slightly acrid properties. Hooker thinks that the order should be placed near the *Saxifragaceae*. Some of the Antarctic species are perigynous. The species of *Drosera* are remarkable for their glandular hairs, which are covered with drops of fluid in sunshine; hence the name of Rosolis, and of the Italian Quor Rosoli, in the preparation of which a species of *Drosera* is used. Some include *Farnassia* in this order. There are seven known genera, including

Drosera, *Dionaea*, *Drosophyllum*, and *Aldrovanda*, and about 100 species. [J. H. B.]

DROSEREA. A genus of plants giving name to the order *Droseraceae*, and distinguished by having five sepals, petals, and stamens, three to five-cleft styles, and a one-celled many-seeded capsule. Their most striking character, however, is connected with their leaves. These in the British species all spring from the root in a radiating manner, and in their early stage are rolled up in a circinate form like the fronds of a fern. When expanded they are somewhat concave, and are thickly set with red glandular hairs, those nearest the edge being the longest. Each hair is tipped, especially in bright weather, with a minute drop of viscid fluid, hence the name *Drosera* (from the Greek *drosos*, dew), and the English name Sundew. The hairs are not so decidedly irritable as in the allied genus *Dionaea*, but when any small fly or other insect alights on a leaf, it is held entangled, at first by the viscid fluid, and, subsequently, the hairs bend down over it until decomposition has taken place. And this is no unusual occurrence; on the contrary, one can scarcely ever examine a plant without finding the wings and legs of insects on one or more of the leaves. The viscid fluid with which the hairs are furnished, is said to be acrid and caustic, to curdle milk, and to remove warts, corns, freckles, and sunburns. It is also said to cause the rot in sheep. The salutary virtues ascribed to it may be real or imaginary; but with respect to its mischievous effects on sheep, there can be no doubt that where Sundew grows, there flocks are not likely to fatten, for the herbage with which it is associated is mostly moss, rushes, cotton-grass, and other juiceless weeds. There are three species of Sundew indigenous to Britain, which differ in the shape and size of their leaves, and agree in having small inconspicuous flowers on a leafless wiry scape. Some of the foreign species have leafy stems. The hairs of *D. lunata* are said to close upon insects which alight upon them. French, *Rosolles*; German, *Sonnen-tau*. [C. A. J.]

DROSOPHYLLUM. A singular half-shrubby plant belonging to the *Droseraceae*, distinguished by its ten stamens, and one-celled capsule opening with five valves, which bend inwards so as almost to make the capsule five-celled. *D. lusitanicum*, the only species, a native of the sandy hills of Portugal, grows about one foot high, bearing narrow leaves thickly set with stalked glands, and having large sulphur-coloured flowers. [C. A. J.]

DROUILLIER (Fr.) *Pyrus Aria*.

DRUMMONDIA. A name formerly given to a group of N. American herbs of the saxifragaceous order, now more commonly regarded as a section of *Mitella*, and known by their stamens being opposite the pinnatifid petals, and by the bilobed condition of their stigmas. [T. M.]

DRUMMONDITA. A genus of one species, *D. ericoides*, a heath like Rutaceous yellow-flowered undershrub, native of West Australia. It may be known by its stamens, which are conjoined into a long hairy tube of a purple colour. Of the ten stamens which form this tube, five are fertile, and five sterile, the latter being feathery. Ovaries five, placed on a five-lobed fleshy disk; style thread-like, protruding; stigma button-like. [M. T. M.]

DRUMSTICK TREE. *Cathartocarpus conspicua*.

DRUPACEÆ. (*Drupiferae*, *Amygdaleae*, *Almondworts*.) According to Lindley this is a distinct natural order, while other botanists regard it as a suborder of *Rosaceae*. The order belongs to the class of dicotyledons, and the sub class *Calyciflorae Polypetalae*, and to Lindley's rosal alliance. Trees and shrubs with simple alternate stipulate leaves. Flowers white or pink, in umbels or single; calyx five-toothed, lined with a disk, the fifth lobe superior or next the axis. Petals five, perigynous. Stamens about twenty, arising from the throat of the calyx. Ovary superior, one-celled; ovules two, suspended. Fruit a drupe, with a hard endocarp; seed usually solitary; no albumen. The plants are found in cold and temperate climates of the northern hemisphere. The leaves, flowers and seeds yield hydrocyanic or prussic acid. The bark is astringent, and yields gum. The fruit is in many cases edible. *Amygdalus communis*, the almond-tree, a native of Asia and Barbary, is cultivated in the South of Europe. There are two varieties, one producing sweet, the other bitter almonds. The kernels of the former contain a fixed oil and emulsin, while those of the latter contain also amygdalin, which by combination with emulsin produces prussic acid. *Cerasus communis* yields the common cherry. *C. Lauro-cerasus*, the cherry-laurel or bay-laurel, yields a hydrocyanated oil. The kernels of species of *Cerasus* impart flavour to noyseau, ratafia, cherry-brandy, and maraschino. *Prunus communis* furnishes the common plum, and *P. Armeniaca*, the apricot. *Amygdalus persica* supplies the peach, and a variety gives the nectarine. There are five known genera, and 110 species. [J. H. B.]

DRUPARIA. An imperfectly known Brazilian herbaceous plant of the gourd family, with a furrowed stem, and branching tendrils; female flowers in clusters. The fruit is four-celled, four-seeded. [M. T. M.]

DRUPE (adj.) DRUPACEOUS. A fleshy or succulent fruit, with a bony putamen or lining, as a plum.—**SPURIOUS.** Any fleshy body inclosing a stone.

DRUPEOLE. A little drupe.

DRYADANTHE. A genus of the rose family, nearly allied to *Sibbaldia*, but differing in the parts of the flower being arranged in fours. *D. Bungeana*, the only known species, is a little Alpine plant from two to four inches high, found in

the Altai mountains; it grows in dense tufts, and all its parts are covered with silky hairs; the leaves are about a quarter of an inch long, and made up of three leaflets, the central one with three, the lateral ones with two teeth. The stems are terminated by one or two little flowers, each with a four-parted calyx border, four petals, and four stamens, or in the females a like number of ovaries. [A. A. B.]

DRYANDRA. A large proteaceous genus, named after Dr. Jonas Dryander, a celebrated botanist, who was librarian to Sir Joseph Banks. It is distinguished by having four-parted apetalous flowers, generally clothed on the exterior with reddish-brown wool; four linear nearly sessile anthers, inserted on the concave extremities of the segments of the flower, bursting longitudinally; a round occasionally furrowed style, slightly exerted, and a cylindrical or clavate stigma. The fruit is a woody follicle. The flowers grow in sessile terminal heads, with a closely imbricated involucre, clothed with dense reddish-brown wool, the outer bracts elliptical, acuminate, the inner ones subulate with a pencil of rufous wool at the point.

Dryandra, like its congener *Banksia*, is more remarkable for the variety and peculiar forms of its generally rigid foliage than for the beauty of its flowers. The leaves are either linear or oblong, and with very few exceptions coarsely serrated, lobed or pinnatifid (in *D. speciosa* they are entire), varying considerably in size, some being from a foot to a foot and a half in length, and not more than a third of an inch in breadth, as *D. longifolia*, *D. Brownii*, *D. tenuifolia*, &c.; whilst in others, as *D. pramorsa*, *D. cuneata*, *D. floribunda*, &c., they are only two inches long, and half an inch broad. The genus has only been found on the south and south-west parts of Australia, the larger number of the species having been discovered in the immediate vicinity of King George's Sound and Swan River. [R. H.]

DRYAS. A genus of herbaceous plants with shrubby stems, giving name to the sub-order *Dryades* of the *Rosaceæ*. The species are elegant little evergreen plants of humble growth, with rather large simple leaves which lie prostrate on the ground, and showy white or yellow flowers like the *Potentillas* and *Geums*, but well distinguished from both by having the seed-vessels furnished with a long unjointed feathery appendage or tail. They are found either in high latitudes, or in Alpine or sub-Alpine regions, in both hemispheres. *D. octopetala*, the only British species, well marked by its eight white petals, is not unfrequent in the mountainous parts of England, Ireland, and Scotland, the last especially. French, *Driede*; German, *Silberrosen*. [C. A. J.]

DRYMARIA. A genus of *Illecebraceæ* allied to *Spergula*, and like it rather to be referred to a section of *Caryophyllaceæ*. It

consists of tropical or sub-tropical herbs with slender diffuse stems often rooting at the joints, opposite leaves varying from subrotund to linear, often with small caducous stipules, and white flowers in paniculate or corymbose cymes. [J. T. S.]

DRYMODA picta. The name of a curious minute epiphytal orchid, with pseudobulbs, and apparently no leaves, found growing in Birmah, and described and figured by Dr. Lindley in the *Sertum Orchidaceum*, t. 8. The flower is single, on the end of a short scape, and inverted, that is the labellum is uppermost. 'The column with its two long petal-like arms is undermost, and the long foot of the column stands over it, bearing at the apex a pair of pink and white lateral sepals, between which hangs down the deep red, fleshy, and hairy labellum.' The other parts of the flower are yellow with brown spots. The four pollen masses without caudicles, attached to a large globose fleshy stigmatic gland, make this plant a link between *Epidendrea* and *Vandea*. [A. A. B.]

DRYMOGLOSSUM. A genus of small creeping polypodiaceous ferns, with simple fronds, belonging to the group *Tenitideæ*. The fronds are either of two forms, the fertile ones more or less revolute or contracted, or else the fertile apex of the frond is contracted. The sori form thickish lines at or near the margin on the lower surface. The veins are reticulated, and very frequently obscure; they are, however, uniform, and form roundish or oblong-hexagonal areoles, which enclose a few free veinlets. The species are not very numerous, but are widely scattered, occurring in India, China, and Japan, extending to Norfolk Island, and again occurring in the West Indies. The lines of sori, which are not covered, are sometimes placed directly on the surface of the frond, sometimes sunk in a little groove or channel. In some species the sterile fronds are nearly round; in others they are subcordate, or elliptic, or spatulate, while the fertile are twice their length, and of a linear or linear-oblong outline. The common typical species is *D. piloselloides*, a wide-spread eastern plant. [T. M.]

DRYMONIA. A genus of South American shrubs, belonging to the *Gesneraceæ*. They are twiners upon trees in moist places, throwing out rootlets from any part of the stem, and they have opposite serrated petiolate leaves, and large flowers on solitary axillary peduncles, the corolla being campanulate-tingent, gibbous at the base on the posterior side, and with the upper lip two-lobed and the lower three-lobed. The four inclosed didynamous stamens are inserted at the base of the corolla tube, without any trace of a fifth. Seven species have been described. [W. G.]

DRYOPHILA. A genus of *Liliaceæ* from Tasmania, consisting of herbs with erect stems leafless below, but with two-ranked narrowly-lanceolate sessile acute

leaves above, and axillary and terminal one-flowered peduncles, supporting white flowers with six spreading segments. The fruit is a pendulous blue sub-globose three-lobed berry. [J. T. S.]

DRYMYRHIZÆ. A synonyme of *Zingiberaceæ*, under which the characters of the plants are given. [J. H. B.]

DRYNARIA. A genus of polypodiaceous ferns, generally distinguishable by the production of two separate kinds of fronds: the one pinnate or pinnatifid in the usual way, and bearing sori; the other very short, always sterile, coarsely veined, and soon acquiring a harsh dried appearance, quite stalkless, and lobed at the edge so as to resemble the leaf of an oak, whence they are called querciform. The fronds have a very compound venation, two or three series of irregular quadrate areoles being formed within each other, and free veinlets being produced in the ultimate areoles. The fructification is that of *Polypodium*. The genus, which is very well marked, is therefore known by its polypodioid fructification, its compoundly anastomosing venation, and its dwarfed querciform sterile fronds. The segments or pinnae of the larger fronds readily fall away, being articulated at their base. In *D. quercifolia*, which is the type of the genus, the sterile oak-leaf fronds are four to six inches long, and the larger fertile ones from one to two feet or more in length, dark shining green, with long segments bearing a row of sori on each side of their costa. The few species now retained in the genus are all eastern, being found in India, and in the islands of the Pacific, extending as far as Australia and the Feejee Islands. In one species, *D. coronans*, the two forms of frond become combined in one, the fronds of this species being sessile and querciform at the base, but elongated upwards so as to bear the fertile segments on the upper part. Though normally and usually round, as in *Polypodium*, the sori in *D. coronans* sometimes become confluent in lines between the primary veins, and in that state are very similar to those of *Selliguea*. [T. M.]

DRYOBALANOPS. A tree, native of the island of Sumatra, yielding a kind of camphor. It constitutes a genus of *Dipteracæ*, characterised by the calyx having a cup-shaped tube, and a limb divided into five leafy erect segments. The fruit is a capsule, enclosed within the cup of the calyx, and bursting when ripe by three valves: according to Professor Oudemans, of Rotterdam, the most recent investigator of this plant, and who has enjoyed better opportunities for so doing than his predecessors. It appears from his description in the *Annales des Sciences Nat.* (4 ser. v. 100), that the valves of the fruit, in separating from each other, carry with them the investment of the seed, so that the embryo is left exposed in the cavity of the fruit. The fruit is usually described as containing but one seed, but this is not

always the case, as in some instances two seeds have been found. Standing up in the centre of the fruit is a little stalk or columella, which is concealed in a furrow of the seed, where it divides into two wings concealed beneath the edges of one of the cotyledons, which is considerably larger than the other. The seeds have been observed to germinate in the ripe fruit after the dehiscence of its valves.

D. aromatica or *D. Camphora* furnishes a liquid called camphor oil, and a crystalline solid known as Borneo or Sumatra Camphor. Camphor oil, which is obtained by incising the tree, has a fragrant aromatic odour, and has been employed to scent soap. The solid camphor is found in the cracks of the wood, and is obtained by cutting down the tree, dividing it into blocks and small pieces, from the interstices of which the camphor is extracted. It is rarely seen in this country, but fetches a very high price. It differs from ordinary camphor by its six-sided crystals, and its greater hardness and brittleness. It does not so readily become condensed on the sides of the bottle wherein it is kept, as ordinary camphor does. This camphor is much sought after by the Chinese, who attribute many virtues to it. It seems to have been long known, as it is mentioned by Marco Polo in the thirteenth century, and Camoens, in 1571, also mentions it as 'the balsam of disease.' [M. T. M.]

DRYOMENIS. A curious and somewhat anomalous genus of ferns belonging to the group having naked sori, and having the sori small and oblong, but arranged transversely to the veins and parallel with the costa, thus indicating a technical relationship with *Meniscium*. It has a compound form of venation, the pinnate veins being first united by transverse venules, and then again once or twice united by zigzag veins forming irregular areoles, from which in the sterile fronds free included veinlets branch out. The receptacles are seated on the transverse veins, which join the primary veins proceeding from the costa, so that the sori are placed parallel to the costa. The only species, *D. meniscicarpon* of the Philippine Islands, is a rather coarse-growing fern with broad fronds, becoming taller and contracted with a less copious venation when fertile. It is sometimes associated with the *Polypodies*. [T. M.]

DRYOPTERIS. A name originally given by Adanson to the common male fern now called *Lastrea*, and subsequently also applied to a group agreeing with this in general structure. It has not, however, been generally adopted, the name *Lastrea* being preferred by some, who separate the free and netted veined species, and that of *Nephrodium* by others, who, irrespective of venation, combine in one group all the aspidioid plants with reniform fructification. It has been applied by some writers to a section of *Polypodium*. [T. M.]

DRYOSTACHYUM. A small genus of

ferns, remarkable for the diversity of the different parts of its fronds. The species are generally referred to the *Polypodiaceæ* group of true ferns, but on account of the sori being seated on a broad receptacle, consisting not of a point on one vein, but of a crowded network of fine veinlets or little veins, they have been sometimes placed along with *Platycterium*, in a small group called *Platycteria*, in which the same feature occurs. The fronds are leathery in texture, with prominent veins, merely pinnatifid, with the parts broad at the base, but in the upper part deeply divided into narrow or contracted segments, which are fertile. The parts are all articulated so as to separate spontaneously from the rachis or rachis. The sori are large and generally quadrangular, closely set along each side of the costa, each of them covering or seated on a fine network of veins. They are without indusia. The venation is very compound, the veins and venules in the sterile parts anastomosing freely in almost equal-sided areoles, and enclosing free veinlets in the ultimate spaces. There are only two species known, both of which are natives of the Philippine Islands. [T. M.]

DRYPETES. A genus of *Euphorbiaceæ*, comprising a few West Indian and South American trees or shrubs, which have alternate oval or elliptical pointed leathery leaves, and inconspicuous flowers arranged in axillary fascicles, the males and females on different plants. The males have a calyx of four to six divisions, no petals, and two to six free stamens; the females have an ovary of one or two cells seated in a fleshy disk. The fruit is a hard elliptical dry drupe. The genus is nearly allied to *Hemicycella*, but the latter has numerous stamens. [A. A. B.]

DRYPIS. A genus of *Caryophyllaceæ*, distinguished by having a one-seeded utricular capsule, which breaks across transversely. *D. spinosa*, a Mediterranean herb, has branched rigid fragile stems, with opposite subulate leaves ending in spines, and small rose-coloured flowers in dense corymbose cymes, with only five stamens in each. [J. T. S.]

DRY ROT. We are concerned with this subject only so far as it may be the effect of *Fungi*, or as calling those *Fungi* into especial notice. As, however, Dry Rot may be the effect of slow chemical combustion as well as of *Fungi*, and the results are much the same in either case, it is well that any mycologist who may attempt the investigation of the subject should be aware of the fact.

Dry Rot may be produced by various species, as *Polyporus hybricus*, *Thelephora putana*, *Merulius lacrymans*, &c. In oak it is generally due to the first, and in the wood of conifers to the last. Different kinds of timber, moreover, in tropical countries have their own enemies, but these at present have not been sufficiently investigated. The spores of the *Fungi*

may be brought into the dock-yard with the wood, in which case they are mostly the result of some ancient malady, and may have remained dormant in the wood altogether, or may have existed in the shape of minute spawn. The foxy oak, which is grown on old stools, owes its colour to incipient decomposition accompanied by delicate spawn, and when exposed to circumstances favourable to fungal development, the perfect form of the fungus by which it was injured will soon make its appearance. Elm trees are often strongly impregnated with spawn before they are felled, and we have lately seen *Polyporus ulmarinus* bursting forth from the cut surface of an elm tree which fell a sacrifice to the spring gales of 1860, the whole wood being evidently affected.

When the fungus attacks the surface, it soon runs over it, and its spawn penetrates the wood, destroying all before it. The best remedy against Dry Rot consists in careful selection of wood, perfect ventilation, and patient seasoning, added to the employment of such kinds of wood for particular purposes as may be most suitable to the situation they are intended to occupy. Mineral salts may also be employed, but the remedy on which authorities in the present day insist the most is creosote, which has the property of coagulating albumen, and making it enter into combinations unfit for vegetation. It is, however, found that where the proper conditions have been secured, it is quite as economical to do nothing, for even with bad materials Dry Rot is not universal, and with good, attended by proper precautions, there will be little or no Dry Rot except under accidental circumstances which are favourable to its progress. In damp situations with imperfect ventilation, even should no fungus be present, decomposition is sure to take place, destructive to the wood, and prejudicial to the health of those who are constantly in its neighbourhood. In cellars and domestic buildings where the fungus has not already committed too much mischief, it may be effectually checked by washing it with a strong solution of corrosive sublimate. Where fungus does not exist, the remedy is scarcely applicable when decay has commenced, though it may be useful in the first instance. [M. J. B.]

DUBOISIA. A name applied to an Australian shrub, placed by Miers in *Atropaceæ*, but by others referred to *Scrophulariaceæ*. Its flowers are in axillary clusters, white, with a two-lipped calyx; corolla funnel-shaped, the limb five-parted; stamens five, included within the corolla, four fertile (two long, two short), and one rudimentary; ovary with two many-ovuled compartments; fruit berry-like. [M. T. M.]

DUBYEA. A genus of *Compositæ*, nearly related to *Hieracium*, but differing in having beaked achenes. Of the three known species, one with the habit of a sowthistle is found in Australia; another,

somewhat like a dandelion, is found in Armenia; and a third, like a hawkweed, grows in the Himalayas from Sikkim westward to Kumaon, at elevations between 8,000 and 12,000 feet. Its upper leaves are hairy, oblong, entire or toothed, and embracing the stem, while the lower are nearly triangular, and narrowed into a winged stalk. The yellow flower-heads have their lance-shaped involucreal scales beset with black hairs, and the compressed striated achenes are narrowed into a beak, and crowned with a pappus of numerous rough hairs. The genus bears the name of M. Duby, a French botanist. [A. A. B.]

DUC DE TOLE. (Fr.) *Tulipa suaveolens*.

DUCHARTREA. A genus of *Gesneraceae*, containing a single species, a native of the mountains of Cuba. It is an erect branching shrub, wrinkled with resinous warts, and having coriaceous toothed leaves and greenish flowers in few-flowered corymbs. The corolla campanulate, slightly constricted on the underside, and the limb cut into five unequal roundish lobes, furnished with awned teeth around the margins; the stamens are didynamous with a sterile fifth. The base of the style is surrounded by an erect pentagonal cup. The warty oval fruit is crowned by the persistent calyx. [W. C.]

DUCHASSAINGIA. *Erythrina*.

DUCHESNEA. The name sometimes applied to an East Indian strawberry, *Fragaria indica*, with insipid fruit and yellow flowers. [A. A. B.]

DUCK'S-FOOT. *Podophyllum*.

DUCKMEAT or **DUCKWEED.** The common names of the curious floating aquatic, which form the genus *Lemna*.

DUCTS. Tubular vessels marked by transverse lines or dots: apparently in some cases modifications of spiral vessels, when they are called *closed*, *annular*, *reticulated*, and *scalariform*; sometimes analogous to pitted tissue, when they are called *dotted*, and form bothrenchyma.

DUCU. The resin of *Clusia Ducu*.

DUDAIM. A biblical plant, regarded as the Mandrake, *Mandragora officinalis*.

DUFOUREA. A genus of *Convolvulaceae*, containing five species of South American twining undershrubs with alternate entire leaves, and numerous white flowers in panicles on axillary or terminal peduncles. The calyx consists of five sepals, the two outer of which are membranaceous, and coloured, very large, almost hiding the funnel-shaped corolla, within which are five included stamens, with short subulate filaments. The two-celled ovary is surmounted by two styles or a single one deeply-cleft, with capitate stigmas. [W. C.]

DUFRESNEA. A Persian annual of the order *Valerianaceae*. The leaves are entire; the flowers in close cymes, sometimes uni-

sexual; the calyx limb has three unequal ovate acute netted segments, which increase in size as the fruit ripens; the corolla is tubular, regular, spurless, its limb five-lobed; stamens three. The fruit is membranous, very hairy, crowned by the calyx lobes, three-celled, with two of the cells empty and distended. [M. T. M.]

DUGUETIA. A genus of *Anonaceae*, consisting of Brazilian trees with scurfy branches. The flower is not described, but the receptacle bearing the fruits is divided transversely into two sections, the lower globular, woody, marked with the scars of the fallen stamens, the upper portion somewhat conical, spongy, pitted; the carpels inserted on this receptacle are numerous, ovate, angular, terminated by the persistent styles, woody and one-seeded. *D. gutierrezii* is said to furnish the light elastic lance-wood of Cuba and Guiana, used by coachbuilders principally. [M. T. M.]

DUK. The horsehair-like fibres of the Gomuti palm, *Saguerus saccharifer*.

DULCIS. Any taste which is not acrid.

DULCAMARA. *Solanum Dulcamara*, the Woody Nightshade or Bittersweet.

DULSE. A name given in Scotland to several different kinds of rose-spored *Algae*, but especially to *Rhodymenia palmata* and *Iridora edulis*, which are extensively eaten on the sea-coasts, and which occasionally make their appearance in the market. We have ourselves been thankful for this coarse and parchment-like food amongst the Western Isles, when it was impossible to procure any other kind of sustenance. *Laurencia pinnatifida* affords an inferior Dulse, known under the name of Pepper Dulse. These species are generally eaten raw. When cooked they have an unmitigable sea-twang, which, in spite of all the pains of Soyer, forbids their entrance into any acceptable food, where more sapid articles are procurable. [M. J. B.]

DUMERILIA. A genus of perennial Mexican herbs, belonging to the lip-flowered group of *Compositae*. They are smooth plants from one to three feet high, with sessile oval rigid leaves, which embrace the stem by their base, and shortly-stalked flower heads disposed in terminal corymbs; each capitule is about half an inch long, and contains from five to fifteen white florets, enclosed by an involucre of about three series of lance-shaped scales. The achenes are slightly beaked, dilated at the apex, and crowned by a pappus of one series of numerous white pilose bristles. In the nearly-allied *Peresia*, the hairs of the pappus are in two series; but according to Dr. A. Gray, this character is here of little importance, and he would unite the genus to *Peresia* along with *Clarionea* and *Homolanthus*. The roots of the two known species are stringy, and the stem at the base is furnished with a tuft of rusty hairs. From the roots of *D. Alamani*, a curious chemical production known as Pipitzahuac is prepared; it resem-

hies flakes of gold, and is said to be powerfully drastic, with an odour of valerian, and useful as a dye. The plant is also known as *Perezia fruticosa* and sometimes *Acourtia rigida*. [A. A. B.]

DUMUS (adj. DUMOSE). A low branching shrub.

DUNBARIA. A small genus of twining plants of the *Pes* family, natives principally of Tropical Asia, and represented in Australia by one species. In foliage and habit they are somewhat like *Phaseolus*, but the leaves are smaller. The large flowers are generally bright-yellow, and disposed in loose axillary racemes. The calyx is four-cleft to the middle; the corolla remarkable for the large membranous standard, much longer than the calyx, which embraces and hides the other petals, and has two callosities at its base. In some species it is an inch long. The pod is flattened and hairy, strongly compressed between the seeds. The genus is nearly related to *Cytisus*, which, however, has a large membranous calyx completely hiding the corolla. It is named in honour of Prof. Dunbar of Edinburgh. [A. A. B.]

DUNGAN. *Myristica spuria*.

DUODENI. Growing twelve together.

DUPERREYA. A New Holland Convolv. lacous plant, now united with *Porana*—a twining undershrub, with petiolate narrow leaves, and solitary axillary flowers at the ends of the branches, having a somewhat funnel-shaped corolla. The capsule contains a single seed. [W. C.]

DUPLICATE. Growing in pairs. In composition the word indicates the repetition of a character: thus *duplicate-crenate* is when each crenel is itself crenate; *duplicate-dentate*, when each toothing is itself toothed; *duplicate-pinnate*, when the leaflets of a pinnate leaf become themselves pinnate; *duplicate-serrate*, when each serrature is itself serrated; and so on.

DUPLU. Twice as much as, or twice as many as.

DUPONTIA. A genus of grasses belonging to the tribe *Aveneæ*, distinguished by the inflorescence being in contracted panicles; spikelets ovate, two-flowered, with the rudiment of a third floret; stamens three; ovary smooth; styles two, feathery. The species are from the extreme northern limits of phenogamous vegetation: *D. Fischeri* from Melville Island, and *D. psiloseris* from Russian North America. [D. M.]

DUPUISIA. A genus of *Anticardiaceæ*, consisting of trees natives of Senegal. The calyx is cup-shaped, persistent, slightly five-toothed; petals five; stamens five, inserted with the petals into the calyx; ovary one-celled, one-seeded. Now united with *Sorindeia*. [M. T. M.]

DURAMEN. The heart-wood, or that part of the timber of a tree which becomes hardened by matter deposited in it. It is

next the centre in Exogens, and next the circumference in Endogens.

DURANTA. A genus of S. American bushes of the vervain family, easily distinguished by the racemed flowers, and by the nature of the fruits, which are composed of four nuts enclosed in the calyx tube, which is contracted at top; they are hard and about the size of a pea, each nut with two one-seeded cells. Some are spiny, others unarmed; but all are straggling bushes with four-angled grey twigs, and opposite or whorled stalked leaves, in some like those of the privet, in others toothed. The pretty blue flowers are borne in great profusion in racemes towards the ends of the branches, each about half an inch long, and having a tubular five-ribbed five-toothed calyx, and a corolla about three times the length of the calyx, with a flat border of five unequal rounded lobes, nearly half an inch across. Some of them are said to be poisonous, and the seeds are not eaten by birds. *D. Plumieri* is in cultivation, and may often be seen in plant-stoves. About six species are known. [A. A. B.]

DURELIN. (Fr.) *Quercus sessiliflora*.

DURIEA. A genus of *Etiaceæ*.

DURIAN. *Durio sibethinus*.

DURIO. The tree producing the celebrated Durian fruit of the Indian Archipelago, *D. sibethinus*, is the only species of this genus of *Sterculiaceæ*. It forms a large forest tree, attaining sixty or eighty feet in height, with somewhat the general appearance of an elm. The leaves are entire, oblong, rounded at the base and taper-



Durio sibethinus.

ing upwards into a long point, densely covered beneath with minute scales, which give them a silvery red appearance. The flowers are yellowish-green, produced in little clusters upon the trunk or main branches, each flower having two large concave bracts at its base; the calyx is tubular and five-toothed; the corolla has five petals, which are partly joined so as to form a short tube; the stamens are numerous collected into five bundles, and have twisted or uneven anthers; and the

scaly ovary is surmounted by a long thread-like style, and a simple round stigma. The fruit varies in shape, being either globular or oval, and measures as much as ten inches in length; it has a thick hard rind, entirely covered with very strong sharp prickles, and is divided into five cells, each of which contains from one to four seeds rather larger than pigeons' eggs, and completely enveloped in a firm luscious-looking cream-coloured pulp, which is the eatable portion of the fruit.

This tree is very commonly cultivated throughout the Malayan Peninsula and Islands, where its fruit, during the period it is in season, forms the greatest part of the food of the natives. Considerable diversity of opinion exists among epicures as to the relative merits of several well-known tropical fruits, including the Durian, the mangosteen, the cherimoyer, and the pineapple, any one of which is made to occupy the foremost place, according to individual taste. The flavour of the Durian, however, is said to be perfectly unique; and it is also quite certain that no other fruit, either of tropical or temperate climes, combines in itself such a delicious flavour with such an abominably offensive odour—an odour commonly compared either with putrid animal matter, or with rotten onions. It might be supposed that a fruit possessing such an odour could never become a favourite; but it is said that when once the repugnance has been overcome, the Durian is sure to find favour, and that Europeans invariably become extremely fond of it. Mr. A. Wallace observes that 'a rich custard highly flavoured with almonds gives the best general idea of it, but there are occasional wafts of flavour that call to mind cream-cheese, onion-sauce, sherry wine, and other incongruous dishes. Then there is a rich glutinous smoothness in the pulp which nothing else possesses, but which adds to its delicacy. It is neither acid, nor sweet, nor juicy; yet it wants none of these qualities, for it is in itself perfect. It produces no nausea or other bad effect, and the more you eat of it the less you feel inclined to stop. In fact, to eat Durians is a new sensation worth a voyage to the East to experience.' The unripe Durians are cooked as a vegetable, and the pulp of the ripe fruit is salted and preserved in jars; while the seeds are roasted and eaten like chestnuts. [A. S.]

DURMAST. *Quercus sessiliflora pubescens*.

DURRA. *Sorghum vulgare*.

DUST BRAND. *Ustilago*.

DUTCHMAN'S BREECHESS. *Dicentra Cucullaria*.

DUTCHMAN'S LAUDANUM. A tincture of *Passeflora rubra*, or, according to some, of *Murucuja ocellata*.

DUTCHMAN'S PIPE. An American name for *Aristolochia Sipho*.

DUTTONIA. A name originally pro-

posed by Dr. Mueller for an Australian composite plant, which proved to be the same as *Dimorpholepis*; and afterwards applied by him to a myoporaceous shrub from South Australia, which he published as a new genus, but which he has more recently reduced to *Eremophila*.

DUVALIA. A name given by Haworth to some species of *Stapelia*.

DUVAUA. A genus of *Anacardiaceae*, consisting of trees or shrubs, natives of extratropical South America. They are sometimes armed with axillary spines; the leaves are entire; the flowers are in clusters, each with a four or five-cleft persistent calyx; four to five petals inserted beneath an eight-lobed disk; eight to ten stamens, those alternate with the petals longer than the others; and a sessile one-celled ovary. The drupe is pea-shaped, having the smell of juniper. Some of the species are grown as evergreen wall shrubs, with white or greenish flowers. Dr. Lindley remarks 'that the leaves of *D. lasifolia* expel their resin with such violence, when immersed in water, as to have the appearance of spontaneous motion in consequence of the recoil.' [M. T. M.]

DWAJEE. The Deadly Nightshade, *Atropa Belladonna*.

DYCKIA. Brazilian herbs, named in honour of Prince Salm-Dyck, an amateur and patron of science. They constitute a genus of *Bromeliaceae*, having lance-shaped pointed leaves, and bearing flowers in panicles, with spiny bracts. The perianth is six-parted, the three outer segments calycine, the three inner ones petal-like, bell-shaped, rather fleshy; the six filaments of the stamens are united below into a tube adherent to the inner segments of the perianth; the ovary is free, three-lobed, with three spreading forked stigmas. *D. variiflora* is a very showy plant with orange-coloured flowers. [M. T. M.]

DYER'S-WEED. *Roseda Latuola*; also *Genista tinctoria*, and *Isatis tinctoria*.

DYNAMIS. A power. A figurative term employed by Linnaeus to express the degrees of development of stamens. Thus his *Didynamia* signified stamens of two different lengths, or of two different degrees of development.

DYSOPHYLLA. A genus belonging to the labiate order, distinguished from its congeners by the corolla having a short tube, the border divided into four nearly equal pieces, the upper division entire or slightly notched. The few species belonging to it are herbs, natives of India and Java; the leaves opposite or in whorls; the flowers in more or less dense clusters. The name is derived from Greek words signifying 'fetid leaf,' and descriptive of the odour of the plants, in which property they differ from most of the species of the same order. [G. D.]

DYSOXYLON. Large Javanese trees forming a genus of *Meliaceae*, with com-

pound leaves, whose leaflets are oblique at the base; the flowers are in axillary panicles with four or five-parted whorls; the tube, formed by the union of the stamens, is eight to ten-toothed with as many anthers in the interior; ovary three or four-celled surrounded at the base by a small disk; capsule three-celled, the seeds solitary in each compartment. [M. T. M.]

DYSSOCHROMA. A climbing Brazilian solanaceous shrub. It has a calyx of five persistent segments; a fleshy funnel-shaped corolla with the limb divided into five acute revolute segments; five protruding stamens, the anthers opening longitudinally, and surmounted by a small point; an erect style thickened at the top; and a two-celled ovary placed on a large fleshy disk. [M. T. M.]

DYSSODIA. A genus of composite herbs, nearly related to *Tanacet.*, but differing in the nature of the pappus, which is composed of a number of chaffy scales pinnately or palmately divided above, and entire below, so that they appear like a polyadelphous pappus. Of the eight known species, two are found in the United States and the others in Mexico. Some have linear or lance-shaped entire or toothed leaves; in others they are pinnatisect. The yellow flower-heads are disposed in loose corymbs, or panicles at the ends of the branches, and have an involucre of one series of scales, more or less united by their edges, and often indented by an outer series of bracts. The florets are all tubular and perfect, but in most of them the outer ones are strap-shaped and contain a pistil only. Most of these herbs emit an unpleasant odour from the presence of oily matter secreted by the glandular dots of the leaves. *D. chrysanthemoides*, a dwarf annual with pinnatisect leaves, grows in great profusion over the western prairies of Illinois; and in autumn exhales so unpleasant an odour as to sicken travellers. [A. A. B.]

E, EX. In composition = without; thus ex-albuminous signifies without albumen.

EAGLE-WOOD. The timber of *Aloxylin Agallochum*; and also of *Aquilaria ovata*, and *A. Agallocha*.

EARAIHAU. *Ascarina polystachya*.

EARCOCKLE. The name of a curious disease in wheat, in which the grain becomes blackened and contracted, and mealy within from the myriads of worms belonging to the genus *Fibria*. The little animals are extremely tenacious of life, and though apparently reduced to dust, when steeped in warm water for a short time, after being dry for many months, they recover their former activity. The disease not only impairs the value of the wheat, but the little worms are very annoying to the miller from filling up the pores of his bolting-cloths. The affection is local, and quite unknown in many parts of England. In some districts it is called **Purple**. [M. J. B.]

EARED. The same as **Auriculate**.

EARTH-GALL. *Ophiorrhiza Mungos*.

EARTH-NUT. *Arachis hypogaea*.

EARTH-STAR. *Gaster*.

EARTH-TONGUE. *Geoglossum*.

EAU D'ANGE. A perfume distilled from the flowers of *Myrtus communis*. — **DE COLOGNE.** A well-known alcoholic perfume, to which *Lavandula vera* and *Rosmarinus officinalis* contribute their fragrance. — **DE CRE'OLE.** A stomachic distilled from the Mammee apple, *Mammea americana*. — **DE MANTES.** A liqueur distilled from *Croton balsamiferum*. — **MEDICINALE.** A gout medicine prepared from *Gyatula officinalis*. — **D'OR.** A liquid distilled from *Conrallaria majalis*. — **D'ORME.** A liquid secreted in certain galls of the elm.

EBENACEÆ (Ebenads). A natural order of corollifloral dicotyledons, belonging to Lindley's gentianal alliance. Trees or shrubs, not milky, with alternate exstipulate leathery and entire leaves; flowers hermaphrodite, or staminate and pistillate; calyx three to seven-cleft, persistent; corolla three to seven-cleft; stamens usually twice or quadruple the number of the corolline segments. Ovary three or several-celled, with one or two pendulous ovules in each cell. Fruit a round or oval berry; seeds albuminous. [They are chiefly Indian; one species is naturalised in South Europe, and is indigenous to N. Asia, and China. They are also represented in Tropical Africa, at the Cape, in South America, Brazil, and Australia.] The trees of this order yield hard and durable timber. The bark of some is astringent, and the fruit is sometimes eatable. The heartwood of different species of *Diospyros* constitute the ebony of commerce, of which there are many varieties, e. g. *D. reticulata*, Mauritius Ebony; *D. Melanoxylon* and *D. Ebenaster*, East Indian Ebony; and *D. Ebenum*, Ceylon Ebony. *Diospyros guianensis* yields the variegated Calamander wood of Ceylon and the coasts of India, which is shipped from Bombay and Madras. The Ker fig of Japan is the edible fruit of *Diospyros Kaki*; while the Persimmon is the fruit of *D. virginiana*. [Five genera only are recognised in Mr. Hieron's recent monograph (*Royena, Euclea, Diospyros, Maba, Tetractis*), with about 25 species.] [J. H. B.]

EBENIER. (Fr.) *Diospyros Ebenum*.

EBENUS. A genus of the pea family, numbering about eight species, closely related to *Onobrychis*, but the pods smaller, and not toothed or crested. They are elegant little shrubs or biennial plants, chiefly confined to the high mountainous regions of Eastern Europe and Asia Minor, though *E. pinnata* is found in Algeria, and another as far east as Beloochistan. All their parts are commonly crowned with silky hairs; and the leaves are usually unequally-pinnate, made up of three to five pairs of linear or lance-shaped leaflets, though in a few they are digitate or simple. The peduncles are axillary or terminal, and

bear dense spikes or round heads of pink or violet blossoms, in which the deeply-lipped calyx is conspicuous, and densely clothed with silky hairs. The keel of the corolla has the very minute triangular wings adhering to its claw near the base, and of the ten stamens, nine are united into a tube, and one is free. [A. A. B.]

EBERMEYERA. *Adenoma*.

EBOE TREE. *Dipterix eboensis*.

EBONY. The timber of various species of *Diospyros*, especially *D. Ebenum*, *Ebenus*, and *Melanoxylon*. —, AMERICAN. *Irya Ebenus*. —, GREEN. *Ezcaruria glandulosa*, and also *Jacaranda ovalifolia*. —, JAMAICA, or WEST INDIA. *Irya Ebenus*. —, MOUNTAIN. *Bauhinia variegata*.

EBRACTEATE. Having no bracts.

EBURNEUS. Of the colour of ivory.

ECALCARATE. Not having a spur.

ECASTAPHYLLUM. A small genus of leguminous shrubs found in S. America and W. Africa, nearly related to *Dalbergia*, which has long straight thin pods, while these have flat, nearly orbicular one-seeded pods, whose valves have a tendency to a corky thickening. The leaves are sometimes simple, but more generally pinnate, and made up of three to five pairs of oval leaflets, and an odd one. Their little white straw-coloured or reddish-purple pea flowers are disposed in short axillary cymes. The calyx is bell-shaped and five-toothed; the stamens eight or nine, but more usually ten, nine united and one free. *E. Monelaria*, a pinnate-leaved species with white flowers found in America and Africa, has red wood, which is said to furnish a resin like dragon's blood, and the root when cut emits a purple juice. The name is sometimes written *Ecastophyllum*. [A. A. B.]

ECBALLIUM. A genus of *Oscurbitaceae* closely allied to *Momordica*, from which it differs in the absence of tendrils, and of rudimentary stamens in the female flowers, and by the peculiarity of the fruit, which when ripe separates from the stalk and expels, with considerable force, the brown seeds through the aperture made by the removal of the stalk. *E. agreste* (*Momordica Elaterium*), the Squirting Cucumber, a native of waste places in the south of Europe, is an annual plant with prostrate branching stems, and heart-shaped rough leaves. The flowerstalks are axillary: the male flowers in clusters with bell-shaped yellow green-veined corollas; the females solitary. The fruit is a small elliptical greenish gourd, covered with soft triangular prickles. These fruits forcibly eject their seeds, together with a mucilaginous juice, a phenomenon said by Dutrochet to be due to endosmosis.

The drug known as *Elaterium* is the dried precipitate that is deposited from the juice which flows from the fruit or rather from the pulp surrounding the seeds. So powerful is pure *elaterium*, that one eighth part of a grain is sufficient to produce

strong cathartic effects: it is, however, rarely obtained pure. It is of great value in certain cases of dropsy and of cerebral disease, where an active remedy is required; but as its action is violent it



Ecballium agreste.

requires to be administered with great caution, and in cases where there exists no objection to its use. The active principle of *elaterium* is a crystalline substance called *elaterin*. The plant is grown for medicinal purposes at Mitcham and elsewhere. It is related of Dr. Dickson, who was formerly lecturer on botany at St. George's hospital, that he suffered severely from the effects of this plant, in consequence of having conveyed some specimens of it in his hat from the Jardin des Plantes to his lodgings in Paris. [M. T. M.]

ECHLASTERESIS. The production of buds within flowers, in consequence of monstrous development; or on inflorescences.

ECOREMOCARPUS. Handsome climbing plants with a somewhat shrubby stem, long succulent branches, much-divided leaves, terminating in a branched tendril, and tubular yellow or green flowers, which are divided into five equal lobes. The stamens are four, two longer than the others, with the rudiment of a fifth. The seeds are produced in a one-celled two-valved ovate capsule, and are surrounded by a membranous wing, on which account they are favourite objects for microscopes of low power. The genus belongs to the *Bignoniaceae*. *E. longiflorus* has a red calyx and a very long corolla with a yellow tube and green limb. *E. scaber*, a handsome Chilean species with orange-coloured flowers, much cultivated as an ornamental creeper, is sometimes called *Colampelis scabra*. [C. A. J.]

ECHALOTTE. (Fr.) *Allium ascalonicum*.

E'CHARDOT. (Fr.) *Trapa natans*.

ECHEANDIA. A genus of *Liliaceae*, near-

ly related to *Phalangium*, from which it differs in the club-shaped filaments of the stamens being furnished above with short obtuse recurved teeth. The six known species, which extend from Mexico southwards to Brazil, are perennial herbs, with roots consisting of fascicles of fleshy fibres, grassy root leaves six inches to a foot or more in length, and rising from the midst of these a branching flower-stem, six inches to four feet high, with narrow bracts at the forking points, and white or orange-yellow asphodel-like drooping flowers, disposed in racemes, the individual flowers seldom more than half an inch across. *E. terniflora*, a yellow-flowered Mexican species, has been cultivated in English gardens. [A. A. B.]

ECHEVERIA. A handsome genus of succulent often fruticose plants belonging to the *Crassulaceae*, and chiefly natives of Mexico. The leaves, which are generally glaucous, and sometimes excessively so, are not uncommonly spatulate in form, sometimes disposed alternately along the stem, sometimes collected into rosulate tufts. The flowers are in racemes or cymes, often secund, and generally of a bright scarlet or yellow colour, and very ornamental; they have a five-parted calyx, a perigynous five-parted corolla, whose erect segments close up into a pitcher-like form, ten included stamens, with short hypogynous scales, and five free one-celled ovaries, which become many-seeded follicular capsules. Many of the species are in cultivation, and they are esteemed as including some of the most interesting and beautiful of greenhouse succulents. *E. secunda* and *glauca* are particularly ornamental dwarf herbaceous species, well adapted for indoor window gardens. [T. M.]

ECHIALES. One of Lindley's alliances, which includes the *Boraginaceae*, *Labiata*, &c.

ECHINACANTHUS. A small genus of *Acanthaceae*, containing four species, natives of India. They are herbs with denticulate leaves, and small flowers which grow in secund axillary cymes running into a terminal panicle, and furnished with narrow bracts and no bracteoles. The calyx is deeply five-cleft, the corolla funnel-shaped, the stamens four, included, didynamous, united in pairs at the base of the filaments, and the stigma simple. The round two-celled capsule bears many seeds. [W. C.]

ECHINAIS. A small genus of *Compositae*, found in Armenia, Siberia, and N. W. India. The leaves and flower-heads are very like those of our own *Carduus arvensis*. The chief characters which separate these plants from *Carduus* are the thin and lacerated apices of the involucreal scales, which end in short spiny points, and the short lacerated tails seen at the base of the anther lobes. [A. A. B.]

ECHINARIA. A genus of grasses belonging to the tribe *Pappophoreae*. The inflorescence is in simple globose spikes;

kelets two to four-flowered, the superior flower stalked; glumes two, membranaceous and keeled, the lowest with two awns at the tip, shorter than the superior one, which has only one awn at the apex; pales or inner glumes two, the lowest five-nerved and cleft at the tip. Of this small genus only two species are described, namely, *E. capitula*, which is a native of Africa as well as Syria, and *E. pumila*, a native of Spain. [D. M.]

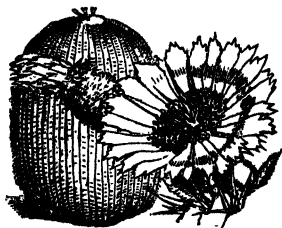
ECHINATE. Furnished with numerous rigid hairs, or straight prickles; as the fruit of *Castanea vesca*.

ECHINOCACTUS. The plants composing this genus of Indian figs, like many others belonging to the same natural order, assume most grotesque forms. The name is derived from two Greek words, *echinos*, a hedgehog, and *kaktos*, a prickly plant, in allusion to many of the species being globular and thickly beset with spines, resembling a rolled-up hedgehog. There are hosts of species enumerated in botanical works, more than half of them natives of Mexico, and the rest distributed throughout South America, extending as far south as Buenos Ayres and Mendoza.

Like the generality of the order, they delight in hot, dry, sandy, or stony places, exposed to the full power of the sun. They consist merely of a fleshy stem, without leaves, and are either of a globular form slightly flattened at the top, or oblong, or cylindrical, and only attain a large size when they are very old. Whatever their shape or size, the stems are always either more or less fluted and ribbed, or covered with tubercular swellings, the number of the ribs varying in the different species, being numerous and sharply defined in some, while in others they are fewer and merge into each other. Nearly all the species are armed with stiff sharp spines, arranged in clusters, and seated upon little woolly cushions placed at intervals along the edges of the ridges, or on the tips of the tubercles. The flowers are generally large and showy, and are produced at or near the top of the plant, growing from the upper side of the younger fascicles of spines; but in some species the top of the plant is densely covered with light brown wool, from out of which the flowers proceed. The calyx has a broad generally short tube, the lower or outermost sepals being of a scale-like character, and the upper ones more like petals, into which, in fact, they gradually pass, the inner petals spreading out and radiating. The numerous stamens are fixed to the inside of the calyx-tube, and are shorter than the petals. The style is columnar, and separates into from five to ten radiating stigmas, which project very slightly beyond the stamens. The fruit is generally scaly or prickly, and is crowned with the withered remains of the flowers.

E. Visnaga, which is perhaps the largest of the genus, is a native of San Luis de Potosi, in Mexico. Large plants of this have from forty to fifty sharp ridges, with

the clusters of spines sunk into their edges at short intervals. The aggregate number of these spines upon a single plant is something enormous; a comparatively small plant in Kew Gardens was



Echinocactus Visaga.

estimated to have 17,000, and a larger specimen, at the same place, could not have had less than 51,000. The Mexicans commonly use them for toothpicks, hence the specific name *Visaga*, which means a toothpick. The flowers are bright yellow. Some years ago a plant of this species, weighing one ton, and measuring nine feet in height by three in diameter, was forwarded to Kew, where, however, it lived only a short time. [A. S.]

ECHINOCARPUS. A small genus of *Tillaceæ*, found in India, Java, and Eastern Tropical Australia. They are most nearly related to *Sloanea*, but differ in having petals. All are large trees with alternate stalked oval oblong or lance-shaped leaves. The flowers are arranged in short axillary racemes or fascicles, seldom in terminal panicles; and each is about half an inch in diameter, with a five-parted calyx, five-lacerated petals, numerous stamens with pointed anthers, and a five-celled ovary crowned with a simple style. In some species the fruits are beset with straight prickles, and resemble those of the Spanish chestnut; in others the outer covering of the fruit consists of short crisp closely-packed rigid hairs. In all they are five-celled with five seeds, and split when ripe into five woody portions. This prickly covering of the fruit has suggested the name. [A. A. B.]

ECHINOEREUS. A genus of *Cactaceæ*, sometimes combined with *Cereus*, but in the latter the tube of the flowers is very long, while in *Echinocereus* it is always short, besides which the fruit is crowned with the withered remains of the flower, and the seeds are always rough or warted, not smooth, as in true *Cereus*. The species number between twenty and thirty, and are all natives of the hot dry regions of Mexico and Texas. They seldom exceed a foot in height, the stems being simple or branched, and either divided into very numerous ridges, or with only from four to ten, all being formidably armed with

sharp spines. *E. pectinatus* grows about eight inches high, and two inches thick, and has about twenty ridges bearing at short intervals dense clusters of very small yellowish and rose-coloured spines. The fruit, like that of several other species, is of a purplish colour, and very good eating, resembling a gooseberry. The Mexicans, who call the plant *Cabeza del Viego*, eat the fleshy part of the stem as a vegetable first carefully freeing it of the spines. [A. S.]

ECHINOCHLOA. A genus of grasses of the tribe *Panicææ*. The species are now generally included under *Panicum*. [D. M.]

ECHINOCYSTIS. A North American cucurbitaceous annual with climbing stems, palmate leaves, branching tendrils, and small greenish flowers; the males in clusters, the females in juxtaposition, either solitary or in tufts upon a short stalk. The calyx segments and petals are six in number, the stamens three, in two parcels, with connate wavy anthers. In the female flower there are three abortive stamens. The two-celled fruit is somewhat globular, spiny, at first juicy, but subsequently dry and fibrous. [M. T. M.]

ECHINOLAENA. A genus of grasses belonging to the tribe *Panicææ*, now included in *Panicum*. [D. M.]

ECHINOPE DE RUSSIE. (Fr.) *Echinops sphaerocephalus*.

ECHINOPHORA. A genus of umbellifers distinguished by the prickly character of the parts which surround the flowers and fruit. The species are perennial herbs, having generally a rigid habit, and, as the name implies, partly covered with spines. They are chiefly found on the borders of the Mediterranean, and are more of interest owing to their peculiar appearance than on account of any useful or economical property which they possess. *E. tenuifolia*, found on some parts of the Mediterranean shore, is, however, reported as acting moderately upon the kidneys. One species, *E. spinosa*, still holds a place in the British Flora, having been reported as found on the sandy sea-shores of Lancashire and Kent; but it is now extinct. [G. D.]

ECHINOPOGON. A small genus of curious grasses belonging to the tribe *Agrostideæ*, having the inflorescence in crowded ovate panicles; stamens three; styles two, with plumose stigmas; fruit oblong-lanceolate, awned. The species are all natives of New Holland. [D. M.]

ECHINOPS. A genus of the composite family, numbering upwards of thirty species, many of them known as Globe Thistles. They are remarkable for having the heads one-flowered and arranged in dense round clusters at the ends of the branches, so that each cluster of flower-heads has the appearance of a single head containing many florets. They are found as far eastward as Kumaon in the Himalayas, extend westward to Spain, and appear in

greatest numbers in Asia Minor. Some are annuals, but most of them are biennial or perennial erect simple or branching herbs from two to six feet or more high, furnished with large thistle-like spiny leaves, once, twice, or thrice pinnately-parted, the lower surface usually covered, like the stems, with loose white wool. The flowers are white or pale blue, and the compound heads one to three inches in diameter, surrounded by a common involucre of narrow scales, while each separate single-flowered head has an involucre of numerous scales, the outer hair-like, the inner broader and spiny-pointed. The silky cylindrical achenes are crowned with a pappus of numerous short bristles. *E. strigosus*, an annual species, native of Spain, is said to yield the substance known as Spanish tinder. Three sorts of it are prepared, one from the pubescence of the flower-heads, another from that of the leaves, and a third from that of the stems. [A. A. B.]

ECHINOPSIS. A genus of Indian figs, formerly combined with *Echinocactus*, but now separated and placed with the *Cereidae*, distinguished by the flowers being produced from the side of the stem, instead of at the top, as in the *Echinocactida*. They have fleshy stems of a flattened globular or cylindrical form, divided into numerous ridges, which either run uninterruptedly from the apex to the base and bear clusters of spines at intervals, or are waved or notched, and have the spines placed in the depressions. In some species the spines are of great length. The flowers are very large, and in many species exceedingly handsome, forming a striking contrast with the ungainly appearance of the plants themselves: they have a very long tube, more or less covered with bristly or hairy scales, which increase in size towards the upper end of the tube, and at length merge into sepals, the sepals in their turn passing into petals. The stamens are arranged in two series, the inner attached to the bottom of the tube, and the outer growing to the tube throughout its whole length, and becoming free at the orifice, forming a circle around it. The thread-like style, scarcely longer than the stamens, is surmounted by a many-rayed stigma. Between twenty and thirty species, natives of Bolivia, Chili, Mexico, Brazil, and Texas, are described. [A. B.]

ECHINOPTERYX. The name of a Mexican shrub, constituting a genus of *Malpigiaceae*, with yellow flowers in terminal clusters, and which are jointed to the stalks supporting them. The calyx is without glands; the petals five, stalked, of unequal length; stamens ten, all fertile, the filaments united into a tube at the base, the anthers hairy; ovary three-lobed, densely hairy. The fruit consists of three indehiscent spiny carpels. [M. T. M.]

ECHINOSPERMUM. A genus of *Borragnaceae*, distinguished by having a salver-shaped corolla, which has the throat closed

by five small scales; and three-edged nuts, with the anterior face margined and often bordered with one or more rows of hooked prickles; and by the inner angle of each of the four carpels adhering by its whole extent to a central column. They are hairy herbs resembling *Myosotis*, with narrow leaves and small blue flowers, in bracteated scorpioid racemes. The species are most abundant in the temperate regions of the northern hemisphere. *E. Lappula*, which is one of the erect-fruited species, has been found in England at Southwold, but doubtless an accidental introduction. [J. T. S.]

ECHIUM. A genus of *Doraginnaceae*, distinguished by its tubular bell-shaped corolla, open at the throat (without scales or platts), and with an irregular limb, bearing some resemblance to that of some of the labiates. They are bristly or hairy plants, generally distributed, especially abundant in the Mediterranean region, where most of the species are herbaceous, and in the Canaries, where the greater number are shrubby. The flowers are usually large, in small curled spikes, arranged in a compound spike or panicle. *E. vulgare*, the common Viper's Bugloss, is a very rough plant with strap-shaped leaves, narrow at the base, and bright blue flowers whose stamens exceed the corolla: this occurs throughout Britain. *E. violaceum* is not found in Britain proper, but is common in Jersey; its flowers are much larger, more purple, with shorter stamens, and the leaves clasp the stem by a broad base. [J. T. S.]

ECLAIRE, or ECLAIRE GRANDE. (Fr.) *Chelidonium majus*. — **PETITE, or ECLAIRETTE.** (Fr.) *Ranunculus Ficaria*.

ECLIPTA. A genus of erect or prostrate annual or biennial weeds of the composite family, approaching dahlias in the structure of their flowers, but widely different in habit, and pretty equally distributed over all tropical countries. The leaves are usually opposite and lance-shaped, with entire or toothed margins, and the white stalked flower-heads, growing one to three together, proceed from the axils of the leaves, and are about half an inch across. The receptacle is flat and furnished with bristle-like scales, between the florets. The achenes of the ray-florets are triangular, those of the disc compressed; and the pappus is either absent altogether, or when present reduced to a minute toothed border. [A. A. B.]

ECOSTATE. Not having a central or strongly-marked rib or costa.

ECTADIUM. A genus of South African *Asclepiadaceae*, containing a single species, an undershrub with opposite coriaceous leaves, and small yellow flowers in sub-axillary racemes. The calyx is five-parted; the corolla salver-shaped with five oblong unequal lobes; the staminal crown of five lanceolate included scales; the stamens in-

cluded, free, their anthers densely hairy at the back; and the pollen-masses adpressed to an oblong truncate corpuscle. The stigma is pentagonal and apiculate. The follicles are smooth, slender, obtuse, and divaricate, with comose seeds. [W. O.]

ECTOCARPÆÆ. A natural order of dark-spored *Alge*, consisting of olive-jointed threadlike seaweeds, whose spores are mostly external, attached to the branchlets or formed in a swelling of their substance. It differs principally from *Chordarieæ* in the less compound frond and external spores. The fructification is often of two kinds in the same species. They are most abundant in temperate regions, though several are found in warm seas. [M. J. B.]

ECTOCARPUS. A genus of dark-spored *Algae*, with a branched threadlike jointed soft flaccid frond, and remarkable for the different aspects assumed by the fruit. The secondary form is disposed in podlike bodies, which are variously articulated. A good many species are found on our coasts, and are more easily distinguished by their fruit than by the character of the frond. The cells of the pods produce zoospores. It is not quite certain whether the endochrome of the so-called spores is ever resolved into zoospores. *Ectocarpus* is known from *Sphacelaria* by the less elegant branching, and the soft not rigid threads. These are sometimes collected in bundles by the action of the waves, but never essentially combined, as in *Mesoglossa*. [M. J. B.]

ECTONEURA. *Polubotrva.*

ECTOZOMA. A genus of *Atropaceae*, represented by a shrub, native of Ecuador, of somewhat climbing habit, and with flowers in terminal panicles. The calyx is thick, bell-shaped, with five triangular erect divisions; corolla fleshy, tubular, somewhat dilated in the middle, its lobes roundish, and overlapping before expansion; stamens five, with very short filaments attached to a thin hairy ring surrounding the ovary; stigma globose. The fruit is unknown. [M. T. M.]

BOUILLON D'EAU. (Fr.) *Hydrocotyle vulgaris*.

EDDOES. The tuberous stems of various araceous plants, as *Colocasia esculenta*, *antiquorum*, &c., *Caladium bicolor*, *violaceum*, and others.

EDDYA. A genus of *Boraginaceae* from Texas and New Mexico, containing a small much-branched very hispid prostrate undershrub with crowded leaves and solitary axillary white flowers; corolla salver-shaped, naked at the throat; stamens inserted at the apex of the tube of corolla; nuts ovate, cohering by their internal angles, muriccate. [J. T. S.]

EDENTATE. Not having teeth.

EDGED. When one colour is surrounded by a very narrow rim of another.

EDGORTHIA. A genus of plants be-

longing to the *Thymelaeaceae*, named by C. A. Meyer in honour of Mr. Edgeworth, an Indian botanist. The flowers have a single perianth, the limb of which is divided into four ovate blunt lobes. There are no perigynous scales, but one emarginate hypogynous one; stamens eight, nearly sessile, arranged in two distinct lines, one above the other; ovary covered with hairs, one-celled, containing a single suspended ovule; style threadlike, ending in an elongated awl-shaped stigma. There are two species of the genus, *E. chrysantha*, found in Chusan by Mr. Fortune, a shrub with yellow flowers, and oblong-lanceolate leaves of a very dull green, covered with hairs closely pressed to the surface, and *E. Gardneri*, found in Nepal. [J. H. B.]

EDMONSTONIA. A group of plants named after Thomas Edmonstone of Shetland, naturalist of the Herald, formerly included in *Samydaea*. It has a coloured persistent four-lobed perianth; four stamens inserted into the bottom of the calyx, the filaments free, the anthers interior; and a free one-celled ovary with three parietal placentas, and numerous ovules. There is one known species, *E. pacifica*, which is a shrub ten to twelve feet high, native of Darien. It is now referred to *Tetrathalamium* (Violaceae). [J. H. B.]

EDRAIANTHUS. The generic name of plants belonging to the order of bellworts, and characterised by the number five prevailing in the flower; the stamens free, their filaments broad at the base; the ovary with two or three cells; and the seeds ovate and plain. The name is defined from Greek words signifying 'sessile or stalkless flower'. The species are natives of Southern Europe, and usually in the form of small tufted herbs with narrow alternate leaves, which are often furnished with stiff hairs; the individual flowers are stalkless but grouped in heads. [G. D.]

EFFLORESCENT. The action of beginning to flower.

EFFOLIATION. The removal of leaves.

EFULCRATE. Said of buds from below which the customary leaf has fallen.

EGENOLFIA. *Polybotrya.*

EGERIA. A genus of *Hydrocharidaceae* from South America, consisting of water plants with the habit of *Anacharis*, having dichotomous branches and verticillate linear leaves with finely serrated margins. The spathe of male flowers is axillary and sessile, the flowers themselves resembling those of *Hydrocharis*; female flowers unknown. (J. T. S.)

EGG-PLANT. *Solanum esculentum* (Melongena) and *ovigerum*.

EGG-SHAPED. The same as Ovate.

E'GILOPE. (Fr.) *Agilope.*

E'GILOPS. (Fr.) *Quercus Egilops.*

E'GLANTIER. (Fr.) *Rosa Eglanteria.*

— JAUNE. *Rosa lutea*. — ODORANT, of

ROUGE. *Rosa rubiginosa*. — SAUVAGE.
Rosa canina.

EGLANDULOSE. Not having glands.

EGLANTINE. *Rosa Eglanteria*, and
Rubus Eglanteria; also applied to *Rosa*
rubiginosa, the Sweet Brier.

EGREVILLE. (Fr.) *Lactuca perennis*.

EHRETIACEÆ (*Ehretiads*). A natural order of dicotyledonous plants belonging to De Candolle's subclass *Corollifloræ*, and to Lindley's echin alliance of peryginous exogens. The plants are closely allied to the borageworts, differing in their terminal style, perfectly concrete four-celled ovary, and drupaceous fruit. Trees, shrubs or herbs covered with rough hairs; leaves alternate, simple, without stipules; inflorescence scorpioid; aestivation imbricate. Calyx inferior with five divisions; corolla gamopetalous and tubular; stamens five, alternate with the corolline segments. Ovary on a circular disk, two to four-celled, with a terminal style or two-lobed stigma. Fruit fleshy, with a single seed in each cell. Chiefly tropical plants, though some occur in the South of Europe, others in the Southern States of America. They have scarcely any important properties. A few are febrifugal, astringent, and alterative. The Peruvian heliotrope, cultivated since 1740, has a delightful odour. There are fifteen known genera and about 230 species in the order. Illustrative genera: *Ehretia*, *Tournefortia*, *Heliotropium*. [J. H. B.]

EHRETIA. A genus of *Ehretiaceæ*, consisting of tropical trees or shrubs with paniculate or corymbose flowers which are usually white. The calyx is deeply five-parted, the corolla salver-shaped with a five-parted limb, the stamens five, the ovary four-celled, and the fruit a berry-like drupe with two or four stones, each containing a single seed. *E. buxifolia*, an Indian shrub with sessile wedge-shaped shining scabrous leaves and axillary few-flowered peduncles, is employed as an alterative, and is also regarded as an antidote to vegetable poisons. *E. serrata*, an Indian tree, with oblong serrated smooth leaves and fragrant flowers, yields tough light and durable wood. [J. T. S.]

EHRHARTA. A genus of grasses belonging to the tribe *Oryzææ*, distinguished by the inflorescence being in compressed spikelets, three-flowered; flowers nearly together; the two lower neutral, one-paled, thick and keeled, mucronate or with short awns: the terminal hermaphrodite, two-paled; stamens six; styles two, with feathery stigmas. The species belonging to this curious genus are mostly natives of the southern hemisphere, South Africa, and New Holland. [D. M.]

EICHORNIA. A genus of *Pontederacææ* from South America. Kunth restricts *Pontederia* to the species in which two of the cells of the ovary are abortive, while *Eichornia* has a three-celled three-valved

many-seeded capsule. They are aquatic plants with roundish rhomboidal stalked radical leaves, and a scape with a single leaf or spathe like the root-leaves, and a spike of lilac or blue flowers. *E. spectiosa*, widely spread on the continent of South America, is a very handsome plant with a ten or twelve-flowered spike and the petioles of the leaves curiously swollen, the enlargement consisting of very loose spongy tissue. It is often cultivated in stoves under the name of *Pontederia azurea*, or *crassipes*. [J. T. S.]

EICHWALDIA. A genus of the *Heamuriaceæ*, distinguished by its many-leaved calyx. The only known species, *E. oxiana*, found on the Oxus river, which flows into the Caspian Sea, is a scrubby little bush with white stems, alternate linear fleshy leaves, and few somewhat racemed flowers, almost half an inch across. Inside the calyx of numerous round bract-like leaves are five-clawed petals, numerous stamens, and an ovary crowned with five styles. The fruit is a little capsule opening by five valves, apparently one-celled at top, but distinctly five-celled below. [A. A. B.]

ELACHISTA. A small genus of parasitic *Algae* allied on the one hand to *Ectocarpus*, and on the other to *Chordaria*. In *E. scutellata* the threads are so intimately combined with the tissue of *Himanthalia lorea* that it is impossible to say where the one begins and the other ends. Indeed, did not the species produce distinct fruit, they might justly be reckoned as mere transformations of the cells of the mother plant. [M. J. B.]

ELÆAGIA. A genus of lofty cinchonaceous trees, natives of the Cordillera. The flowers are arranged in terminal clusters: they have a cup-like calyx; a corolla with the short tube bulging at top, and a spreading limb; and stamens with very short filaments, and broadly ovate anthers. The globose capsule is ribbed, and bursts into two or four valves. These trees are remarkable for the quantity of green resinous or waxy matter which is secreted by the stipules, which invest the unexpanded buds. This resin is collected by the Indians, and is employed by them to varnish boxes and many other useful or ornamental objects. For this purpose it is purified by immersion in hot water; its fragility is then removed by chewing it till it becomes ductile; and after these processes it acquires a yellow tint, and is ready to receive the various colours imparted by adding colouring matter to it when melted. The resin when thus prepared and coloured is laid on in thin layers by the aid of heat and pressure, and by means of differently coloured layers placed one upon another and cut out into various shapes, a sort of design is produced. To procure a metallic lustre on the objects covered with the varnish, the Indians first coat the surface with a layer of silver foil. The natives speak of the tree producing this resin, *E. uifia*, as the Wax tree or

[Varnish tree. M. Triana, to whose account in the *Bulletin de la Soc. Bot. de France*, 1858, p. 500, we are indebted for these particulars, dwells with justice on the importance of developing this manufacture, and of cultivating this and allied plants producing similar secretions in other localities. The temperature of the district where the *Elæagia* is chiefly found ranges from 54° to 74° F. Some better method of preparing the resin might no doubt be adopted. [M. T. M.]

ELÆAGNACEÆ (Oleasters). A natural order of monochlamydeous dicotyledons, belonging to Lindley's amental alliance of diclinous Exogena. Trees or shrubs usually covered with scales or scurf, having exstipulate entire leaves, and usually imperfect flowers. Staminate flowers in catkins, arising each from a scale-like bract; perianth of two to four leaves, sometimes united; stamens three, four, or eight. Pistillate and perfect flowers with a tubular perianth and a fleshy disk; ovary free, one-celled, with one ovule; fruit a crustaceous achene, enclosed within the succulent perianth. Chiefly natives of the northern hemisphere. Represented in Britain by *Hippophaë rhamnoides*, the sea buckthorn, a spiny shrub which grows well near the sea, and forms a good fence; it is covered with silvery scurf, which is a beautiful object under the microscope; its fruit is sometimes eaten. *Elæagnus parvifolia* bears clusters of red edible berries, mottled with scales. The fruit called in Persia *zinzeyd* is the produce of *Elæagnus orientalis*. Some of the plants of the order are said to possess narcotic qualities. There are four known genera and thirty species. Examples: *Shepherdia*, *Hippophaë*, *Elæagnus*. [J. H. B.]

ELÆAGNUS. The Oleaster or Wild Olive tree. A small tree native of the southern countries of Europe and several parts of Asia, which received its name from its resemblance to the true olive, from which, however, it differs in not bearing useful fruit. The two plants in reality belong to different orders, the present plant giving name to the order *Elæagnaceæ*. *E. hortensis*, the species most commonly grown in English gardens, attains the height of from fifteen to twenty feet. The leaves are long and narrow, covered, as well as the young shoots, with stars of hairs of a hoary colour. The branches are brown and smooth, more or less spiny. The flowers are of two kinds, some containing stamens and pistils, which are four-cleft, pale yellow within; the others, with stamens and an abortive pistil, are five to eight-cleft, and of a golden yellow within; all are axillary, two or three together on short stalks, and fragrant. It flowers in May, and ripens its fruit, which is of a red-brown colour, something like a small date, in August. The blossoms, which are produced in great abundance, perfume the air for a considerable distance round. For this reason it is a most desirable tree for a lawn or shrubbery. French,

Olivier de Bohême; German, *Wilde Olebaume*. [O. A. J.]

ELÆIS. A genus of palms comprising the Oil Palm of Africa, and another closely allied American species. They have thick trunks of no great height, indeed the American species creeps along the ground, and bears a tuft of large pinnate leaves, with strong prickly stalks. The male and female flowers are borne in distinct heads, generally upon different trees, but occasionally upon the same; each head consisting of numerous little branches of minute flowers, gathered together into a dense mass and enclosed while young in two complete spathes. The males are packed very close together, so that the branches resemble catkins; the females are spread farther apart. The fruit, which is yellow or bright red, is irregular in form, gener-



Elais guineensis.

ally angular and somewhat three-sided, and larger at the bottom than the top. It consists of an outer coating of fibrous oily flesh, surrounding a hard nut. *E. guineensis*, the African Oil Palm, which yields the celebrated palm oil, is a native of tropical Western Africa, where it is found in great abundance; and from whence it has been introduced into the West Indies. It grows twenty or thirty feet high, the trunk being covered with the remains of the stalks of dead leaves. The fruits are borne in dense heads, measuring a foot and a half or two feet long, and from two to three feet in circumference, the individual fruits being about an inch and a half long, by an inch in diameter. The part yielding the palm oil is the outer fleshy coating of the fruit, but the seed, which is enclosed in a hard shell, likewise affords an oil, small quantities of which occasionally come to this country. Commercial palm oil is about the consistence of butter, of a bright orange-red colour, and has a rather pleasant violet-like odour when perfectly fresh. It is obtained by boiling the fruits in water and skimming

off the oil as it rises to the surface; and as its production and preparation is carried on solely by the negro population, who bring it to the merchants in small quantities for sale, it is anticipated that ere long the Negro kings will find the trade in palm oil more profitable than that in human beings. In 1860 the imports of palm oil into the United Kingdom amounted to 804,326 cwts., representing a money value of 1,786,895*l*. The chief use to which this substance is applied is for the manufacture of candles, and it is the principal article used for that purpose in the extensive works of Price's Patent Candle Company; besides which it is greatly employed in soap-making, and likewise for greasing the wheels of railway carriages. In Africa it is eaten as butter, and a kind of soup is made by boiling the fruits. The hard black shell of the nut takes a fine polish, and is frequently made into rings and other ornamental articles by the negroes. [A. S.]

ELÆOCARPUS. A genus of *Tiliaceæ*, natives mostly of tropical parts, principally of India and Java, a few occurring in Australia and New Zealand. They either form trees, attaining sometimes the height of fifty or sixty feet, or large shrubs; they have simple leaves, and racemes of small flowers, with a calyx of five sepals, and five petals either toothed or beautifully fringed, the stamens indefinite, inserted upon a swollen lobed disk, and having long downy unequal-celled anthers, usually terminating in a bristle. The ovary is from two to five-celled, and the fruit contains a very hard rough-shelled nut, divided into as many one-seeded cells as the ovary, or sometimes all but one cell imperfect. *E. Ganitrus*, a tree, growing forty or fifty feet high, is native of India and the Malay Islands, where the hard stones of the fruit are commonly used for stringing into rosaries, or for making necklaces, bracelets, buttons, heads of pins, and similar articles. *E. Hinau*, the Hinau of the New Zealanders, is a tree fifty or sixty feet high, with a trunk three or four feet thick, producing a very hard white timber, which, however, is not very valuable, being apt to split when exposed to wet or heat. The bark affords an excellent and permanent dye, varying from light brown, to puce, or deep black; it is greatly used by the natives for dyeing their garments. The pulp surrounding the stone of the fruit of this and other species is eatable; and in India the fruits of several are either used in curries or pickled like olives. [A. S.]

ELÆODENDRON. A genus of trees or shrubs belonging to the *Celastraceæ*, occurring in greatest numbers in S. Africa, but also represented in Australia, India, and the W. Indies. The leaves are opposite or alternate, elliptical or lanceolate and smooth; and the inconspicuous green or white flowers are disposed in axillary cymes, and have a four or five-parted calyx, a four or five petaloid corolla, inserted under a fleshy ring and longer than the calyx, a like number of stamens inserted on the

margin of the fleshy ring in which the ovary, crowned with a short style and a rounded stigma, is immersed. The fruits are green fleshy drupes, sometimes about the size of a hazel-nut, but often much smaller, with a thin fleshy outer covering, surrounding a hard three to five-celled nut. *E. australe* furnishes a close-grained firm wood, which is used in N. S. Wales for turning and cabinet work; this tree attains a height of thirty to forty feet, with a diameter of eight to fourteen inches. The drupes of *E. Kubu* are eaten at the Cape. The bark and roots of *E. Rozeburchii*, an Indian species, are considered efficacious in all cases of swelling, and are used externally rubbed with water. The root is also said to be powerfully astringent and useful in snake bites. [A. A. B.]

ELÆOSELINUM. The generic name of plants belonging to the order of umbellifers, distinguished from their allies by having each half of the fruit with five principal and four secondary ribs, two of the latter being wing-like. *E. merodes* is a native of Sicily, and occurs also in Algiers; its leaves are twice pinnate, rough on the stalks and nerves, the leaflets numerous and very narrow. [G. D.]

ELAIO. In Greek compounds is olive colour, a mixture of green and brown.

ELAPHOGLOSSUM. A genus of poly-podiaceous ferns of the tribe *Acrosticheæ*, distinguished by their simple fronds, and simple or parallel forked free veins, which are club-shaped at the apex. Thus defined the genus includes a large proportion of the species formerly referred to *Acrostichum*. In some of them the fronds are smooth and naked, but in others they are clothed with variously shaped and often strongly coloured scales which form pretty objects for microscopical examination. Upwards of 150 species are admitted, the larger proportion of them occurring in the West Indies and South America, a considerable number in India and the East, and others extending to the Mascaren Islands, Madagascar, the Cape, and Sierra Leone, and to Australia and the islands of the Pacific. The fertile fronds are distinct from the sterile ones, generally more or less often very much contracted, and not unfrequently elevated on longer stalks, their under surface being entirely covered with spore-cases. [T. M.]

ELAPHOMYCE. Underground *Fungi*, differing from truffles by reason of the contents of the thick peridium being ultimately resolved into a mass of dusty sporidia from the absorption of the asci. They were, in consequence, for a long time associated with puffballs. We have three wild species in this country, two of which are pretty generally diffused. The peridium is either smooth or rough with warts. Of our more common species, *E. granulatus* is far less rough externally, and has a thinner peridium, which is not variegated within like *E. variegatus*. All the species appear to be involved in an intricate mass of rootlets

and spawn. They had once the reputation of being aphrodisiac, arising from a false notion as to their origin, and they are still kept by the herbalists in Covent Garden under the name of *lycopodon nuda*. Several species have been found in France which at present have not rewarded the researches of British mycologists. *E. granulatus* gives rise occasionally to *Cordiceps capitatus*, as does *E. variegatus* to *C. ophioglossoides*. [M. J. B.]

ELAPHEUM. A genus of trees or shrubs belonging to the *Amyridaceae* (*Bursaceae*), abounding in resinous juice, and natives of tropical America. The characteristics reside in the hermaphrodite flowers, which have a persistent four-parted calyx; four petals inserted beneath an entire disc along with the eight stamens; a sessile ovary, with two ovules in each of its two compartments; and a short style with two stigmas. The fruit is a pea-shaped drupe with a thick rind, and an inner shell containing generally one seed surrounded with pulp. *E. elemiferum*, a native of Mexico, according to Dr. Royle furnishes Mexican Elemi, a greenish resin. *E. tomentosum* also yields a resin. [M. T. M.]

ELATERIUM. A drug prepared from the pulp of the fruits of *Ecballium agreste*, formerly known as *Momordica Elaterium*.

ELATERS. Cells containing a double spiral which occur in the capsules of *Jungmanniaceae* and *Marchantiaceae* in company with the spores. The young capsules contain two sets of cells, the one narrow, the other broader; the endochrome of the narrower gives rise to a single or double spiral thread, while the broader cells by transverse and longitudinal cell-division give rise to the spores. The threads in the peridia of *Trichia* resemble elaters very closely, but there is still a controversy as to their real structure. [M. J. B.]

ELATINACEÆ (*Water-peppers*). A natural order of thalamifloral dicotyledons, belonging to Lindley's rural alliance of hypogynous Exogens. Small annuals growing in marishes with opposite leaves, having interpetiole stipules, and minute axillary flowers; sepals and petals three to five; stamens as many or double the number; styles three to five; stigmas capitate. Fruit a three- to five-celled capsule, opening at the partitions. Seeds numerous, exalbuminous attached to a central placenta. The family is nearly allied to the chickweed order, but differs in the stigmas, the mode in which the fruit opens, and the straight not curved embryo. Lindley thinks that the affinities are chiefly with the rue family. The plants are generally distributed over the world. Some of them possess acidity, hence their English name. There are six known genera, and twenty-four species. Examples, *Elatine*, *Bergia*, *Andropogon*. [J. H. B.]

ELATINE. A genus of dwarf annual aquatics with rooting pipe-like stems and opposite leaves. There are two British

species, called *Waterworts*, both of unusual occurrence. *E. hexandra* is a minute plant barely an inch high, which grows on the margins of lakes, forming a moss-like mat sometimes extending under the water, and in dry seasons when it is left by the receding water assuming a crimson hue. The flowers, which are minute and flesh-coloured, grow in the axils of the opposite leaves. *E. Hydropiper* scarcely differs from the preceding except that the flowers are octandrous. They might be sown with advantage on the shelving banks of artificial water to conceal the unsightliness of mud. [C. A. J.]

ELCAIJA, ARABIAN. *Trichilia emetica*.

ELDER. The popular name for *Sambucus*.

ELECAMPANE. *Inula Helenium*.

ELECTRA. A genus of small Mexican bushes of the composite family, nearly allied to *Coreopsis*, but the latter has the ray florets barren, while in this genus they are female. The young twigs are four-sided and furnished with lance-shaped smooth leaves; and the yellow-rayed flower-heads, nearly an inch across, are disposed in terminal corymba. Each head is surrounded by an involucre of two series of scales, the outer very narrow, the inner broader and membranaceous; the strap-shaped ray florets are female, the tubular ones of the disc five-toothed and perfect. The achenes compressed, nearly elliptical, crowned with two bristles, or quite naked. The receptacle is furnished with golden chaffy scales. Only two species are known. [A. A. B.]

ELEGIA. A genus of *Ruticeae*, characterized by having deciduous sheaths, loosely paniced male inflorescence, and triangular or compressed indehiscent fruit. The three inner glumes are often longer than the three outer. The species are sedro-like plants from the Cape of Good Hope, with flowers in dense panicles. [M. T. M.]

ELEMI. The name of certain stimulant gum-resins, derived from various plants. — **AMERICAN or BRAZILIAN.** The gum-resin of *Icica Icariba*. — **EASTERN or MANILLA.** The gum-resin of *Canarium commune*. — **MEXICAN.** The gum-resin of *Elaphrium elemiferum*.

ELEOCHARIS. A genus of cyperaceous plants, belonging to the tribe *Scirpææ*, distinguished by one or two of the lowest glumes being larger than the others, and empty; bristles three to six, or wanting; nut compressed, crowned with the persistent dilated base of the joint style. The species have a wide geographical range, some of them growing within the torrid zone and others reaching nearly to the arctic. In *Steudel's Synopsis Plantarum Cyperacearum*, 118 species are described, four of which are natives of Britain. The commonest is *E. palustris*, which in many places fills up bog holes and ditches with its long-matted entangled stems. The flowers are in small brown spikes. [D. M.]

ELEPHANTOPUS. A genus of erect annual or perennial hairy weeds belong

ing to the composite family. About a dozen species are known, natives of America, one, however, being a common weed in most tropical countries. The alternate leaves are linear, or more generally oblong, narrowed below. The compound flower-heads, half an inch or more in diameter, are arranged in loose terminal corymbs, or in a spicate manner, each separate head having an involucre of narrow-pointed bracts, which enclose three to five white or purple tubular four-toothed florets deeply cleft on one side so as to appear palmate. The achenes are compressed, ribbed, and crowned with a pappus of numerous chaffy bristles. An infusion of the leaves of *E. Martii* is used by the Brazilians in pectoral affections, and is known as Erva Grasso; it grows from two to three feet high, and has narrow oblong root leaves, and compound flower-heads disposed in loose corymbs terminating the simple stems. The leaves of *E. scaber*, a plant very like the former in appearance, are used in Travancore, boiled and mixed with rice, for pains in the stomach, swellings in the body, &c. The twigs of *E. spicata* are used in Jamaica for making brooms. [A. A. B.]

ELEPHANTORHIZA. A genus composed of two Caffrarian bushes with tuberous woody root-stocks which are said to bear some resemblance to an elephant's foot. They belong to the *Mimosa* group of the leguminous family, and are most nearly allied to *Prosopis*, but differ in the nature of their pods, which are nearly straight, compressed, about six inches long, and an inch broad, and contain numerous seeds; when ripe the two valves fall away, and leave the entire rim of the pod behind. The pods in *Prosopis* are spirally twisted, and do not open when ripe. The leaves, like those of many species of *Acacia* and *Mimosa*, are bipinnate and alternate, and are made up of six to ten pairs of pinnae, each of which has eighteen to thirty pairs of linear smooth leaflets. The numerous small flowers are arranged in simple or compound spikes. [A. A. B.]

ELEPHANT'S-EAR. The common name for *Begonia*.

ELEPHANT'S-FOOT. *Testudinaria Elephantipes*; also the common name for *Elephantopus*.

ELETTARIA. A genus of *Zingiberaceae*, consisting of plants having much the appearance of *Amomum*, from which genus the present is distinguished by the elongated filiform tube of the corolla, by the presence of the internal lateral lobes in the shape of very small tooth-like processes, and by the filaments not being prolonged beyond the anther. They are natives of the tropical parts of India. *E. Cardamomum* furnishes the fruits known as the Small or Malabar Cardamoms of commerce. These are collected either in their wild state or from cultivated plants. In the forests of Travancore the Cardamom springs up spontaneously when the trees

are felled. In four years' time the plant attains its full development, and produces its fruits, which are gathered in November and ripened in the sun. The plant continues to yield fruit till the seventh year, when the stem is cut down, new plants arising from the stumps (*Drury*). As imported the fruits are ovate triangular capsules of a dirty yellow colour, containing several angular seeds. Three principal varieties occur in commerce, called, according to their length, shorts, short-longs, and long-longs! The seeds are used medicinally in this country, for their cordial aromatic properties, which depend on the presence of a volatile oil. In India the fruits are chewed by the natives with their betel, and are also used in bowel complaints. Ceylon Cardamoms are said by Dr. Pereira to be the produce of *E. major*. [M. T. M.]

ELÆUSINE. A genus of grasses belonging to the tribe *Chlorideæ*, distinguished by the inflorescence being in close finger-like spikelets at the apex of the rachis; glumes five to seven-flowered, the valves obtuse; pales obtuse, upper blind-toothed; scales truncate, fimbriate; styles two, confluent at the base. The species are mostly natives of the warmer parts of the globe, where some of them are of considerable importance. *E. coracana* is cultivated in Japan as a corn crop for its large farinaceous seeds, and also on the Coromandel coast, where it is called Natchnee. [D. M.]

ELÆUTHEROS. In Greek compounds—distinct, separate.

ELISENA. A genus of paniculiform amarillidaceous bulbs, found in Peru. They produce erect linear-lorate leaves, and scapes supporting a few flowers, the short tube of which is cylindrical, the limb reflexed, its segments linear, two of them as well as the cup and filaments declinate; the cup is cylindrical with a repand recurved margin. One or two species are known. *E. longipedata* is a pretty plant with white flowers, sometimes met with in gardens. [T. M.]

ELIZABETHA. A genus composed of two beautiful leguminous trees found in British Guiana, nearly related to *Brownsea*; but the stamens are nine in number, three of them longer than the others and bearing anthers, the remainder sterile; while in *Brownsea* they are more numerous, and all fertile. The unequally pinnate leaves of *E. princeps* are made up of twenty to forty pairs of narrow leaflets, while those of *E. coccinea* have fewer and larger leaflets. The rose or scarlet flowers are arranged in dense terminal bracted spikes from two to four inches long. The tubular calyx is five-toothed, the upper tooth broader than the others; the five narrow petals are nearly of equal length; and the nine stamens are free or shortly united at the base. The broadly linear pod is compressed and thickened on the upper edge, from three to five inches long, velvety, and containing a number of seeds. The genus was de-

dedicated by Schomburgk to the Princess Royal of Prussia. [A. A. B.]

ELLEANTHUS. *Evelyna*.

ELLEBORE BLANC. (Fr.) *Veratrum album*.

ELLERTONIA. A Malabar climber, forming a genus of *Apocynaceae*, distinguished from *Aleonia* and *Blaberopus* chiefly in having peltate seeds expanded at each end into a broad membranous wing.

ELLIOTIA. A genus of *Cyrtillaceae* containing a North American shrub with alternate entire leaves and terminal racemes. Flowers with a four-parted calyx, a very deeply six-parted corolla, eight stamens with glandular filaments, and a four-celled ovary and capsule. [J. T. S.]

ELLIPERIA cuneifolia, the only species of the genus, is a climbing shrub, native of Malacca, and belonging to the order *Anonaceae*, in which it is distinguished by the following characteristics:—petals overlapping one another in the bud; carpels oblique, distinct one from another, and each having a single ovule attached to the ventral suture. [M. T. M.]

ELLIPSOIDAL. A solid with an elliptical figure.

ELLIPTIC. A flat body, which is oval and acute at each end.

ELLISIA. A genus of *Hydrophyllaceae*, containing six species of North American branching annual herbs, with opposite or alternate oblong and pinnatisect leaves, and white flowers on solitary peduncles, opposite the leaves below, and in loose racemes above. The calyx is five-parted, without reflexed appendages to the sinuses; the corolla tubular, campanulate and caducous, with ten small scales in the tube; the stamens included; the nectary surrounding the ovary, and rising into five gland-like teeth; and the capsule ovoid-globose with four seeds. This genus scarcely differs from *Nemophila*, except in wanting the appendages to the calycine sinuses. [W. J.]

ELLOBOCARPUS. *Cerapteris*.

ELM. The common name for *Ulmus*. — of New South Wales. *Spicarpurus orientalis*. — **SPANISH.** *Cordia Geraschanthus*, or *Geraschanthus vulgaris*; also said to be applied to *Rhamnus ventricosa*. —, **WYCH** or **WITCH.** *Ulmus montana*.

ELODEA. A genus of *Hypericaceae*, differing from *Hypericum* only in having scale-like glands alternating with the bundles of stamens. *Hypericum Elodea*, which is found in various parts of Britain, is referred to this genus; and there are a few European and Western Asiatic species, and two found in the United States. Most of these are perennial smooth pea-green herbs, with opposite shortly stalked or sessile elliptical or lance-shaped leaves, furnished with transparent dots, and yellow or purplish flowers disposed in axillary or terminal few-flowered cymes. A stomachic tincture

is said to be prepared from the leaves of *E. virginicum*. Also a synonym of *Anacardium* and *Udora*. [A. A. B.]

ELONGATE. Lengthened or stretched out, as it were.

ELS, ROOD. *Cunonia capensis*. —, **WIT.** *Weinmannia trifoliata*.

ELSHOLTZIA. A genus of labiate plants, distinguished by having the calyx ovate or bell-shaped, and having five equal teeth; the tube of the corolla about as long as the calyx, rarely longer, its border two-lipped, the upper slightly notched, the lower three-lobed and spreading. The species are herbs or undershrubs of little interest, natives of Eastern India and Java, rare in Central Asia. The genus was named after Elsholtz, a Prussian botanist. [G. D.]

ELVASIA. A genus of Brazilian shrubs, belonging to the *Ochnaceae*. They have small flowers in terminal clusters, a four-leaved calyx, four petals, eight stamens, and a four-celled ovary, with an ovule arising from the base of the inner angle of each compartment. [M. T. M.]

ELYME DES SABLES. (Fr.) *Elymus arenarius*.

ELYMUS. A genus of grasses belonging to the tribe *Hordeae*, distinguished by the inflorescence being in simple spikes, very rarely branched; spikelets two to three together; glumes two, both on the same side of the spikelet, without awns; enclosing one to seven florets. In *Blonde's Synopsis* there are forty-nine species described. These have an extensive geographical range; nearly all are inhabitants of the temperate zones, but some extend even to the Arctic circle. One species, *E. arenarius*, the Sea Lyme-grass, is a native of Britain, and is useful for binding with its long creeping roots the land on which it grows. They are all coarse grasses, and of little importance for agricultural purposes. [D. M.]

ELYNIA. A genus of cyperaceous plants belonging to the tribe *Cystotomeae*, distinguished by the scales being imbricated or slightly lapping over each other by their edges, covering a spikelet of two flowers; lower floret fertile, upper barren. Small grass-like plants, having the habit of some carices. They are mostly natives of Alpine countries, and rarely met with. [D. M.]

ELYNANTHUS. A genus of cyperaceous plants, belonging to the tribe *Elynochopeae*, and distinguished by the inflorescence being in close bunched spikes; flowers polygamous, the terminal one hermaphrodite; styles three-cleft, thickened and bulbous at the base; seeds triangular. The species are mostly natives of the Southern Hemisphere, South Africa, and New Holland. [D. M.]

ELYTRANTHE. A genus of *Loranthaceae*, containing Indian parasitical shrubs with compact abbreviated spikes of

whitish purple or orange flowers, which are inserted in the rachis, and each furnished with three bracts; petals cohering in a tube at the base; stamens six. [J. T. S.]

ELYTRARIA. A genus of *Acanthaceæ*, containing a few species scattered over the tropical regions of America, Africa, and India. They are stemless herbs, with entire dentate or repand radical leaves and small flowers. The calyx is four or five-parted. The corolla is two-lipped or ringent; there are two fertile and two barren stamens, all included; and the capsule contains many pitted seeds in each cell, attached to the placenta without any retinacula. [W. C.]

EMARCID. Flaccid, wilted.

EMARGINATE. Having a notch at the end, as if a piece had been taken out.

EMBELIA. A genus of *Myrsinaceæ*, nearly allied to *Marsa*, from which it differs in its free ovary, and from the other genera in the family with free petals in its slender racemes of flowers, which usually form a terminal panicle. It is composed of about twenty species of straggling shrubs, found in India and the islands of the Indian Archipelago, and those to the east of Africa. The alternate stalked leaves are lance-shaped, elliptical, or oval, furnished with transparent dots. The minute green, white, or pink flowers are borne in great profusion, and arranged in simple or compound racemes towards the ends of the branches; they have a five-parted calyx, five free spreading petals, opposite to which are five stamens, and an ovary crowned with a short style and rounded stigma. The berries are minute, round, and either red or black when ripe. Those of *E. Ribes*, one of the most common Indian species, with ovate-lanceolate smooth leaves, are gathered and sold to traders, who use them for adulterating black pepper, which they somewhat resemble, and have, moreover, a slight pungency, owing to a resinous substance contained in them. They possess anthelmintic properties, and are sometimes given in infusion. *E. Banaol*, another Indian species with larger elliptical and more or less downy leaves, is useful in various ways. The young leaves in combination with ginger are used as a gargle in cases of sore throat; the dried bark of the root is a reputed remedy for the toothache; and the berries mixed with butter are used as an ointment, which is applied to the forehead as a specific for pleuritis. [A. A. B.]

EMBLICA. A genus of *Euphorbiaceæ*, differing only from *Phyllanthus* in the more deeply divided style, and in the nature of the fruit, which is about the size

is found wild and cultivated in various parts of India and the Indian Archipelago. It is a tree sometimes of large growth, but more generally of twenty to thirty feet, with an abundance of simple alternate linear leaves, which are smooth, and arranged on slender branches in a distichous manner, so that they appear like leaflets of pinnate leaves; in their axils the little green flowers are found in cymes, the females mixed singly with the males. The latter have a six-parted calyx, no petals, six glands, and three to five stamens united into a short column. The females, with a similar calyx, have a cup-shaped disc, and an ovary crowned with a style which has three thick recurved two-lobed branches. In Borneo, the bark and young shoots are used to dye cotton black, for which purpose they are boiled with alum. The fruits are often made into a sweatmeat with sugar, or eaten raw as a condiment, but they are exceedingly acid. The wood is hard and valuable, as it resists damp well. In India the bark is used in tanning, and the root-bark mixed with honey is applied to inflammation of the mouth. The fruits also are used as a pickle, or preserved in sugar; when ripe and dry they are given in cholera, diarrhoea, &c., under the name *Myrobalani Emblicæ*. The seeds are employed in nausea and bilious affections, and given in infusion in fevers. An infusion of the young leaves mixed with sour milk is also used in dysentery. The natives of Travancore have a notion that the plant imparts a pleasant flavour to water, and therefore place branches of the tree in their wells, especially when the water is charged with the accumulation of impure vegetable matter. [A. A. B.]

EMBOLUS. A plug; a process which projects downwards from the upper part of the cavity of the ovary in *Ameria*, and closes up the foramen of the ovule.

EMBOTHRUM. A small genus of *Proteaceæ*, having an elongated tubular calyx, bursting longitudinally, and a sub-globose four-cleft limb bearing the anthers, which are sessile, on the concave points of the segments. The fruit is a leathery many-seeded follicle. They are trees or shrubs with simple, oval or lanceolate entire leaves, greyish on the under-side, and red generally smooth flowers. They are found in the Western and Antarctic portions of South America. [R. H.]

EMBRACING. Clasping with the base. The same as *Amplexicaul*.

EMBRYO (adj. **EMBRYONAL**). The rudimentary plant, engendered within a seed by the action of pollen. — **FIXED.** A leaf bud.

EMBRYO-BUDS. Spheroidal solid bodies,

being usually a dry membranous capsule. *E. officinalis*, or, as it is sometimes called, *Phyllanthus Emblica*, is the only species, and

EMBRYOTEGIUM, EMBRYOTEGA. A little papilla, often separating as a lid,

which covers over the radicle of some kinds of embryo. It is the hardened apex of the nucleus.

EMERICELLA. A most curious genus, connecting, apparently like *Coniocybe* and some others, the myxogastrous Fungi with *Caliciei*. The stem consists of a spongy central column, giving off threads which have gonidia like those of *Pantia*, and resembling some species of *Palmella*, to which we shall have occasion to recur hereafter. These bodies become blue when treated with iodine. The spores are purplish, furnished with very long spines, seated in the same plane, and inclosed in a globose peridium. The only species has been found on decaying leaves of *Euphorbia nerifolia* at Secunderabad. A figure will be found in Berkeley's *Introduction to Cryptogamic Botany*, p. 341. [M. J. B.]

EMERUS. (Fr.) *Coronilla Emerus*.

EMEX. A genus of *Polygonaceæ*, closely allied to *Rumex*, from which it is distinguished by the perianth segments being united at the base, and by the flowers being polygamous. *E. spinosus*, the only species, is a salt marsh annual, of the Mediterranean region, the Cape of Good Hope, and the Antilles. In habit it closely resembles *Rumex pulcher*, except that the leaves are broadest in the middle, and the perianth has much larger spines when the fruit has arrived at maturity. [J. T. S.]

EMILIA. A small group of composite plants, separated from *Cuculia*, and consisting mostly of annuals, represented by *E. sagittata*, the *Cuculia coccinea* of gardens. They are natives of India, China, and the South African islands. The flower-heads are subcorymbose, the florets being all tubulose, and in the common garden forms either orange, scarlet, or yellowish. The lobes of the florets are linear elongate, and the pentagonal achenes are ciliated at the angles, and crowned with a many-rowed pappus of filiform hairs. [T. M.]

EMMENANTHE. A genus of *Hydrophyllaceæ*, containing a single species from California. It is an elegant erect herb with alternate pinnatifid leaves, and pendulous flowers in erect racemes, the calyx being five-parted, the corolla campanulate and persistent, and the stamens included. The ovary is surrounded by a small disc, and the capsule is oblong, and two-celled from the meeting of the enlarged placenta in its centre. [W. G.]

EMPETRACEÆ (*Crowberries*). A natural order of monochlamydeous dicotyledons belonging to Lindley's euphorbial alliance of delicious *Exogens*. Shrubs with heath-like evergreen exstipulate leaves, and small axillary flowers which are usually imperfect. Perianth of four to sixxiphygynous persistent scales, the innermost sometimes petaloid and united. Stamens two to three, alternate, with an inner row of scales. Ovary free in a fleshy disk, two to nine-celled. Fruit fleshy, with two to nine nucules; seed solitary. Natives

chiefly of the northern parts of Europe and America. A few are found in the South of Europe, and even at the Strait of Magalhaens. The order is represented in Britain by *Empetrum nigrum*, the black crowberry, the fruit of which is eaten in northern countries, and is used by the Greenlanders to prepare a fermented liquor. The leaves and fruit of some of the plants are somewhat acid. There are four known genera, and five species. Examples:—*Empetrum*, *Corema*, *Ceratiola*. [J. H. B.]

EMPETRUM. Crowberry or Crakeberry. Small evergreen heath-like plants of the order *Empetraceæ*, distinguished by the following characters: calyx of three leaves with six imbricated scales at the base; three petals, and as many stamens; berry depressed, containing from six to nine bony seeds. *E. nigrum*, the badge of the McLeans, is a small procumbent much-branched shrub, with rough wiry branches and small narrow leaves, the edges of which are so much recurved as almost to form a tube. The flowers are of a dark red colour, small and situated in the axils of the upper leaves, and are succeeded by brownish-black berries, about the size of juniper berries, of a firm fleshy substance, and insipid in taste. A native of moors and the sides of boggy hills throughout the north of the Eastern continent, and the islands towards America. In Great Britain it is most abundant on the Scottish hills, where it affords abundant food to the moor-game, and is also found in the moorland districts of the north of England. Its berries are eaten by the Highlanders and Russian peasants, and are considered wholesome. Boiled in alum-water, they furnish a dingy purple dye, and Linnaeus states that they are used by the Laplanders for dyeing otter and sable skins black. *E. rubrum*, a native of the extreme south of South America, has red berries, which are said to be pleasant to eat. It is most abundant along the sandy coast. Both species are easy of cultivation as bog plants, but are slow growers. French *Camarine*: German *Rauchbeere*. [C. A. J.]

EMPHYSEMATOSE. Bladdery, resembling a bladder.

EMPHYSOPUS. A name formerly applied to a little perennial herb of the composite family, which is common on pasture lands in Tasmania, and in habit and form of leaves a good deal resembles the common daisy. The flower-heads, however, supported on naked stalks, one to three inches long, are not more than a quarter of an inch in diameter, and the leaves are clothed with a soft down. The plant is now placed in *LAGENOPHORA*: which see. [A. A. B.]

EMPLEUROSMA. The name of a small shrub of the rue family, a native of Swan river, and having leathery linear leaves, rolled under at the margins, and unisexual flowers, the males with a four-parted calyx, and eight stamens, whose anthers

are tipped with a gland. It is now better known as *Dodonaea pinifolia*. [M. T. M.]

EMPLEURUM. A genus of *Euphorbia* consisting of one shrubby species native of S. Africa. It has oblong glandular serrulated leaves, and axillary flowers, solitary, or in twos or threes, having a four-cleft calyx, thickened at the base, no corolla, and four stamens, opposite to, and longer than the lobes of the calyx, with anthers having a gland at the top. The ovary is solitary, one-celled, terminating at top in a long horn, the style lateral, as long as the horn-like extremity of the ovary; ovules two. The horned capsule is one-seeded. *E. serrulatum* is a pretty greenhouse shrub with pinkish flowers. [M. T. M.]

ENARTHROCARPUS. A genus of *Cruceferæ* from the coasts of the Mediterranean; it is allied to *Raphanus* but with a different pod, which breaks across into only two parts, the lowermost of which is persistent, short, obconical with one to three seeds, the uppermost long and knotty, with numerous seeds. Rough annuals with lyrate-pinnatifid root leaves, toothed stem leaves, and elongate racemes of yellow or purplish flowers. [J. T. S.]

ENCALYPTA. A genus of mosses belonging to the natural order *Encalyptet*, distinguished by the large funnel-shaped persistent veil which covers the capsule. *E. vulgaris* is a remarkable moss, and occurs here and there on the tops of walls, though not so general as some other wall mosses. The capsule in this genus is either even or grooved; the peristome is either single, double, or altogether wanting. The genus is almost exclusively confined to Europe and North America, though there are traces of it in Chile, Peru, and Kumaon. It is the only genus of the order. [M. J. B.]

ENCEPHALARTOS. A genus of *Cycadaceæ*, having tall cylindrical trunks, with a terminal tuft of pinnate thick spiny leaves. The male flowers, like those of *Cycas*, are collected into a terminal stalked cone, consisting of a number of oblong wedge-shaped scales, with anthers on their under-surface; while the female flowers are collected in terminal stalked cones, consisting of peltate stalked scales, on the under-surface of which the ovule is placed, as in *Zamia*. The interior of the trunk, and the centre of the ripe female cones, contain a spongy farinaceous pith, made use of by the Caffers as food, and hence the trees are called by the name of Caffer-bread. [M. T. M.]

ENCHOLIRIUM. A name applied to a genus of *Bromeliaceæ*, represented by a Brazilian herbaceous plant, with tufted spiny leaves, and clustered flowers, with a calyx of three short equal segments, a corolla of three petals, and six hypogynous stamens, with curved filaments dilated at the base. The ovary is free; the style triangular with three stigmas. [M. T. M.]

ENOKIA. Shrubs, or less frequently trees, forming a genus of *Piperaceæ*, cha-

racterised by the bracts of the inflorescence, which are hood-like and bent inwards. Stamens five to seven, placed round the ovary; filaments persistent, the anthers kidney-shaped, deciduous. Ovary sessile, sometimes prolonged at the top; stigmas three to five. Fruit aromatic, berry-like, with a thick rind. The roots of *E. unguiculata* and *E. glaucescens* are used medicinally in Brazil. [M. T. M.]

ENDECA. In Greek compounds=eleven.

ENDIVE. *Cichorium Endivia*.

ENDIVE PETITE. (Fr.) *Cichorium Endivia angustifolia*.

ENDOCARP. The lining of a carpel; the inner surface of a fruit, representing at that time the upper surface of a carpelary leaf. The stone of a cherry is its endocarp.

ENDOCARPEI. A natural order of lichens, in which the capsule-like fruit is constantly immersed in the foliaceous or crust-like frond. The walls of the fruit moreover are pale and never carbonised as in *Verrucariæ*. The best known species are *Endocarpion minutum*, which is so common about waterfalls, presenting a peltate leathery greenish frond tinged with red below; and *Pertusaria communis*, which is still more common on smooth-barked trees, especially the oak and the beech, and which by a peculiar degeneration produces the white patches which, according to their more or less mealy condition, are referred to the now exploded genera *Variolaria* and *Leprolaria*. [M. J. B.]

ENDOCHROA. A supposed interior layer of the cuticle.

ENDOCHROME. The colouring matter of plants. A term applied to the contents of the cells, especially amongst *Algae* and *Fungi*, though frequently applicable to the simple structures in phæogams. The colour of flowers, funguses, &c., depends generally upon the colour of the endochrome, the cell wall itself being hyaline. In *Algae* and *Fungi* it frequently acts an important part, being either concentrated into a single spore or zoospore, or resolved into a definite or indefinite number of either, while at times it gives rise to spermatozooids. [M. J. B.]

ENDOGENE. A large class of plants to which the names of *Monocotyledonæ* and *Amphibryæ* are also given. They have a cellular and vascular system—the latter exhibiting spiral vessels. Their stem is endogenous, that is, increases in diameter by addition of woody vessels towards its interior, the outer part being the oldest and densest (hence the name *Endogens* or inward-growers); bundles of woody, spiral and pitted vessels are scattered throughout the cellular tissue; there is no pith, no separable bark, no woody rings or zones, and no true medullary rays. The age of woody *Endogens* cannot be determined by counting concentric rings as in *Exogens*. The leaves are usually con-

tinuous with the stem, and do not fall off by articulations; when at length they separate their bases leave marks or scars at definite intervals on the stem, as seen in palms. The stems of endogens are often subterranean, in the form of corms, rhizomes, or bulbs. The leaves have stomates, and their venation is usually parallel, though in a few cases it is slightly reticulated. The flowers have stamens and pistil, and three-membered symmetry. The ovules are contained in an ovary, and the embryo has one cotyledon or seed-lobe, whence they are called monocotyledonous.

The class has been divided into two subclasses: 1. *Petaloides* or *Florida*, in which the flowers consist either of a coloured perianth or of scales arranged in a whorl; 2. *Glumifera*, in which the flowers, in place of sepals and petals, have imbricated bracts or scales called glumes. Lindley has added a third subclass called *Diclyogenæ*, on account of the net-veined leaves. Among the *Petaloides* there are three sections: 1. *Epigynæ*, having perfect flowers and a superior perianth, as orchids, gingers, irids, amaryllids, &c.; 2. *Hypogynæ*, having perfect flowers and an inferior perianth, as lilies, rushes, and palms; 3. *Incompletæ*, with imperfect flowers without a proper whorled perianth, as screw-pines and arums. Among *Glumifera* there are included the two orders of grasses and sedges.

Permanent endogenous stems are well illustrated by palms. In these the hardest part is on the outside, and the trunks are usually unbranched, and are limited as regards their increase in diameter. They increase principally by forming a crown of leaves, and if this growing point is destroyed they die. Some Endogens, as *Draconas*, attain a great diameter of stem, and divide in a forked manner. [J. H. B.]

ENDOGENIUM. The contents of the nucleolus of a *Chara*.

ENDONEMA. A Cape of Good Hope shrub belonging to the *Pentaceæ*. Its leaves are flat and overlapping; the flowers axillary, solitary, with a coloured tubular perianth divided into four short lobes, and four stamens, inserted into the top of the perianth tube, alternately with its lobes. The ovary has four compartments, each containing four ovules, the upper pair ascending, the lower pendulous. [M. T. M.]

ENDOPHLOEUM. The liber of bark; the inner layer, containing woody tissue, lying next the wood.

ENDOPHYLLOUS. Formed from within a sheathing leaf; as the young leaves of endogenous plants.

ENDOPLEURA. The innermost skin of a seed-coat.

ENDOPTERA. A genus of *Compositæ*, nearly related to *Crepis*, but differing in the achenes of the ray florets having a wing on their inner face. There are but two species, *E. Diocoridis* and *E. aspera*, both annual branching weeds of S. Europe

and Asia Minor, and in appearance much like our species of *Crepis*. The generic name refers to the wings on the inner face of the achene. [A. A. B.]

ENDOPTYLE. Said of an embryo whose plumule is rolled up by the cotyledon, as in endogens.

ENDORHIZAL. That kind of germination in which the original radicle forms a sheath round the first root which comes from within the former.

ENDORHIZEÆ. A name applied by Richard to endogenous or monocotyledonous plants, on account of the mode in which the young root is developed. The embryo of these plants, when it germinates or sprouts, usually sends out from a definite point a bundle of rootlets, which pierce through the integument, and are covered each by a sheath called coleorhiza. This is well seen in the sprouting of the grains of grasses. The embryo is hence called endorhizal, meaning root within. [J. H. B.]

ENDOS. In Greek composition = within, or in the inside of anything.

ENDOSMOSE. That force which causes a viscid fluid lying within a cavity to attract to itself a watery fluid through an organic membrane.

ENDOSPERM. The albumen of a seed.

ENDOSTOME. The aperture in the inner integument of an ovule.

ENDOTHECIUM. The lining of an anther.

ENEMION. An herbaceous perennial belonging to the *Ranunculaceæ*, with five petal-like deciduous sepals, and from two to six carpels, which when mature are arranged in a stellate manner, and contain two oval seeds. *E. biternatum*, the only species, grows to about the height of six inches, and bears flowers about the size of *Anemone quinquefolia*. It is a native of Kentucky, Ohio, etc. [C. A. J.]

ENERVIS. When there are no ribs or veins visible.

ENGELHARDTIA. A genus of *Juglandaceæ*, numbering about ten species, found in India, Java and the Philippine islands. They are trees with pinnate leaves a good deal like those of the walnut, and inconspicuous flowers disposed in drooping spicate panicles, the outer and shorter branches of which bear sterile flowers, the inner fertile. These are succeeded by the little fruits, which are about the size of a pea, each seated on the base of a three-lobed beautifully veined and coloured bract. The beautiful catkin-like spikes of these bracted fruits are often more than a foot long, and hang very gracefully among the foliage. [A. A. B.]

ENGELIA. A genus of *Acanthaceæ*, containing two species, natives of Columbia. They are climbing undershrubs, with one-flowered axillary peduncles. The calyx is

reduced to a mere ring. The corolla tube is bent, and the limb fissured in front and parted into five roundish lobes; there are four didynamous stamens, with a rudimentary fifth. The ovary is one-celled, with one ovule in each cell; and the fruit is a fleshy one-celled drupe with a single seed. [W. G.]

ENGELMANNIA. A genus of *Euphorbiaceae*, found in Texas and the neighbouring states. It is nearly allied to *Croton*, but differs in having fewer stamens, and in its little capsular fruit, about the size of an orange-pip, being composed of two not three cocci. *E. Nuttalliana*, the only species, is an erect branching herb one to two feet high, with alternate stalked oval leaves, silvery-white underneath. The minute flowers are disposed in little clusters in the forks of the branches, the males and females together. The genus bears the name of Dr. Engelmann, of St. Louis, an American botanist. A composite plant has also been dedicated to him, but that now bears the name *Angelandra*. [A. A. B.]

The name is also applied to a section of *Ouscuta*, elevated into a genus by Pfeiffer, containing those species which have a four or five-cleft monosepalous calyx, and a capitate stigma, and in which the capsule dehisces at the apex. [W. C.]

ENGLISH MERCURY. *Chenopodium Bonus-Henricus*.

ENGRAIN. (*Fr.*) *Triticum monococcum*.

ENHALUS. A genus of *Hydrocharidaceae*, allied to *Stratiotes*, from which it differs chiefly in having the inner segments of the perianth linear. It is found in the estuaries of the rivers, in Ceylon and other Indian Islands. The leaves are radical, linear, serrated at the apex, and the spathe of the female flowers is two-leaved with a bearded keel. [J. T. S.]

ENKYANTHUS. An elegant glabrous shrub, with deciduous leaves and showy red flowers, often tipped with white. It is a native of South China, and has been introduced into our gardens. It forms a genus of *Ericaceae* of the tribe *Andromedaeae*, distinguished by a campanulate five-lobed corolla, ten stamens having the anther-cells tipped with awn-like points and opening longitudinally to the base, and a free hard five-celled capsule opening loculicidally in as many valves. The flowers are terminal, pedicellate and drooping, issuing, several together, from a tuft of coloured bracts. *E. quinquefolius* is probably the only species known, for *E. reticulatus* appears to be only a slight variety of it.

ENKYLLA. A genus of *Ocucurbitaceae*, consisting of Indian climbing herbaceous plants, with pedate downy leaves, having somewhat spiny margins, and small flowers arranged in panicles. The male flowers have a five-fold calyx and corolla, and five stamens completely united into one parcel; the female flowers have a similar calyx and corolla, and an inferior ovary, with a single pendulous ovule in each of the two or three

compartments. Fruit berry-like, of the form of a pea. [M. T. M.]

ENNEA. In Greek compounds = nine.

ENSATÆ. A name given by Linnæus to a natural order of monocotyledonous or endogenous plants, including *Iris*, *Gladiolus*, *Antholysa*, *Ixia*, *Sagittarium*, *Commelyna*, *Xyris*, *Eriocaulon*, and *Aphyllanthes*. These plants are now distributed over five separate orders. [J. H. B.]

ENSIAO. *Sempervivum glutinosum*.

ENSIFORM, ENSATE. Quite straight, with the point acute, like the blade of a broadsword, or the leaf of an *Iris*.

ENTADA. A genus of Leguminous plants containing nearly a dozen species of climbing tropical shrubs, which have twice-pinnated leaves, and flowers produced either in spikes at the bases of the leaves, or in bunches at the ends of the branches; these flowers have a bell-shaped calyx, five white or yellow petals, and ten stamens. The most remarkable feature of the genus is the extraordinary length of its pods, which are flat and woody, divided into numerous joints, each containing one large flat polished seed. In *E. scandens*, a native of the tropics of both hemispheres, the pods often measure six or eight feet in length. The seeds are about two inches across, by half an inch thick, and have a hard woody and beautifully polished shell, of a dark brown or purplish colour. In the tropics the natives convert these seeds into snuff-boxes, scent-bottles, spoons, &c., and in the Indian bazaars they are used as weights. Occasionally they are sent to this country and are hawked about the streets of London under the name of West Indian Filberts, but they are not eatable. Sometimes they are conveyed by the great oceanic currents to the shores of the west of Scotland and the Orkneys, and they are occasionally carried as far as the Loffoden Isles and the Norway coast. [A. S.]

ENTANGLED. Intermixed in so irregular a manner as not to be readily disentangled, such as the hairs, roots, and branches of many plants.

ENTELEA. A genus of *Tiliaceae*, peculiar to New Zealand, and represented by a single species, *E. arborescens*, a small branching tree from five to ten feet high, with large alternate heart-shaped or three-lobed leaves, and white flowers, somewhat like those of a small dog-rose, disposed in little umbels which terminate the branches of an axillary or terminal panicle. They have a four or five-leaved calyx, a like number of somewhat crumpled petals, and numerous fertile stamens. The four to six-celled capsular fruits are about the size of a hazel nut. In New Zealand the light wood is used by the natives as floats for their nets. *Spermannia*, to which the plant is most nearly allied, differs in having numerous sterile stamens intermixed with the fertile ones. [A. A. B.]

ENTEROMORPHA. A genus of green-

spored *Algae*, comprising those species of *Ulva* which have a tubular frond, whether simple or more or less branched. The most general species, *E. intestinalis*, known by its bullate crisped fronds, occurs in fresh as well as salt water, *E. compressa* being the more common species on tidal rocks, and having simple or branched narrower fronds, dilated above. The species run closely into each other, and are probably too much multiplied. [M. J. B.]

ENTIRE. Having no kind of marginal division.

ENTOPHYTE. A plant which grows from within others, as some rhizanthus and fungals.

ENULA-CAMPANA. (Fr.) *Inula Helonium*.

EOUSE. (Fr.) *Quercus Ilex*.

EOUVE. (Fr.) *Pinus Cembra*.

EPACRIDACEÆ (*Epacrids*). A natural order of corollifloral dicotyledons, included in Lindley's erical alliance of hypogynous Exogens. Shrubby plants, with usually alternate simple leaves; flowers regular and perfect, in spikes or racemes; corolla gamopetalous; stamens five, equal in number to the lobes of the corolla; anthers one-celled, opening by a longitudinal slit. Ovary superior, five-celled, with five scales, distinct or combined at its base. Fruit either fleshy or capsular; embryo with albumen and very small cotyledons. There are two sections of the order: 1. *Epacrea*, with a capsular many-seeded fruit; 2. *Styphelia*, with a drupaceous one-seeded fruit. The plants are natives of the Indian Archipelago and Australia, and represent the heaths in those countries; but they differ from true heaths (*Erica*) in their pentamerous symmetry, their anthers being one-celled without appendages, and in the attachment of the stamens and the corolla.

They are cultivated in greenhouses for the beauty of their flowers. Some yield edible fruits. The berries of *Leucopogon Richi*, called native currants, are said to have supported the French naturalist Riche, who was lost for three days on the south coast of New Holland. *Astroloma humifusum* is called the Tasmanian cranberry. There are 32 known genera, and 330 species. Examples:—*Epacris*, *Dracophyllum*, *Styphelia*, *Leucopogon*. [J. H. B.]

EPACRIS. A large genus typical of the *Epacridaceæ*, distinguished by having a coloured calyx with many bracts, a tubular corolla with a smooth limb, stamens affixed to the corolla, and a five-valved many-seeded capsule. They are branched shrubs with the leaves lanceolate or cordate, generally sharp-pointed, and the flowers axillary, white red, or purple, usually in leafy spikes. The species are distributed over the extra-tropical portions of Australia, Tasmania and New Zealand, and many of them, from the abundance and beauty of

their flowers, are deservedly great favourites in the greenhouse. There is very much diversity in the habits of the plants. In *E. pulchella*, *E. rigida*, and *E. microphylla*, the leaves are very small, and the flowers white.



Epacris grandiflora.

In *E. grandiflora* the leaves are much larger, heart-shaped and sharp-pointed, the flowers nearly an inch in length, of a brilliant reddish purple at the base, and pure white at the apex. In *E. impressa*, *E. ruscifolia*, and *E. tomentosa* the flowers are of a deep rose-colour; while in *E. niven*, *E. obtusifolia*, *E. heteronema*, and *E. paluosa* they are large and of a pure white, the plants having narrow lanceolate sharp-pointed leaves. The New Zealand species are rather inconspicuous in their flowers. [R. H.]

ÉPEAUTRE. (Fr.) *Triticum Spelta*.

EPERUA. The Wallaba, *E. falouta*, a large timber tree, is the best known member of this genus of Leguminous plants. It has pinnate leaves composed of two or three pairs of leaflets; and its red flowers are borne in drooping long-stalked bunches. The calyx consists of four thick concave sepals with their bases connected, the upper sepal being broader than the others; the corolla is a solitary roundish fringed petal, inserted into the middle of the calyx; and there are ten stamens. The curiously curved flat pod bears some resemblance to a hatchet, and generally contains from three to four very flat seeds. The tree is abundant in the forests of British Guiana, where it attains a height of fifty feet, with a girth of about six feet. The timber is of a bright red-brown colour, marked with whitish streaks, hard and heavy, but rather coarse-grained. In consequence of the readiness with which it splits, it is commonly employed in Demerara for shingles, palings, &c., and being impregnated with a resinous oil, it is very durable. The bark of the tree is bitter, and the Indians employ a decoction of it as an emetic. They also use the gum as an application to cuts. [A. S.]

EPHYRE. (Fr.) *Hieracium*. —
ORANGÉE. *Hieracium aurantiacum*.

EPHEBE. A curious and anomalous genus proposed by Fries, which, after oscillating between lichens and sea-weeds, was for a time joined with *Byssoidae*, but whose real affinities were quite unintelligible till the discovery of the fructification, which clearly places it in close conjunction with *Lichina* and its near allies. The frond consists of branched threads composed when young principally of large brownish cells more or less perfectly disposed in transverse rows, and often divided vertically or horizontally into four. In this condition it seems to indicate an intimate relation with the algal genus *Scytonema*. In older branches, however, there is a distinct cellular tissue both external and within the layer of large cells, and towards the extremities the branchlets swell and contain nuclei, like those of *Dothidea*, filled with a gelatinous mass consisting of fertile asci, each of which contains eight sporidia, while in other similar swellings nuclei are produced whose gelatinous contents produce myriads of granules, supposed to be the male fruit of the plant. The plant is therefore clearly a lichen, allied to *Collema* and *Lichina*, receding from the common type in the nature of its gonidia, which depart from the usual green tint, and seem to be propagated like such genera as *Hæmatococcus*. The species, which are not numerous, occur on irrigated rocks and stones. They are, as known at present, confined to the temperate regions of the northern hemisphere. [M. J. B.]

EPHEDRA. A genus of *Gnetaceae*. The plants have stamens and pistils in separate flowers: the staminate flowers in catkins and with a membranaceous perianth; the pistillate flowers terminal on axillary stalks, within a two-leaved involucre. The fruit is a succulent cone, formed of two carpels, with a single seed in each. They are branching shrubs, natives of the sandy sea shores of temperate climates in both hemispheres. The branches are slender, erect or pendulous; leaves very small, scale-like, articulated and united into a sheath at the base. There are twenty-five known species. *E. distachya* abounds in the southern parts of Russia; its fruit is eaten by the peasants and by the wandering hordes of Great Tartary. The branches and flowers of some of the *Ephedras* have been used to stop bleedings and discharges. [J. H. B.]

EPHÉMÉRINE. (Fr.) *Tradescantia*.

EPHEMERUM. *Tradescantia*.

EPHEMERUS. Enduring but a day.

EPHIPPIUM. A name applied by Blume to certain epiphytal orchids now referred to various genera, such as *Boldophyllum*, *Sarcopodium*, and *Oirrhopetalum*. The most notable species is *Sarcopodium grandiflorum* from New Guinea, which has creeping wiry stems with four-sided pseu-

do bulbs at intervals, and a solitary flower and leaf; the flower, borne on a stalk, is said to be eight inches across, and of a pale yellowish-green colour. [A. A. B.]

EPI. In Greek compounds = upon.

EPIAIRE. (Fr.) *Stachys*. —, **GRANDE.** *Stachys sylvatica*.

EPIBLAST. A small transverse plate (a second cotyledon), found on the embryo of some grasses.

EPIBLEMA. An epidermis consisting of thick-sided flattened cells.

EPIBLEMA grandiflorum is a terrestrial tuberous rooted orchid of W. Australia, with a slender erect stem eighteen inches high, bearing a single grassy leaf with a few sheathing bracts, and terminating in a raceme of from one to five pretty blue flowers, each about an inch across. According to Dr. Lindley, the genus, which belongs to the tribe *Neottieae*, differs from *Thelymitra*, of which it has the habit, not only in the clawed lip with long slender processes at the base, but also in the anther bed not being cucullate. [A. A. B.]

EPICALYX. The involucrellum, or external series of envelopes beyond the calyx, as in *Malva*.

EPICARP. The outermost layer of the pericarp, corresponding with the under side of the carpellary leaf.

EPICEA. (Fr.) *Abies excelsa*.

EPICHRIS. A genus of *Meliaceae*, comprising certain trees, natives of the Molucca Islands, which, added to the general characteristics of the order to which they belong, present the following distinguishing features: corolla of four spreading or reflected petals; stamens eight, their filaments united so as to form a tube, the upper margin of which is divided into eight notched lobes, and encloses the anthers; ovary sessile, four-celled, enclosed within the tube of the stamens. Fruit a capsule bursting by two or four divisions, each compartment containing a single seed provided with a fleshy arillus. [M. T. M.]

EPICHILE. The upper half of the lip of an orchid, when that organ is once jointed or strangulated.

EPICLINAL. Placed upon the disk or receptacle of a flower.

EPIDENDRUM. A vast genus of South American orchids, numbering more than 300 species, and exhibiting great diversity of growth. They are mostly epiphytes on trees, whence the generic name, though not a few are terrestrial. The stems are elongated and leafy in some, and reduced to a pseudo-bulb in others; the leaves are leathery in texture and usually strap-shaped; and the flowers are either solitary or disposed in axillary or terminal spikes, racemes, or panicles. According to Dr. Lindley, the essential character of the genus resides in the lip being more or less united by a fleshy base to the edge of a column, which

is hornless, and considerably elongated, but not petaloid and winged; in the pollen masses being four, equal, compressed, with as many pulverulent caudicles folded back on them; and finally, in the presence of a cuniculus more or less deep at the base of the lip. *E. nemorale*, often misnamed *verrucosum*, is one of the handsomest in cultivation. It is a Mexican plant, with ovate pseudo-bulbs bearing two glossy strap-shaped leaves, and panicles of handsome rosy flowers, each about one and a half inch across, the lip streaked with lines of a darker colour; it takes its name from the minute rough points on the branches of the panicle. Similar in size and colouring of flower is *E. Skinneri* from Guatemala, but it has elongated stems, the flowers arranged in drooping terminal racemes, and the lip with three yellow crests. Perhaps the most desirable species is the Mexican *E. vitellinum*, from its brilliant deep orange-coloured and long-enduring flowers: it has oblong pseudo-bulbs with two short leaves, and a flower scape six to twelve inches high, the individual flowers about an inch in length. Then we have *E. cuspidatum*, notable for its very large yellow flowers, with a curious trilobed lip, the central lobe linear, and the two lateral crescent-shaped with beautifully fringed borders. To the same group belong *E. ciliare* and *E. nocturnum*, the first smaller in all its parts, with greenish flowers, the latter destitute of the fringe to the lip, and emitting a very agreeable odour in the evening. The singular colouring of the flowers in *E. prismatocarpum* renders it attractive, the ground colour being yellow-green with many dark purple blotches across the sepals and petals, and the lip pink. It has ovate pseudo-bulbs with a leathery strap-shaped leaf a foot long, and the flowers are in many-flowered scapes. A. A. B.]

EPI D'EAU. (Fr.) *Potamogeton*. — DE LAIT or DE LA VIERGE. *Ornithogalum pyramidale*. — DU VENT. *Agrostis Spicata*. — FLEURI. *Stachys*. — SAUVAGE. *Asarum europæum*.

EPIDERMIS. The true skin of a plant below the cuticle.

EPIDERMOID. Belonging to the skin.

EPIGEÆA. The generic name of shrubs of the heathwort order, characterised by having three leaflets on the outside of the five-parted calyx; and by the corolla being salver-shaped, five-cleft, with its tube hairy on the inside. The name, derived from Greek words signifying 'upon the earth,' is sufficiently expressive of the mode of growth or trailing habit of the species. One of them, *E. repens*, a native of North America, has been long known in cultivation; it is an ornamental procumbent shrub, with fragrant flowers, usually white with a reddish tinge. [G. D.]

EPIGENOUS. Growing upon the surface of a part, as many fungi on the surface of leaves.

EPIGEOUS. Growing close upon the earth.

EPIGONE. The membranous bag or flask which incloses the spore-case of a liverwort or scale-moss when young. Also the nucule of a *Chara*.

EPIGYNIUM. East Indian shrubs, so named, in consequence of the disc which surmounts the ovary. They constitute a genus of *Vacciniaceæ*, known by their five-parted flowers, bell-shaped or cup-shaped corolla, ten separate stamens, and five-celled ovary containing many ovules, and surmounted by a five-lobed disc, as well as



Epigynium leucobotrys.

by the limb of the calyx. The fruit is succulent. *E. acuminatum*, a greenhouse shrub, has racemes of richly-coloured red flowers. *E. leucobotrys*, another species in cultivation, has a tuberous root like a yam, and the berries are white and wax-like; hence the name. [M. T. M.]

EPIGYNOUS. Upon the ovary; a term applied when the outer whorls of the flower adhere to the ovary, so that their upper portions alone are free and appear to be seated on it, as in umbellifers, myrtals, campanals, &c.

EPILEPIE. A genus of the composite family allied to *Coreopsis*, but differing in having applied to the outer surface of each wingless achene a three-toothed chaffy scale. The only known species, *E. rudis*, is an erect hispid Mexican herb with opposite pinnatisect leaves, whose stems are terminated by a corymb of numerous yellow-rayed flower-heads, each about an inch across; these have an involucre of two series of scales, neuter ray-florets, those of the disc tubular and perfect. The compressed achenes crowned with two short awns. [A. A. B.]

EPILINELLA. A section of *Oussea*, containing those in which the calyx consists of five fleshy sepals, keeled on the back, and with membranaceous margins

united at the base. It has been raised to a generic position by Pfeiffer. [W. C.] *Oryzaantha*. — DU CHRIST. *Palturus aculeatus*. — NOIRE. *Prunus spinosa*.

EPILITHES. The name of a small herbaceous plant, which covers the rocks in certain parts of the island of Java, and is described by Dr. Blume as belonging to *Nyctaginaceae*, though his description seems rather to apply to a plant of some other order. The flowers are monœcious, four-parted, the females without petals; ovary inferior with one ovule; stigmas four, brush-like; fruit berry-like. [M. T. M.]

EPILOBIUM. A somewhat extensive genus of mostly perennial herbaceous plants belonging to the order *Onagraceæ*, among which they are distinguished by their flowers having eight stamens, and by

found in all situations, by rivers, in woods, or on waste ground, and some are Alpine. In habit they are mostly erect and but little, if at all, branched; the leaves are narrow and opposite, frequently toothed at the base; and the flowers, which are either axillary or in terminal spikes, are generally of a purple hue, apparently stalked, but in reality supported on the slender rudimentary capsule. There are several British species, most of which are unpretending weeds; but *E. hirsutum*, a tall species growing from four to six feet high, is frequently ornamental to the banks of rivers and ponds. The flowers of this plant are large and of a delicate pale pink, with a conspicuous four-cleft white stigma. The whole plant is downy, soft and clammy, exhaling a peculiar acidulous scent, which has gained for it the popular name of Codlins and Cream. *E. angustifolium* is not often found truly wild, but is a common ornament of cottage gardens, when, if suffered to range at its will, it soon overpowers all other herbaceous vegetation. It is sometimes planted with advantage in shrubberies when luxuriant undergrowth is desired, but should not be admitted into a small garden, as it is most difficult of eradication. In this plant the leaves are scattered and destitute of all pubescence, and the flowers are irregular, large, rose-red, and grow in a terminal spike. French, *Epilobe*, *Laurier St. Antoine*, *Oster fleuri*; German, *Weiderich*. [C. A. J.]

EPIMEDIUM, Barrenwort. A genus of *Berberidaceæ*, known by having the parts of the flower in fours, there being four sepals, eight petals, and four stamens. They are Alpine herbs, found in Europe, Middle Asia, and Japan. *E. alpinum*, the only European species, is a low herb with a creeping rhizome, and long-stalked triterminal leaves, with large ovate-cordate serrated leaflets, and panicles opposite the leaves bearing rather small dull purplish flowers, with the inner petals bulging at the base; it has been stated to grow in Scotland and the north of England, but only where planted. [J. T. S.]

EPINE BLANCHE. (Fr.) *Cratægus*

ÉPINETTE ROUGE. (Fr.) *Larix americana*.

ÉPINE-VINETTE. (Fr.) *Berberis vulgaris*.

ÉPINARD. (Fr.) *Spinacia*. — BLANC DU MALABAR. *Basella alba*. — D'HIVER. *Spinacia spinosa*. — DE HOLLANDE. *Spinacia inermis*. — DU MALABAR. *Basella rubra*. — FRAISE. *Blitum virgatum*. — IMMORTEL. *Rumex Patencia*. — SAUVAGE. *Chenopodium Bonus-Henricus*.

EPIPACTIS. A genus of terrestrial orchids, consisting of erect herbs with fibrous roots, and a leafy stem, bearing a loose simple raceme of purplish-brown or whitish flowers occasionally tinged with red. The perianth is spreading, without any spur; the petals and sepals are nearly similar; the lip free from the column, thick and concave at the base, the terminal portion broad and petal like, with two protuberances at the base; the column short with a terminal anther. There are but few species, natives of the temperate regions of the northern hemisphere. Two only are British: *E. latifolia*, not unfrequent in woods and shady places, but usually singly, attaining two feet in height or even more, the lower leaves ovate, the upper ones small and narrow, the flowers varying from green to a dingy brown, and hanging in a long loose one-sided raceme; and *E. palustris*, which is more local, although abundant in particular spots, and is not so tall, but a more showy plant, the leaves narrower, the racemes more compact, with larger slightly drooping flowers, the sepals pale greenish-purple, the petals and lip white, more or less streaked with pink.

EPIPETALOUS. Inserted or growing on a petal.

EPIPHEGUS. A genus of *Orobanchaceæ*, containing a single species from North America. It is a brownish fleshy herb, parasitic only upon the roots of the beech, and furnished with a branched stem, and small remote scales, from the axils of which spring root fibres as well as flowers. The flowers on the upper portion of the branches are hermaphrodite and have a large corolla, but are generally barren, while those on the lower parts of the branches are small, have a short corolla, and are always fructiferous. In the hermaphrodite flowers, the corolla is ringent, compressed and four-cleft with the lower lip flat; while in the female flowers the corolla is short, absolutely four-toothed and deciduous. The capsule is small, roundish, imperfectly two-valved, with numerous ovate seeds. [W. C.]

EPIPHORA pubescens is a South African epiphytal orchid about a span high, with short ovate pseudo-bulbs bearing two or three oblong linear leaves a little oblique at the apex, and a terminal erect raceme of

numerous fragrant bright yellow flowers streaked with red, and nearly half an inch across. It is a highly desirable plant, as it keeps on flowering for nine months of the year. The relationship of the genus is with *Polystachya* amongst the *Vandeeæ*, and it differs chiefly from that genus in the four pollen masses being attached to a distinct though short caudicle. The inside of the little trident-shaped lip, which is uppermost in the flower, is bearded with long hairs. There is only one species known. [A. A. B.]

EPIPHLEUM. The layer of bark immediately below the epiderm. The cellular integument of the bark.

EPIPHRAGM. A membrane drawn over the mouth of the spore-case in urn-mosses, and closing it up.

EPIPHYLLOUS. Inserted upon a leaf.

EPIPHYLLUM. A small genus of *Cactaceæ*, commonly cultivated in conservatories in this country on account of the showy pink or crimson flowers. Only three species are known, all natives of Brazil, where they are generally found upon the trunks of trees. They grow two or three feet high, and have thin cylindrical stems, and branches composed of numerous short leaf-like joints growing out of one another, and resembling leaves joined together by their ends. The flowers are produced singly at the extremities of these branches, and are upright and regular in one species, but bent downwards and somewhat two-flipped in the others. The sepals and petals are numerous and coloured alike, so that they are scarcely distinguishable, though the innermost have their bases united into a tube; the stamens are numerous, arranged in two series. The fruit is a small very smooth berry, sometimes having angular ribs.

E. truncatum is the species most frequently cultivated in this country, and there are several garden varieties of it, distinguishable only by the size and colour of their flowers. It is a native of Brazil, particularly of the Organ Mountains, but is seldom found at a greater elevation than 4,500 feet. The flat joints of the branches are about two inches long, broad at top, but tapering towards the base, and the flowers, which are produced from the broad ends of the joints, are bent downwards, one side of the expanded part being larger than the other: they are pink, crimson, or orange-coloured, with white stamens. *E. Russellianum*, also Brazilian, is readily distinguishable from the last by its flowers being straight, and the petals expanding in a regular manner: the stamens, also, are of the same pink colour as the flower. [A. S.]

EPIPHYTE (adj. **EPIPHYTAL**). Plants which grow upon the surface of others, as many mosses and orchids.

EPIPODIUM. A form of disk consisting of glands upon the stipe of an ovary. Also the stalk of the disk itself.

EPIPOGIUM *aphyllum* is a curious leafless pale-coloured herb, forming a genus of terrestrial orchids. The root-stock has a number of short thick fleshy fibres like those of *Corallorhiza*. The stem, about six inches high, bears some small scale-like bracts, and three or four rather large pale yellowish flowers with narrow sepals and petals, and an ovate somewhat concave lip with a thick projecting spur underneath; the column is short, with a shortly stalked terminal anther. The species has a very wide range in Europe, and temperate Asia, but is generally very scarce, growing here and there among rotten leaves, in woods, and shady places. In Britain it has only been found in a single locality, near Tedstone Delamere in Herefordshire.

EPIPTEROUS. Having a wing at the summit.

EPIRHIZOUS. Growing on a root.

EPISCIA. A small genus of *Gemmeraceæ*, containing six species, natives of America. They are fleshy, creeping, and rooting herbs, with opposite petiolate leaves, and solitary or aggregated axillary flowers, whose small calyx is free and five-parted, and the corolla erect within the calyx, then obliquely salver-shaped, with the limb five-lobed. The ovary is surrounded at the base by a disc, which swells behind into a gland. The capsule is membranaceous, two-celled, with numerous oblong seeds. [W. G.]

EPISCOPEA. *Themistoclesia*.

EPISPERM. The skin of a seed.

EPISPORANGIUM. The indusium of a fern when it overlies the spore-cases, as in *Aspidium*.

EPISPORE. A skin which covers some spores.

EPISTYLIUM. A genus of the spurge-wort family peculiar to Jamaica, containing only a couple of species, one of which is a shrub, the other a tree of about twenty feet; both have smooth alternate laurel-like leaves, and minute yellowish-green or reddish flowers disposed in little clusters or racemes, which in *E. axillare* proceed from the axils of the leaves, and in *E. cauliflorum* from the bare stems. The sterile and fertile flowers are in the same cluster, the former with four-parted, the latter with a five-parted calyx. The fruits are little oblong three-sided capsules, with three cells and one or two seeds in each. The genus is by some authors united with *Phyllanthus*, from which it chiefly differs in the four-lobed calyx of the male flowers. [A. A. B.]

EPITHELIUM. An epidermis consisting of young thin-sided cells, filled with homogeneous transparent colourless sap.

EPURGE. (Fr.) *Euphorbia Lathyris*.

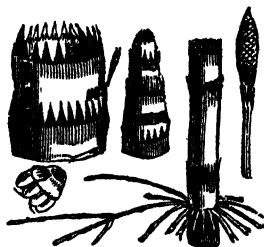
EQUISETACEÆ, EQUISETUM. A natural order and genus of the higher crypto-

gama, remarkable for the external resemblance which they bear in habit to *Casuarina* or *Ephedra*, and as regards the heads of fructification to *Somia*. All resemblance, however, ceases there, and the natural affinities of the plants are with ferns. The plants are often perennial, new shoots being thrown up from the creeping rhizomes. The spores germinate like those of ferns, and produce a sort of prothallus, which bears archegones and antherids. The latter yield large spiral fringed spermatozooids like those of ferns. The shoots are jointed, each articulation having a toothed membranous sheath, and are often repeatedly divided, with whorls of branches and branchlets. The fructification is produced in the form of terminal cones, consisting of a number of peltate scales, each of which produces a circle of spore-cases, perpendicular to the axis, and opening by a longitudinal fissure, the walls of which consist of very delicate spiral tissue. The spores have a spiral coat, which ultimately splits up into two bodies, each with two clavate ends, and attached by their centre so as to look like four stamens. These, however, are nothing more than the unrolled spiral of which the spore coats consist.

The structure of the rhizome and of the lower part of the stem is very curious, and quite different from anything in ferns. In an early stage there is a central column of cellular tissue in the rhizome, from which eight plates radiate, being connected with an external cylinder of the same nature, and leaving between them distinct cavities. At a later period new tissue grows from the walls of the plates, and ultimately obliterates the cavities. Opposite to each of the plates is a vascular bundle, consisting of distinct annular vessels passing into spirals. In ferns, on the contrary, the vessels are mostly scalariform. In the fruit-bearing stems the cavities are more abundant with various modifications.

Equiseta, or *Horse-tails*, are found in most parts of the world, though they are wanting in Australia and New Zealand. In the temperate regions they are mostly inhabitants of fields and wet places, and sometimes of loose sands, which they tend to bind together by their delicate rootlets, and have stiff erect stems capable of supporting themselves. But in warmer regions, and even in Lisbon, as *E. debile* and *elongatum*, they require the support of bushes to which they cling. They sometimes attain a considerable size, as *E. giganteum*, though never reaching the dimensions of undoubtedly fossil *Hypsetosaurus*. An immense quantity of silica, amounting sometimes to half their weight when consumed, is taken up into their substance; and, according to the observations of Brewster, the particles, each of which has a double axis of refraction, are disposed in rows parallel to the axis, and occasionally forming ovals connected together like the jewels of a necklace. In consequence of this abundance of silica, like Tripoli, some of the species are used for polishing various

articles, and large quantities of *E. hyemale* are imported into this country under the name of polishing or Dutch rushes. Some of the species have been used in medicine,



Equisetum xylochaetum.

but their virtues are doubtful. The rhizomes contain a considerable quantity of starch, and the starch cells sometimes exhibit a kind of circulation. [M. J. B.]

EQUITANT. When the two sides of a leaf are brought together and adhere except at the base, where they enclose an opposite leaf whose sides are in the same state; hence they look as if they rode on each other.

ERABLE. (Fr.) *Acer*. — DE NORVEGE *Acer platanoides*. — DURET. *Acer opulifolium*. — JASPÉ. *Acer pennsylvanicum*. — NÉGUNDO. *Negundo*. — OBIER. *Acer opulifolium*.

ERAGROSTIS. A very extensive genus of grasses, belonging to the tribe *Festuceae*, distinguished by having the inflorescence in more or less compound or decomposed panicles; glumes four to ten-flowered; pales imbricated in two ranks, the upper reflexed with the edges turned back; stamens two or three; styles two, with feathery stigmas; seeds loose, two-horned, not furrowed. In Stendel's *Synopsis* there are 343 species described; these range more or less over the whole surface of the globe, Asia being the quarter where they mostly abound. Europe has only six species, all of which are natives of the southern portion only. The appellation is derived from two Greek words, signifying when combined Love-grass. Most of the kinds are handsome, and some of them are sufficiently hardy for being cultivated as ornamental grasses in Britain. [D. M.]

ERANTHEMUM. A considerable genus of *Acanthaceae*, containing nearly fifty species, widely distributed over the tropical and subtropical regions of the Old and

with en... leaves, and showy often spicate flowers, whose corolla is salver-shaped, with a long

slender tube and an unequally lobed limb. There are two fertile stamens. [W. C.]

ERANTHIS. A highly prized little herbaceous plant belonging to the *Ranunculaceae* and allied to *Helieborus*, from which it may at once be distinguished by the more delicate texture of its leaves, and by having its solitary flowers surrounded by an involucre cleft into numerous segments. It is most commonly known by the name of Winter Aconite, because its foliage resembles that of the aconites, and its bright green involucre and pretty yellow flowers are in perfection when snow-drops bloom. Being a low-growing plant, but a few inches high, it is well adapted for the front of borders. It is perfectly hardy as to temperature, and will thrive in any soil. *E. hyemalis*, the species most generally cultivated, is a native of central and southern Europe, in moist shady places, and on hills. *E. sibiricus*, a native of Eastern Siberia, a plant of precisely similar habit, has five sepals; whereas *E. hyemalis* has six to eight. French, *Eranthis d'hiver*, *Helieborine*. [O. A. J.]

ERASMIA. A genus of *Piperaceae*, comprising a low-growing Mexican herb, with lance-shaped leaves, and branching spikes bearing scattered persistent peltate bracts; the filaments of the stamens are rather thick, short; anthers globular; ovary sessile, cylindrical; stigma conical. The fruit is an elongated smooth berry. [M. T. M.]

EREMEA. A genus of shrubs of the myrtle family, natives of Swan River, and nearly allied to *Melaleuca*, but distinguished from it by the stamens, which are either entirely detached, or more or less united into groups. The anthers are fixed more over by their base, and not by their backs; and the flowers grow singly at the end of the branches, where they are covered with overlapping bracts. [M. T. M.]

EREMIA. The generic name of shrubs, natives of the Cape of Good Hope, belonging to the heathworts, having the calyx bell-shaped or somewhat globose, and the stamens more than four, usually six or eight, very rarely five. The name *Eremia* was assigned for the purpose of indicating another mark (not however confined to these plants), viz. one seed in each cell of the fruit. The species have the general aspect of heaths, with leaves three or four in a whorl, spreading or bent down, and having stiff hairs. [G. D.]

EREMOBYRA. A term proposed to designate that group of ferns in which the fronds are produced laterally on the rhizome, and articulated with it. See also *Desmobrya*. [T. M.]

EREMOCARPUS. A genus of *Euphorbiaceae*, remarkable for having its little hairy fruit, about the size of an orange-seed, composed of a single carpel, not of three, which is the usual number in the family. *E. setigerus*, so named from the bristle-like hairs on the stems, is peculiar to California,

and is the only species of the genus. It is a small, prostrate annual herb, having all its parts densely clothed with soft, white starry hairs. The stalked alternate leaves have broadly-oval obtuse blades, and the small green flowers come in dense clusters in the forks of the branches, males and females together, the females sessile. The whole plant has a strong disagreeable odour, even in a dried state. [A. A. B.]

EREMODENDRON. A genus of *Myoporaceae* containing a single species from New Holland. It is a beautiful tree, with long narrow lanceolate leaves, and axillary flowers on the tops of the branches. The large coloured lobes of the five-parted calyx are oblong, obovate, narrow at the base, and not changing in fruiting, while the corolla has an incurved tube, and an unequally five-lobed limb. The ovary is ovoid-oblong, compressed, and two-celled. This genus is scarcely separable from *Eremophila*, except by the peculiar lobes of calyx. [W. C.]

EREMOLEPIS. A genus of plants included in the order *Loranthaceae*. The flowers are dioecious, and have no petals; the staminate flowers have a tripartite calyx, with three stamens which are inserted opposite to the calycine segments; and the pistillate flowers have a tripartite calyx, an inferior ovary, a short style, and a simple stigma. They are parasitic shrubby plants, with alternate leaves destitute of a terminal scale, the staminate flowers in catkins, the pistillate in clusters. The genus is allied to the *Eubrackson* of Hooker. Two species, natives of South America, have been described, *E. punctulata* and *E. verrucosa*. [J. H. B.]

EREMOPHILA. A genus of *Myoporaceae*, containing four species of broom-like shrubs, natives of New Holland. They have opposite or alternate leaves, and axillary crowded or solitary peduncles supporting flowers which have a five-parted scarious calyx, and a corolla with a large tube and bilabiate limb. [W. C.]

EREMOSTACHYS. A genus of labiate plants distinguished by the upper lip of the corolla being elongated and helmet-like, narrow below, and hairy on the outside, the lower lip with three spreading rounded lobes, the middle being broadest. The name is derived from two Greek words signifying 'solitary' and 'spike.' The species are hardy plants of little importance. One of them, *E. laetiniata*, has been long known in cultivation as a hardy perennial, a native of dry hills in the eastern part of the Caucasian range; it has large spindle-shaped fleshy roots well adapted to resist the drought to which, in its native wilds, it is sometimes subjected. [G. D.]

EREMOSYNE. A genus of *Saxifragaceae* from New Holland, with rosettes of obovate entire root leaves, and petiole-pinnate stem leaves; the flowers small, white, in compact dichotomous cymes; with a hemispherical calyx-tube adhering to the ovary,

and five linear petals; ovary two-celled, with solitary ovules. [J. T. S.]

BREMURUS. A genus of *Liliaceae* closely allied to *Asphodelus*, but differing by having the filaments not dilated at the base and the seeds smooth. They are herbs from the Caucasus, Siberia, and Asia Minor, with fasciculate roots, linear radical leaves, and a naked scape terminating in an elongated raceme of yellow or white flowers with narrow spreading perianth segments, and exserted stamens. [J. T. S.]

BREMUS. A ripe carpel separating from its neighbours, and standing apart.

ERGOT. An affection of the seeds of different grasses in which the seed becomes black and elongated, so as to resemble in form a cock's spur, whence it derives its name. In an early stage the Ergot is partially covered with a thin crust producing abundant conidia. These conidia appear sometimes to grow like yeast globules, so as to assume the form of an *Oidium*, whence the fungus has received the name of *Oidium abortifaciens*. It is at least supposed that the grains of the conidia and of the *Oidium* are identical. If the Ergot, however, is kept moist, either by excluding the outward air, or by sowing it in damp soil, different species of *Cordiceps* invariably appear, which are supposed to be the perfect state of the fungus. Ergot is a destructive disease amongst corn, but especially in rye; but it derives its greatest notoriety from its peculiar properties in producing contraction of the uterus, properties of which the surgeon avails himself for the expulsion of the fœtus and preventing hemorrhage. It is moreover combined with chloroform with a view to produce contraction without pain. Ergot is a valuable remedy in the hands of the regular practitioner, but a most formidable one in those of the quack, by whom it is often given to produce abortion. In this case a second quality comes into play, namely, that of causing dangerous gangrene, which it does where it forms a considerable portion in bread-corn, or is taken medicinally for a continuance. Instances are on record where the most frightful gangrene has ensued from its use, sometimes affecting a whole district. Ergot is often extremely abundant in our pastures, and causes sheep and cows to slip their young. No doubt many cases of gangrene in our flocks and herds are attributable to its prevalence. Ergot also occurs in *Cyperaceae*, but the ultimate development has not yet been ascertained. [M. J. B.]

ERGOT DE COQ. (Fr.) *Cratogeomys gullii*.

ERIA. A genus of epiphytall orchids peculiar to India and the adjacent islands, and numbering about seventy species. Some are minute stemless herbs, with a solitary leaf and flower; others have creeping stems with flatish pseudobulbs and short spikes of small white or greenish flowers; whilst not a few have erect or drooping terete stems, with lance-shaped often plaited

leaves, and axillary or terminal racemes or panicles. None of the species are remarkable for their beauty, though many have fragrant flowers. The genus is nearly related to *Dendrobium*, but has eight instead of four pollen masses. It takes its name from the Greek *erion*, wool, the flowers of many of the species being clad with soft white down. The lip is usually trilobed, with a crested disc, and jointed to the much produced base of the column [A. A. B.]

ERIACHNE. A genus of grasses belonging to the tribe *Aveneae*. The inflorescence of the species is panicle, the spikelets two-flowered, sessile or stalked, and hermaphrodite; glumes two, membranaceous, about equal to the short awns; stamens three; ovary smooth. There are twenty-three species described in Steudel's *Synopsis*, which are nearly all natives of the southern hemisphere, South Africa, and New Holland, where some of them are valuable as pasture grasses. [D. M.]

ERIANThERA. A genus of *Acanthaceae*, containing two species, natives of India. They are low undershrubs, with few leaves, and flowers without bracts, on one or two-flowered axillary peduncles the calyx equally five-parted, and the corolla two-lipped, with the broad upper lip bilobed, and the lower trilobed. [W. G.]

ERIANThUS. A genus of grasses belonging to the tribe *Andropogoneae*, scarcely differing from *Saccharum*, under which the species are included by Steudel. [D. M.]

ERICACEÆ. (*Heathworts*). A natural order of corollifloral dicotyledons, typical of Lindley's critical alliance among hypogynous Exogens. Shrubs or undershrubs, with evergreen, rigid, entire, whorled or opposite, exstipulate leaves; calyx inferior, four to five-cleft; corolla four to five-cleft; stamens eight to ten or twice those numbers, hypogynous; anthers two-celled, with appendages, opening by pores. Ovary surrounded by a disk or scales. Fruit capsular, rarely berried; seeds numerous, albuminous. There are two sections of the order:—1. *Ericae*, fruit opening loculicidally, rarely septicidally; buds naked; 2. *Rhododendreae*, fruit capsular, septicidal; buds scaly, resembling cones.

The genus *Ledophyllum* is remarkable on account of its having a polypetalous corolla. The common heath (*Calluna*) is separated from the heaths (*Erica*) by its capsules having a septicidal and not a loculicidal dehiscence. The genus *Erica* reaches its maximum at the Cape of Good Hope. Some of the heathworts are astringent, others have edible fruit, and others, such as species of *Rhododendron*, *Kalmia*, and *Ledum*, are poisonous. *Arbutus Unedo* is the strawberry tree, common near the Lakes of Killarney. *Rhododendron arboreum*, and other species, in India, sometimes attain a height of forty feet; some species grow at the elevation of 16,000 to 18,000 feet in the Himalayas. *Rhododendron hirsutum* and *ferrugineum* grow on the Alps and Pyrenees at an elevation of 4,000 to 6,000

fect, and are called the Roses of the Alps. *Andromeda fastigiata* is called Himalayan heather. *Gaultheria Shallon* and other species yield edible baccate fruits. *Asalea procumbens* grows on the Scotch mountains, and is also a native of the Arctic regions, of the Alps, of Northern and Southern Europe, Siberia, and North America. There are about fifty known genera and nine hundred species. Examples: *Erica*, *Clethra*, *Arbutus*, *Asalea*, *Kalmia*, *Rhododendron*, *Bejaia*, *Ledum*. [J. H. B.]

ERICA. The generic name of shrubby plants belonging to the heathwort order, from which, indeed, the scientific designation of it, *Ericaceae*, is derived. They are distinguished from their congeners by the four-leaved calyx, and four-lobed corolla, the lower part of which is either globular or tubular and dilated; the stamens have the lobes of the anthers distinct, sometimes with an awn-like appendage, and opening by an oblong pore: the fruit is dry, four or eight-celled, many-seeded, bursting loculicidally.

The genus *Erica* comprehends a great number of species of much interest and beauty, and therefore general favourites with horticulturists, especially since the best method of growing them has been found out, and in this much credit is due to the late Mr. M'Nab of Edinburgh. There is a marked tendency to repetition of the number four in the different parts of the flower, viz. calyx, corolla, stamens, and fruit; and this is true even of the grouping of the leaves and of the flowers. The usual absence of any odour is compensated for by elegance in the general aspect of the plants, as well in their foliage as flowers, which combine to render most of the species worthy of a place in collections. In the corolla especially, the beauty of form, delicacy of aspect, and variety of tint can scarcely be surpassed. The shapes of the flower, a study for the modeller, present considerable variety of modification, being long and tubular, straight or arched, in some very small and dilated, in others smooth and brilliant, or covered with clammy hairs. As to colour, we find the purest white, passing into very pale rose, purples of various hues, red, less frequently yellow, and sometimes green. In some instances the calyx rivals even the corolla in appearance. Plants of this genus are confined to the old world; in Africa especially they abound, and the Cape of Good Hope is the main source whence we have derived those now so well known as ornaments of our horticultural collections, where, under skilful treatment, they even far surpass in luxuriance those which occur in the wild state. In Britain six species are usually counted as indigenous, only two of which are, however, widely diffused and cover immense tracts, viz. *E. Tetralix* and *E. cinerea*; the remaining four are more local and confined to the southern and western parts of the United Kingdom. The true Heaths are of little importance in a medical point of view, none possess-

ing any active property. In our own country the two more common species above mentioned are used for brooms and for bedding cattle; their buds and tender shoots constitute part of the food of some of our native birds; and they often contribute largely to the formation of peat. The Scotch Heath, *E. cinerea*, is the badge of the M'Alistera, and *E. Tetralix* that of the M'Donalds. [G. D.]

ERICAMERIA. A small genus of the composite family, found in Oregon and California, related to *Linum*, but differing in having rayed as well as tubular florets, and also in having smooth achenes. They are dwarf resinous shrubby plants, much branched and leafy, with the aspect of heaths, the leaves awi-shaped and numerous, and the small yellow flower heads in corymbs at the ends of the branches. The smooth achenes are crowned with a pappus consisting of numerous capillary unequal bristles. [A. A. B.]

ERICINELLA. A genus of heathworts, having the calyx in four divisions, one of them larger than the others; corolla bell-shaped, the border deeply divided into four; stamens four, rarely five, usually with awn-like appendages; style or appendage at top of the seed vessel, ending in a shield-like surface. The name *Ericinella* is the diminutive of *Erica*, the species having the general aspect of heaths; leaves three in a whorl, flowers small and terminal, without bracts or leaflets at their base. They are small shrubs, natives of Madagascar, Tropical Africa, or Caffraria. [G. D.]

ERIGERON. A genus of unpretending herbaceous plants of humble stature belonging to the *Compositae*. The flowers are radiate, the florets of the ray in several rows, very narrow and of a different colour from those of the disk, which are fertile, with a hairy pappus; the involucre is imbricated with several rows of narrow scales. [Two species are natives of Britain, and a third, *E. canadense*, is a common naturalised weed growing profusely and gregariously in the neighbourhood of London, where it was first observed about 1690.] The name *Erigeron* denotes 'soon becoming old,' and is most appropriate, for in many of the species the plant, even when in flower, has a worn-out appearance, giving the idea of a weed which has passed its prime. French, *Vergette*; German, *Scharfe*. [C. A. J.]

ERINEUM. A name given to numerous productions which appear upon the leaves of trees and shrubs, and very rarely on those of herbaceous plants, which were formerly referred by authors to *Fusari*, but are now almost universally acknowledged to be merely diseased states of the cuticular cells. The spongy spots on the leaves of vines and lime trees afford a good example. The forms which these diseased cells assume are extremely various; and they are interesting to the physiologist, as showing the alteration to which the component cells of plants are subjected when free from the pressure of neighbouring

cells and subjected to new conditions. Illustrations will be found in the works of Corda and Greville, and a complete account in a work on the subject by Fée. *E. aurum*, which occurs on poplar leaves, is now referred to the genus *Lupinus*, to which also *E. clandestinum* probably belongs. [M. J. B.]

ERINOSMA. A genus of *Amoryllidaceæ* containing the plant sometimes called *Leucosium verum*, an early spring-flowering herb, with ovate bulbs, linear-lorate leaves, and one-flowered scapes. The flowers are fragrant, and differ from those of the snow-drop in having petals like the sepals, white, with a yellowish-green spot outside; and from those of the snowflake in having a club-shaped style. [T. M.]

ERINUS. A *Scrophulariaceous* genus of one species, *E. alpinus*, a low herbaceous plant, having a five-cleft calyx, a corolla with a five-cleft equal limb, and short reflexed upper lip, and a two-celled capsule. It is a pretty little plant of tufted habit, having erect racemes of reddish-purple flowers, which are produced throughout the summer. It is a native of the higher mountains of Southern and Central Europe, and has lately become naturalised in the old bed of the river at Tanfield in Yorkshire. Several species of *Myosotis* and *Lappula* were formerly included; and a variety with somewhat tomentose leaves is sometimes distinguished in gardens, under the name of *E. hispanicus*. [J. Br.]

ERIOBOTRYA. The Loquat, or Japanese Medlar, *E. (Eriobotrya) japonica*, one of the *Pomaceæ*, is a native of Japan and the southern parts of China, and is cultivated as an edible fruit in many parts of India. Kämpfer, who saw it growing in Japan, first made it known in 1690. It was more fully described in 1712 by Thunberg, who met with it growing near Nagasaki, Yedo, and elsewhere commonly in Japan. In that country it is called Bywa and Kuskube, in China Lo-quai. It was brought to Europe by the French in 1784, and planted in the National Garden at Paris; and three years later it was imported from Canton to Kew.

The tree, according to Thunberg, attains a large size in its native country. The leaves are evergreen, large, oblong, rugose like those of the medlar, bright green above, somewhat downy beneath. The flowers are produced in October and November, in spikes at the ends of the branches; their petals are like those of the hawthorn, but larger and perfectly white. The fruit is oval, of the size of a small apple, pale orange with a faint blush of red, the flesh pale yellow, with a sharp subacid flavour resembling that of an apple. It ripens in spring, or early in summer. The tree is hardy enough to bear the cold of our ordinary winters, but it has been killed when exposed to frosts of unusual severity, such as that which occurred in 1814, 1838, and 1860. It has very rarely produced its fruit in this country except under glass, and with the aid of artificial heat. It has not fruited at Paris in the open air; but it is successfully cul-

tivated as a standard in the south of France, and its fruit is even common in the markets of Hyères and Toulon. At Malta it succeeds admirably. Improved varieties, as regards the size and quality of the fruit, have been there raised, and introduced into England; but in consequence of the tree naturally producing its flowers at the commencement of winter, it is not adapted for bearing fruit in the open air in this country, the blossoms being either cut off by frost, or so much checked by cold that the growth of the embryo fruit cannot go on. There is, however, no difficulty in fruiting it under glass. This was done at Blithfield in Staffordshire in 1818; and an account of the means adopted is given by Lord Bagot in the *Transactions of the Horticultural Society* (vol. 29) accompanied by a coloured plate. The plant was fruited in a pot kept in a stove during winter, the fruit ripening in March or April, two months earlier than its period of ripening in its native country. We may therefore conclude, that the amount of heat to which the plant was subjected in the stove was greater than that which prevails between the time of flowering and the ripening of the fruit in Japan. It appears, however, that the fruit artificially produced at Blithfield was of excellent quality. [R. T.]

ERIOCAULACEÆ. (Piperacæ). A natural order of incomplete monocotyledons included in Lindley's glumal alliance among the Endogæ. Marsh plants, with narrow cellular spongy leaves, sheathing at the base, and a capitate inflorescence. The flowers are very minute, some having stamens, others pistils. Glumes two to three. Ovary superior, three, rarely two-celled, surrounded by a membranous tube; ovules solitary, orthotropical; style very short; stamens two or three. Capsule with loculicidal dehiscence; seeds solitary, pendulous, with a winged or hairy covering. The species abound in South America, and some plants of the order are found in North America and Australia.

There are ten known genera and upwards of two hundred and twenty species. Examples: *Eriocaulon*, *Lachnocaulon*, *Cladocaulon*, *Phlötidea*. [J. H. B.]

ERIOCAULON. The typical genus of *Eriocaulaceæ*. The name is derived from two Greek words, meaning 'wool' and 'stem,' on account of the woolly character of the stalks of some of the species. Flowers dioecious, in a compact scaly head, the staminate ones in the centre, and the pistillate ones in the circumference of the head. The species are found in the principal parts of Asia, America, and New Holland. They are rare in North America. One species, *E. septangulare*, occurs in Britain, being found in the Isle of Skye and in Galway. One hundred species have been described. Some of those found in Brazil attain a height of six feet. [J. H. B.]

ERIOCEPHALUS. A genus of S. African *Compositæ*, comprising nearly twenty spe-

cies, which form much branched bushes, usually with linear, somewhat fleshy leaves, covered with silky hairs, but sometimes large and variously toothed, a good deal like those of some wormwoods, and like them with an aromatic odour. The white flower-heads, sometimes solitary but usually arranged in corymba or umbels, are a good deal like those of the milfoils in size and appearance. They are remarkable for having the inner scales of the involucre clothed with long woolly hairs; these are not very perceptible when the plant is in flower, but after the flowers wither, and the anthers approach to ripeness, the heads are completely enveloped in the hairs, and look like little balls of cotton about the size of a pea. The hairs when fresh are white, but at length become rust-coloured, and are used by various birds for building their nests. [A. A. B.]

ERIOCHLOA. A genus of grasses belonging to the tribe *Panicææ*, now referred to *Helopus*. [D. M.]

ERIOCHOSMA. *Nothochloa*.

ERIOCNEMA. A genus of *Malastomaceæ*, nearly allied to *Sonerila*, but having the parts of the flower arranged in fives instead of in threes. The species are dwarf hairy Brazilian herbs, scarcely a foot high, with somewhat fleshy stems, bearing near their base a few oval leaves, heart-shaped at the base, and densely clothed with rusty hairs. The small white flowers are few, and arranged in little umbels, on the end of a naked stalk. *E. marmoratum* has the leaves beautifully variegated. [A. A. B.]

ERIOCOCCUS. The name given by some authors to a species of *Riedia*, whose capsules are clothed with soft short wool.

ERIOCOMA. The Silk Grass, *E. cuspidata*, is peculiar to North America, where it is found usually in barren spots from Lake Winnipeg, west and south to New Mexico. It grows one to three feet high, has wiry leaves with the margins rolled inwards, and very lax panicles of flowers, each spikelet supported on a long slender stalk. Like the feather-grasses, to which this is nearly allied, the spikelets are one-flowered, the outer glumes are membranaceous, remarkably inflated below, and contracted suddenly at the apex into a short pointed beak. The inner glumes are very silky at the base, and end in a short awn. [A. A. B.]

ERIOCYCLA. A genus of *Umbelliferae*, characterised chiefly by the fruit being clothed with wool-like hair. The only species is an inconspicuous herb, a native of the Himalayas, having the leaves thrice-pinnate; the secondary divisions of the umbels somewhat capitate. [G. D.]

ERIODENDRON. A genus of tropical trees, referred by some botanists to the *Sterculiaceæ*, and by others to the *Malvaceæ*. It is nearly allied to *Bombax*, from which it differs in the staminal column being five-cleft, each branch bearing two or three anthers, that of *Bombax* being divided at top into an indefinite number of

filaments bearing single anthers. They have digitate leaves, and one-flowered axillary or subterminal peduncles, which are either solitary or fasciculate, the flowers being rather large, white or rose-coloured. The habit of *E. indicum* is represented in plate 13 b. [T. M.]

ERIOGLOSSUM. A genus of *Sapindaceæ*, nearly related to *Sapindus*, but differing in the nature of its fruits. These in *Sapindus* are made up of two or three one-seeded carpels, which are united their whole length, or slightly separate at top, so that they form one berry, while here the elliptical berried carpels, which are two or three in number, are quite free to the base. *E. edule* is a common tree in the Malayan peninsula and the neighbouring islands, extending to North Australia; it has alternate unequally-pinnate ash-like velvety leaves, about one foot long, and the small greenish-white flowers are disposed in branching panicles. The four petals are each furnished with a strap-shaped and bilobed woolly appendage on the inside near the base, the name of the genus, which signifies 'woolly tongue,' having reference to these. The wood is valuable, being strong and durable. In the only other species, *E. cauliflorum*, the racemes of flowers proceed from the old wood. [A. A. B.]

ERIOGONUM. A genus of *Polygonaceæ*, forming the type of a tribe distinguished by the absence of stipules, and the involucre flowers. They are natives of western North America, rarely occurring in the Southern States, or on the east coast. Herbs or undershrubs, usually woolly, with radical leaves in tufts, and alternate or tufted stem leaves. The peduncles often form a compound umbel or head. The perianth is herbaceous, six-cleft, with the segments arranged in two rows. [J. T. S.]

ERIOLENA (syn. *Schillera* and *Microlena*). This genus belongs to the order *Serotiniaceæ*, tr. *Eriolenææ*, in which it is notable from having perfect flowers with petals which do not wither and remain attached, but fall early, together with a column of numerous stamens in many series, all the stamens perfect, and not as in many of the family having sterile stamens (staminodia), alternating with the perfect ones. There are seven known species, all East Indian trees or shrubs, with alternate stalked heart-shaped leaves resembling those of a lime tree in form and size, and axillary or terminal panicles of rather large mallow-like yellow flowers. [A. A. B.]

ERION. In Greek compounds = woolly.

ERIOPETALUM. A small genus of *Asclepiadaceæ*, the species of which are natives of India, and form erect branching herbs with scale-like adpressed leaves, and small flowers in lateral or terminal sessile umbels. The corolla is subcampanulate and five-cleft, with long linear segments, and the staminal crown gamophyllous and fifteen-lobed; the five inner lobes rest on the anthers, the others are erect, and adhere to

the inner series. This genus agrees in habit with *Microstemma*, but differs in the form of the staminal crown: on the other hand, it resembles *Boucerosia* in the crown, but has a widely different habit. [W. C.]

ERIOPHORUM. A genus of cyperaceous plants belonging to the tribe *Scirpeæ*, distinguished by the inflorescence being either in single or compound spikes; glumes nearly equal, the lowest sometimes empty; bristles ultimately silky; nut, trigonous. The British species all grow on wet logs or turfy moors, where they frequently form very conspicuous masses of vegetation, in consequence of the long showy silky bristles of the flowers. The English name Cotton Grass is very expressive, the flowers of some of the species appearing like tufts of cotton. [D. M.]

ERIOSOLENA. A genus of *Thymelacææ*, or *Daphnacææ*. Perigone coloured, villous externally, funnel-shaped, with a four-cleft limb, the alternate segments shorter, the throat naked. Stamens eight, inserted in two rows into the upper part of the tube of the perigone, the alternate ones longer. Ovary one-celled, with a single ovule; style short; stigma capitate. Fruit drupaceous, single-seeded. Shrubs from Java and India, with alternate oblong-lanceolate coriaceous leaves, which are glaucous below; flowers in solitary axillary heads with long peduncles, and a two to four-leaved involucre. There are three species. By Molner they are included under *Daphne*. [J. H. B.]

ERIOSORUS. *Gymnogramma*.

ERIOSPHERA. A genus of *Compositæ*, consisting of a few South African herbs, nearly related to *Helichrysium*, differing chiefly in their less numerous, and densely woolly involucreal scales. Some are unbranched, erect, and about six inches high; others much branched, with slender prostrate stems; and all have their parts clothed with a short white wool. The leaves are oboval or spatulate, and entire, and the yellow spherical flower-heads are few or numerous, and disposed in dense clusters on the ends of the stem, each being about the size of a pea. [A. A. B.]

ERIOSTEMON. A genus of shrubby *Rutacææ*, whose main characteristics are, a corolla of five petals which do not soon fall off, but remain on the plant for some time in a withered condition; ten hispid stamens,—hence the name of the genus, which signifies 'woolly stamen'; fruit of five carpels which separate and open by a long cleft to liberate the usually solitary seed. They are natives of New Holland, and have for the most part white or pinkish flowers. [M. T. M.]

ERIOSYNAPHE. A genus of umbellifers, the name of which is derived from two Greek words, signifying 'wool,' and 'junction,' or commissure, and points out a prominent character—the presence of a downy or wool-like covering near the line which indicates the junction of the two halves of the fruit. *E. longifolia* is a pe-

rennial shrub, with the divisions of the leaves long and narrow; the flowers yellow. It is a native of Siberia, along the course of the Volga. [G. D.]

ERISMA. A curious genus of tropical American trees, belonging to the *Vochyaceæ*, and remarkable for the enlarged calyx segments which crown the somewhat pear-shaped ripe fruit. The species are some of them upwards of 100 feet high, with smooth, opposite or whorled laurel-like leaves of a leathery texture; some are oval, pointed and entire, others oblong, attenuate below into a stalk, and notched at the apex. The pretty blue or yellow flowers, disposed in terminal panicles, smell like primroses, in some species. They are like the others in the family, very unsymmetrical, having a calyx of four or five teeth; a single nearly fan-shaped petal narrowed below into a claw; one fertile and four barren stamens; and a one-celled ovary crowned with a simple style.

The Japura of Brazil, *E. Japura*, is a tree of 80 to 120 feet, with stalked, whorled, oblong leaves, and panicles of yellow flowers. Mr. Spruce, its discoverer, thus speaks of it:—This noble tree, called by the Indians Japura, is frequent on the Upper Rio Negro, and on the Uaupés. It is said to be abundant on the Japura, and to have given the name to that river. As I came up the Rio Negro from the mouth of the Uaupés to San Carlos, in March 1853, the large heads of the Japura, clad with red fruits, were observed dotted everywhere about the forest. The kernels are pleasant eating both raw and boiled; they are also prepared in this way: having been boiled from morning till night, they are well covered up, and put into baskets in running water, where they remain two or three weeks. When at the end of this period they are opened out, they have a disagreeable stercoraceous odour. They are now beaten in a mortar until they have the appearance and consistence of pale butter. To receive this, a large cylindrical basket, three to five palms long by one in diameter, is made of strips of the trunk of the *gravatana* palm (*Iriartea pruriens*), and lined with the leaves of a *Heliconia*. The basket is placed on a stage over the fire, where it is customary to put things that require to be kept dry, and there the butter will remain good for two or three years. Japura butter (as it may be called) is eaten along with fish and game, being melted in the gravy along with the fruits of various species of *Capsicum*, which is an essential ingredient in the mohló at every Brazilian table, whether the guests be red or white. People who can get over its vile smell, which is never lost, find it exceedingly savoury. The fruits call to mind those of the Indian *Dipterocarpus*. [A. A. B.]

ERISMA. The rachis or axis of grasses.

ERITHALIS. A name applied to a genus of West Indian shrubs, in consequence of their shining deep green leaves. They are included among the *Cinchonacææ*, and have

axillary panicles of white flowers, with five or ten parted whorls, a wheel-shaped corolla, an inferior ovary with from five to ten compartments, one ovule hanging from the summit of each of the cavities. The fruit is a berry crowned by the limb of the calyx. [M. T. M.]

ERITRICHIMUM. A genus of *Boraginaceae*, consisting of small woolly Alpine plants forming dense cushions; racemes short, bracteated, bearing a few small bright blue flowers, with a salver-shaped corolla closed at the throat by five small obtuse scales. [J. T. S.]

ERNESTIA. A genus of *Melastomaceae*, represented by *E. tenella*, which grows in the mountain woods of New Granada, and is a slender suffrutescent hairy herb, with opposite stalked oval leaves, and white flowers disposed in loose terminal panicles. The form of the stamens is that which chiefly distinguishes the genus from its allies; the anthers are awl-shaped, and their connective has two erect bristle-like appendages, about the length of the anthers, and is produced below into a short spur. The genus bears the name of Ernest Meyer, a Hanoverian botanist. [A. A. B.]

ERNODEA. A genus of low-growing cinchonaceous plants, with lance-shaped leaves; sheathing many-parted stipules; a salver-shaped corolla, with four to six linear segments rolled back; and an inferior two-celled ovary, surmounted by a fleshy disc. The fruit is a berry, crowned by the limb of the calyx, and contains two one-seeded stones. *E. montana*, a Sicilian plant, has dark red flowers. [M. T. M.]

ERODIUM. Stork's Bill. A genus of *Geraniaceae*, known by having five of the ten stamens without anthers, and the tails of the carpels bearded on the inside; they coil up spirally when they split away from the central column. The species are generally distributed; a great many of them inhabit the Mediterranean region; and three occur in Britain, of which the most common is *E. cicutarium*, which has the leaflets of the pinnate leaves deeply pinnatifid, and the flowers pink or white. *E. moschatum* is much more rare, and has the leaflets of the pinnate leaves only deeply toothed, and the flowers are smaller. [J. T. S.]

EROPHILA. A section of the genus *Draba*, distinguished by having the petals bifid, and the seeds numerous in each cell of the pod. The common British *Draba verna*, or Whitlow Grass, belongs to this section; it is one of the earliest flowering plants we have, and is often scarcely an inch high. [J. T. S.]

EROSO-DENTATE. Toothed in a very irregular manner, as if bitten.

EROSTRATE. Not having a beak.

EROSE, ERODED. Having the margin irregularly toothed, as if bitten by an animal.

ERPETINA. A genus of *Mcclustomaceae*,

nearly allied to *Medinilla*, but differing in the structure of the anthers. These, in *Medinilla*, open at top by a little pore, but, here they open by two slits along the inner face, from base to apex. The only species, *E. radicans*, is a smooth slender epiphytall plant, growing on the stems of trees in the Solomon Islands. The stems, about the thickness of a crow-quill, are furnished with opposite stalked elliptical fleshy leaves, the little stalked flowers being produced singly in their axilla. [A. A. B.]

ERPETION. *Viola*.

ERUCA. A genus of *Cruciferae*, closely allied to *Brassica*, *Sinapis*, and *Diplotaxis*, but differing by having the beak of the fruit compressed, strap-shaped, and acute. The seeds are in two rows, as in *Diplotaxis*. Erect annuals, with lyrate-pinnatifid leaves, and rather large white or yellow flowers. The species occur in the Mediterranean region; the most common, *E. sativa*, which has large white flowers veined with purple, and very acrid leaves, is used in Southern Europe as a salad. [J. T. S.]

ERUCARIA. A genus of *Cruciferae*, known by its pod breaking into two parts, the lower with two cells, the upper one-celled and ensiform. The species are annuals from South-east Europe and Western Asia; the leaves pinnatifid and smooth, and the racemes of purplish or white flowers, terminal or opposite the leaves. [J. T. S.]

ERS. (Fr.) *Ervum Ervilia*.

ERVA DE RATA. A Brazilian name for *Psychotria noxia*, and *Paicourea Maragravi*. — **MOIRA.** A Brazilian name for *Solanum nigrum*.

ERVALENTA. The same as *Revalenta*, a meal prepared from the seeds of *Ervum Lens*.

ERVUM. A genus of leguminous plants, containing about twenty species of weak-stemmed annuals, with pinnate leaves generally terminating in tendrils. It is very closely related to *Vicia*, both in general appearance and botanical characters, the principal difference consisting in the calyx of *Ervum* having narrow sharp segments of nearly equal length, and almost as long as the papilionaceous corolla, while in *Vicia* they are broader, and the two upper ones are shorter than the others. The pods contain from two to four seeds.

E. Lens, the common Lentil, grows about a foot and a half high, and has a weak branching stem, leaves composed of from eight to twelve oblong leaflets, and pale blue flowers borne in twos or threes. The pods are nearly as broad as long, smooth, and contain one or two seeds.

The Lentil was probably one of the first plants brought under cultivation by mankind for the purpose of affording food. It is several times mentioned in the Bible; for instance, in Genesis xxv. we read that Esau sold his birthright to his brother Jacob for a mess of red pottage, made of lentils. At the present day Lentils are still

extensively cultivated throughout most parts of the East, including Egypt, Nubia, Syria, India, &c.; and likewise in most of the countries of Central and Southern Europe, but not to any extent in England. There are several different kinds, the most common being the French and Egyptian. The former is of an ash-grey colour, large and very flat, resembling a lens in shape: in fact, the lens derives its name from the resemblance it bears to the lentil seed; while the latter is much smaller and rounder, with a dark skin, and of an orange-red



Ervum Lens.

colour inside. On the Continent, and also in India and other eastern countries, Lentils are largely employed as an article of human food, but in this country their use is not so general, although considerable quantities are annually imported. Thus, in 1859, the imports into the United Kingdom amounted to 131,892 bushels, valued at 26,379*l.*, or 4*s.* per bushel, nearly the whole of which came from Egypt. Their principal use with us is for the preparation of the so-called invalids' food, which under the names Ervalenta and Revalenta have attained no little celebrity. These articles are nothing more than lentil meal, sweetened with sugar or flavoured with salt; but under cover of their high-sounding names they are palmed off upon a credulous public at a price far above their real commercial value. As an article of food lentils rank first among the pulses, containing three per cent more flesh-forming or nutritive matter than the common pea, but like many other eatable leguminous seeds, they are very indigestible when not freed from the outer skin. [A. S.]

The generality of readers will wish to know if there is any real foundation in the widely extended belief that Lentil powder, and combinations of it with other vegetable ingredients, have the medicinal powers attributed to them. It is true, if allowance is made for some degree of exaggeration, but only in cases of indigestion. Lentil powder, made of the decorticated seeds, is reported to be a re-

medy for almost every variety of indigestion and bilious disorder, to relieve pains in the stomach, and to be so far aperient, as in most cases to obviate the necessity of habitually taking aperient medicine; and there is, in truth, no doubt that it acts as a mild deobstruent on the entire of the digestive organs, producing an increased flow of gastric juice, bile, and other secretions. But it should be distinctly understood, that these beneficial effects can only be secured by selecting lentils of the best quality, and completely depriving them of the various extraneous substances and decayed and injured seeds which they always contain, as well as of their outer skin.

The proper mode of cooking Lentils as a remedy for indigestion, &c., is boiling them for twenty minutes, or till they are quite soft (but never more than half an hour), in soup or beef-tea, to which a small quantity of salt has been previously added. In this mode of cooking them, the peculiar vegetable principles on which the remedial powers depend, a great part of which are extracted by the liquid during the boiling, are eaten with the soup, beef-tea, or other convenient vehicle; and it is probable that Lentil-powder owes part of its reputation to its being taken entire, the direction given being to mix it with milk.

Peas possess in some degree the same properties, and haricot beans in even a greater degree, but they are to some extent injured by the length of time required in boiling them. As an article of diet Lentils are extensively used in various parts of the world, and are a favourite food in the East, where the Hindoo adds them to his rice, making doubtless a salubrious mixture. Like other leguminous seeds, they contain much caseine, and constitute one of the most nutritious of vegetable products, 100 parts by analysis yielding: Water, 14.0; caseine, 26.0; starch, 35.0; sugar, 2.0; gum, 7.0; fat, 2.0; woody fibre, 12.5; mineral matter, 1.5. [B. C.]

The Lentil is easily cultivated in England, and is worthy of attention, as being capable of yielding a large supply of a highly nutritious and wholesome food. Half a pint of seed drilled in rows a foot apart, would not badly occupy a portion of the cottager's potato garden, and the seeds ground into meal would make a pottage which would be of great value in rearing a family.

We have two native species, viz. *E. hirsutum*, the Hairy Tare, and *E. tetraspermum*, the Smooth Tare. These are readily distinguished by the hairy two-seeded pod of the former, and the smooth four-seeded pod of the latter. These plants are of frequent occurrence about bushes, among which their slender stems climb for support. They are also common as agrarian weeds, especially in corn-fields, the hairy form being the most general, as being fond of all kinds of soil. Where it establishes itself amidst the wheat, it is a great pest, as it sometimes climbs about it to such an extent, as to bear it to the earth, to the great danger of the crop. The smooth

form is less common, but it is not unfrequent in clays. [J. B.]

ERYCIBE. A genus of climbing shrubs, containing seven species, natives of tropical Asia. They have entire leaves, and flowers in terminal panicles; the calyx consisting of five sepals, the corolla deeply five-cleft, with large bifid lobes, having a triangular sericeous part on the middle of the back, the five stamens inserted on the tube of the corolla, and the ovary cylindrical-ovoid, glabrous, and one-celled, surmounted by a large fleshy ten-ribbed stigma. The fruit is a one-seeded berry. An order, *Erycibes*, has been established for the reception of this anomalous genus. Nearly approaching *Convolvulaceæ*, it differs from this order in having a sessile radiating stigma like a poppy. The sessile stigma exists in *Ebenaceæ*, but in most other respects *Erycibe* has no relation with that group. [W. O.]

ERYNGIUM. A well-marked genus of umbelliferous plants, distinguished by spiny leaves, and hemispherical or oblong heads of sessile flowers, the base of which is surrounded by a whorl of conspicuous bracts, most frequently rigid and spiny. *E. maritimum*, Sea Eryngo, or Sea Holly, is a common plant on most of the sandy shores of Great Britain, where it is conspicuous by the glaucous hue of its short rigid leaves and stems, and its thistle-like heads of blue flowers. It has extensively creeping cylindrical fleshy roots, the gathering of which, for the purpose of converting them into a sweetmeat, was formerly an occupation of some consequence to the sea-side population. Candied Eryngo-root is still to be obtained in some places, but its medical powers, which were at one time highly extolled, are now held in no repute. The venation of this plant, as well as of other species, being remarkably strong and durable, the leaves and flowers are frequently employed as fit subjects for skeleton bouquets. *E. campestre*, is found near ballast-heaps in some parts of England, and was formerly abundant about Watling Street. Of the foreign species, which are numerous, the most worthy of notice are *E. amethystinum*, so called from the brilliant blue tint, not of its flowers only, but of the bracts and upper part of the stem; it is a native of Dalmatia and Croatia, but is frequently cultivated in English gardens; while *E. alpinum*, a smaller plant of a still more brilliant colour, is a native of the Swiss Alps. French, *Panticauc*; German *Krausdistel*. [C. A. J.]

ERYNGO. *Eryngium maritimum* and *campestre*.

ERYSIMUM. A genus of *Cruciferae*, distinguished from the other long-podded genera, which have the radicle of the seed bent round and lying on the back of one of the cotyledons, by having the pods four-angled and elongated. The species are usually biennials, found in Europe and temperate Asia, with narrow leaves often attenuated at the base, and terminal racemes

(at first corymbs) of yellow, or very rarely white flowers. *E. cheiranthoides*, with small yellow flowers, is not uncommon in England; *E. orientale*, with amplexicaul stem leaves, and small white flowers, has occurred in some of the eastern counties; *E. Fergianum* and *E. arkanseum*, are handsome cultivated species, the former with rich orange-coloured flowers. [J. T. S.]

ERYSIPHE. A large assemblage of acellular *Fungi*, now broken up. The mycelium is white, or slightly tinged with brown, creeping over the green parts of plants, or more rarely, bursting through the stomates, and sending out here and there suckers which exhaust the juices of the matrix. The creeping threads send forth here and there perpendicular branches, which are articulated, and break up at the tips into large conidia, which either germinate immediately or produce a multitude of threads from the granular contents. Some of these joints occasionally become cellular and produce in their centre a multitude of minute conidia or spermatia. At different points in the creeping threads little swellings are formed, which ultimately become perithecia, and are fringed with curious appendages, which are sometimes straight and pointed with a bulb-like base, sometimes waved, sometimes hooked or incurved, sometimes repeatedly forked either with straight or divaricate branches, and sometimes end in a thick spongy body. The perithecia contain occasionally only a single ascus, as in *Sphaerotheca*, while in other genera, the asci vary in number, but are generally few, and never so numerous as in *Sphaeria*. Perithecia sometimes occur which are not distinguishable from the true, but which, instead of containing asci, yield a multitude of minute spores joined together with mucous matter. Five kinds of fructification, therefore, have been found in these plants. In an early stage, the species, which are then described as *Oidia*, constitute the white mildew so destructive to various plants, as vines, hops, peaches, &c. In this state they are easily checked by the application of sublimed sulphur, which seems to combine with the nascent oxygen to form sulphurous acid. The Vine Mould, which has for many years been so destructive, and which has been named *Oidium Tuckeri*, is doubtless a state of some *Erysiphe*, which has not been discovered. [M. J. B.]

ERYTHRÆA. Herbaceous plants, growing in many parts of the world, with simple or branched stems, and pink or pale yellow flowers in cymose panicles; they differ from those of the allied *Gentiana*, by their calyx being divided to the base, by their anthers, which become spirally twisted as they wither, and by the greater length of the style. *E. Centaurium* is a common English plant, in dry, sandy, or chalky soils especially; and found also throughout Europe and Central Asia. It is an annual, with erect square generally branched stems, broad egg-shaped leaves at the base, and flowers of a pale pink colour in,

a much branched cymc. This plant varies very much in the size of the flowers, the size of the leaves, and the degree of branching, so that it may be found as a simple stem half an inch high, with only a single flower, or one or two feet in height, with very numerous blossoms: hence some of the more marked varieties have been considered to form distinct species. The plant partakes of the bitter qualities of the order, and might be used in place of gentian. Besides the English species, others from the south of Europe, the Azores, &c., with yellow or pink flowers, are occasionally grown in gardens. [M. T. M.]

ERYTHRINA. A genus of handsome leguminous trees or shrubs, popularly known as Coral trees. They are pretty generally distributed through the tropics of both hemispheres. Some attain great dimensions, while others are dwarf bushes with woody rootstocks; a few have the stems and leaf-stalks beset with prickles. The leaves are trifoliate, with long stalks, the leaflets oval lanceolate elliptical-triangular. Many of the species are cultivated in hothouses for the sake of their beautiful large generally blood-red flowers, which are arranged in terminal racemes. In some species the tubular calyx is two-lipped or equally five-toothed, the petals all narrow, and nearly of equal length, while the keel is composed of two distinct petals. Some botanists consider that these alone should form the genus *Erythrina*. The name *Chirocalyx* is given by some authors to a few species in which the calyx is sheath-like, split above, and five-toothed at the apex; in a third group, called *Duchassaingia*, the keel is of one petal, bifid at the point, and is equal in length to the wings, which are about twice as long as the calyx, while the erect standard is broad, generally oval, and narrowed below into a claw; while in a fourth group, called *Myropteris*, the keel is also of one petal beaked at the point, but the wings are small, generally scale-like, and included in the calyx. The pods in most species are long, narrow, round, and constricted between the seeds, which are often bright red with a black spot, and about the size of a pea. These hard red seeds are frequently strung into necklaces. The *Amazilia* of Peru, *E. Amazilia*, is the only species whose pods split when ripe. This plant is described by its discoverer, Mr. Spruce, as one of the most beautiful trees of the country, attaining a height of 100 feet, and clad in spring and autumn with large flame-coloured or vermilion flowers. [A. A. B.]

E. Caffra, the Kaffrboom of the Dutch, or Kaffr's tree, is a native of South Africa, where it forms a tree fifty or sixty feet in height. Its trunks are commonly hollowed out and made into water-troughs and canoes. The wood is soft, but is said to be durable when tarred; and it is so light that it is used as a substitute for cork for floating fishing nets. *E. indica*, a small tree, native of the East Indies, growing about thirty feet high, is commonly cul-

tivated in India and the Malayan peninsula and islands, for supporting the weak stems of the pepper plant, for which purpose it is kept dwarf. It affords a very soft porous wood, greatly used in India for making toys, light boxes, and similar articles, which are usually overlaid with a thick coating of varnish or lacquer. In Ceylon the young tender leaves are eaten in curries. *E. umbrosa*, which attains a height of fifty or sixty feet, is a native of tropical South America, and is commonly cultivated there, as well as in some of the West India Islands, for the purpose of protecting the cocoa plantations from the effects of high winds, and at the same time to induce a proper degree of moisture in their neighbourhood. [A. S.]

ERYTHRINE. A colouring matter found in lichens.

ERYTHROCHITON. Small Brazilian Rutaceous trees, with long alternate simple fragrant leaves, and flowers placed on short jointed stalks arising from the leaf axils, in groups of two or more; the calyx is red, large, tubular; the corolla white, salver-shaped. [M. T. M.]

ERYTHROCOCCA. A genus of *Euphorbiaceæ*, composed of a single W. African species, *E. aculeata*, a smooth low shrub with stalked oval leaves, having short straight prickles in their axils (prickly plants are rare in the family), and little fascicles of minute green flowers, the males and females on different plants, both having a three-parted calyx. The ripe fruits, about the size of a peppercorn, are of an intense scarlet colour. [A. A. B.]

ERYTHROLÆNA. A genus of *Compositæ* found in Mexico, represented by a single species, *E. conspurcator*, which was introduced to English gardens about 1838, and is commonly known as the Scarlet Mexican Thistle. It is a tall plant eight to ten feet high, with rigid leaves, somewhat like those of a common wayside thistle: those at the base of the stem pinnatifid, with cut and spiny-pointed segments, and about two feet long; the stem-leaves smaller, lanceolate, with spiny teeth, and all more or less downy underneath. The flower-heads, clustered at the ends of the branches, are about three inches long, and very handsome, because of their scarlet involucrel scales. The florets are all tubular, yellow, and perfect; and the smooth achenes are crowned with a feathery pappus. [A. A. B.]

ERYTHRONIUM. A genus of *Liliaceæ*, consisting of nearly stemless herbs, with a long narrow solid scaled bulb, and two very smooth elliptical leaves usually spotted with purple. The scape is one flowered: the flower large, nodding, lily-like, with the perianth of six separate portions, bell-shaped or recurved, the three inner segments furnished with a callous tooth on each side.

The common Dog's-tooth violet, *E. Dens canis*, has purple flowers; it is a native of

Southern Europe and temperate Asia, and is an exceedingly ornamental garden plant, as well as an early flowerer. The most common American species, *E. americanum*, has narrow perianth segments of a pale yellow colour. [J. T. S.]

ERYTHRO. In Greek compounds = any pure red.

ERYTHROPHYLL. The red colouring matter of plants.

ERYTHROPHYSA. A genus of *Sapindaceæ*, nearly related to *Cardiospermum*, but differing in its five-lobed bell-shaped and petal-like calyx. The only known species, *E. undulata*, is a smooth stunted South African bush, with rigid stems, furnished near the apex with unequally pinnate leaves, composed of four to six pairs of small elliptical leaflets, and an odd one; the flowers, which all seem to be yellow or scarlet, are disposed in little clusters at the ends of the twigs. The fruits are three-celled bladder capsules, of a fine red colour, and suggest the generic name, which signifies 'red bag.' The plant is sometimes called *Erythrophila undulata*. [A. A. B.]

ERYTHROPOGON. Two neat little erect S. African bushes form this genus of *Compositæ*, which differs from its nearest ally, *Metastasia*, in having stalked flower-heads, and sessile achenes. In *E. umbellata* the minute heath-like leaves are of a silvery white colour, rounded, linear, curiously spirally twisted, and disposed in numerous crowded bundles. In *E. umbricata* they are fewer and nearly lance-shaped. In both the top-shaped flower-heads, with white or purple florets, are few and disposed in little umbels on the ends of the twigs. The smooth beakless achenes are crowned with a pappus of one series of rough hairs, of an intense purple colour. [A. A. B.]

ERYTHROCHIS. A remarkable genus of leafless terrestrial orchids found in the Birman empire and adjacent islands. They are perhaps the most gigantic plants in the family. The stems of *E. scandens* are from fifty to a hundred feet long, scrambling over trees in dense wet jungles. They are of a pale dull red, furnished with brown scales which supply the place of the leaves; and the flowers are disposed in panicles or racemes, the sepals and petals whitish-yellow, and the lip tinged with pale blue. It differs from *Vanilla* in the lip being free instead of connate with the column; and from *Cytosia* in the capsular not berried fruit, with winged seeds. [A. A. B.]

ERYTHROSPERMUM. A genus of six-ands, composed of a few Mauritian and one Ceylon tree, and differing from the others in the family in having a definite number of stamens. They have smooth oval lance-shaped or oblong leaves, either alternate, opposite or whorled; and the white myrtle-like flowers are arranged in racemes or panicles. [A. A. B.]

ERYTHROSTIGMA. A Japanese tree, belonging to the *Anacardiaceæ*, and re-

markable for being covered with red dots; the leaves are unequally pinnate; the five-parted flowers are arranged on a much-branched panicle; the five hair-like filaments are united together at their bases; the ovary is stalked, and contains a single ovule; and the fruit is a kidney-shaped drupe. [M. T. M.]

ERYTHROSTOMUM. Any aggregate fruit like that of a strawberry or *Ranunculus*.

ERYTHROXYLACEÆ. (*Erythroxyliæ*.) A natural order of thalamifloral dicotyledons belonging to Lindley's sapindal alliance of hypogynous Exogens. Shrubs or trees with alternate smooth stipulate leaves, and small whitish or greenish flowers on axillary peduncles, covered at the base with lubricated scaly bracts. Sepals five, united at the base, persistent; petals five, equal, with plaited scales at their broad bases; stamens ten, monadelphous; anthers innate, with longitudinal dehiscence. Ovary three-celled, with three styles and eight capitate stigmas; ovule anatropal. Fruit drupaceous, one-seeded. They are chiefly West Indian and South American plants. Some have stimulating qualities; others have a tonic bark. The bark of *E. suberectum* supplies a reddish-brown dye. There is only one genus, *Erythroxylin*, and above seventy species. [J. H. B.]

ERYTHROXYLON. This genus contains numerous species, the majority natives of tropical South America and the West Indian Islands, but some occurring in Madagascar and the Mauritius. They are mostly bushy shrubs, or occasionally they form small trees.

E. Coca is the most interesting of the species, on account of its being extensively cultivated, and its leaves largely employed as a masticatory, under the name of Coca, by the inhabitants of countries on the Pacific side of South America. It is a shrub of six or eight feet high, somewhat resembling a blackthorn bush. The Coca leaves are of a thin texture, but opaque, oval, tapering towards both extremities, their upper surface dark green, the lower paler and strongly marked with veins, of which two, in addition to the midrib, run parallel with the margin. Small white flowers are produced in little clusters upon the branches, in places where the leaves have fallen away, and stand upon little stalks about as long as themselves.

The use of Coca in Peru is a custom of very great antiquity, and is said to have originated with the Incas. At the present day it is common throughout the greater part of Peru, Quito, and New Grenada; and also on the banks of the Rio Negro, where it is known as *Spadic*. Coca forms an article of commerce among the Indians, and wherever they go they carry with them a bag of the carefully dried leaves, and also a little bottle-gourd filled with finely powdered lime, and having a wooden or metal needle attached to its stopper. Four times a day, whatever the nature of his

occupation, whether employed in the mines, the fields, as a muleteer, or domestic servant, the Indian resigns himself to the pleasures of Coca chewing, mixing the leaves with lime or the ashes of *Cocropia*. When used in moderation Coca exerts a pleasurable influence upon the imagination, and induces a forgetfulness of all care; it is also a powerful stimulant of the nervous system, and when under its influence Indians are able to perform long and rapid journeys, and carry heavy loads, without requiring any other sustenance. But when taken in excess it produces intoxication, of a character resembling that of opium rather than alcohol, but not so violent, although the consequences of its prolonged use are quite as injurious, and very few of those who become slaves to the habit attain an old age.



Erythroxylon Coca.

Spruce says that an Indian, with a chew of Spadic in his cheek, will go two to three days without food, and without feeling any desire to sleep.

[A. B.]

ESCALLONTACEÆ. (*Carpodeteæ*, *Escallontads*). A natural order of calycifloral dicotyledons belonging to Lindley's grossal alliance of epigynous *Exogena*. Evergreen shrubs, often odoriferous, with alternate exstipulate leaves, and axillary conspicuous flowers. Calyx superior, five-toothed; corolla of five petals, alternate with the divisions of the calyx, aestivation imbricated; stamens five, attached to the calyx, and alternating with the petals. Ovary inferior, two to five-celled, with a large central placenta and numerous ovules; style simple, surrounded at the base by an epigynous disk; stigma two to five-lobed. Fruit a capsule or berry crowned by the persistent calyx and style; seeds minute with oily albumen. [The order is considered by Bentham and Hooker as a tribe of *Asclepiadaceæ*, with which they similarly unite *Ribesaceæ*.] The species are natives chiefly of South America; but some are found in the southern parts of

Australia and New Zealand. On the mountains of South America they grow at an elevation varying from 6,000 to 14,760 feet, and form a marked region of vegetation. There are seven known genera and about sixty species. Examples: *Escallonia*, *Itea*, and *Carpodetes*.

[J. H. B.]

ESCALLONIA. A genus of *Escalloniaceæ*, named in honour of a Spanish traveller, the companion and friend of the botanist Mutis. It consists of trees or shrubs, natives of South America, Chili, &c. They have simple leaves, covered with resinous dots; flowers variously arranged, white, pink, or red, with five-parted whorls; and petals and stamens attached to the margin of a cup-like disc which surmounts the ovary. The fruit is a capsule. Several species are in cultivation as greenhouse or half-hardy shrubs. *E. rubra* has tubular red flowers, and is very handsome when trained against a wall. *E. macrantha* is even more beautiful.

[M. T. M.]

ESCARIOLE, or SCAROLE. (Fr.) *Cichorium Endivia latifolia*.

ESCENE. A termination equivalent to the English ish; thus, *rubescens* = reddish.

ESCHERIA. A synonym of *Salisia*, a genus of gesnerads, of which *Gloxinia maculata* is the type.

ESCHSCHOLTZIA. A Californian genus of herbaceous plants belonging to the *Papaveraceæ*, distinguished by its singular calyx, which, unlike that of the true poppies, is lifted off in one piece by the expanding petals instead of separating into two sepals. The petals are four in number, and the seed-vessel resembles the silique of the cruciferous order, being two-valved and bearing the seeds on the edges of the valves. There are several species or varieties, all from California. *E. californica*, the best known, is a large bushy herb with straggling branches, which, as well as the finely divided leaves, are very glaucous. The flowers are large, bright yellow, saffron-coloured in the centre, and expand only in the sunshine. It is a perennial, but in British gardens is mostly treated as an annual, as it flowers the first year and sows itself freely. *E. crocea*, with saffron-coloured flowers, and *E. compacta*, of a less straggling habit, are probably mere varieties.

[O. A. J.]

ESCHWEILERA. A genus of Brazilian trees, belonging to the *Lecythidaceæ*, and only differing from *Lecythis* in the limb of the calyx being bent backwards so as to touch the tube.

[M. T. M.]

ESCOBEDIA. A genus of *Scrophulariaceæ*, consisting of two South American or Mexican species, erect stiff nearly simple herbs, very rough to the touch, with opposite entire or toothed leaves, and large white flowers, nearly sessile in the upper axils. The calyx is long, tubular, and herbaceous; the corolla-tube very long, with a broad spreading limb; the capsule is two-valved, included in the persistent

calyx. Neither of the species has been as yet introduced into our gardens, although both are said to be handsome. They may, however, possibly be parasitical on the roots of other plants, in which case their cultivation would be very difficult.

ESCORZONERA. A Chilean name for *Achyrophorus apargioides* and *A. Scorzoneræ*.

ESENBECKIA. A genus of arboreal *Rutaceæ* remarkable for their bark, which contains tonic properties. In one of the Brazilian species *cinchonin* has even been detected. The flowers have five-parted whorls, the five stamens ultimately bent downwards, and, like the petals, inserted at the base of a cup-shaped disc, in which the ovary is placed; the latter is warty on the surface, and five-lobed. [M. T. M.]

ESPADÆA. The generic name of a Cuban plant said to belong to the *Verbenaceæ*, and to have alternate leaves, and an ovary united half its length with the tube of the calyx. These are characters, however, quite at variance with those of the family. *E. amana* is described by M. Richard as a much branched bush, with rusty down on its twigs, which are furnished with oboval and obtuse smooth leathery leaves, narrowed towards the base; the solitary flowers in the axils of the leaves are stalked, and have a bell-shaped calyx, a funnel-shaped arched corolla, with an oblique border of five erect unequal lobes, and four stamens, two long and two short. The fruits are globose drupes, with two cells, and one seed in each. [A. A. B.]

ESPAGNOLE. (Fr.) A kind of olive.

ESPARCETTE. (Fr.) *Onobrychis sativa*.

ESPARTO. *Lygeum Spartum*; also *Macrochloa tenacissima*.

ESPATHATE. Not having a spathe.

ESPELETTA. A genus of remarkable *Compositæ*, found near the snow limit at elevations of 13,000 to 14,000 feet and upwards in the Andes of N. Grenada, and Ecuador. A few of them do not exceed a foot in height, and have grassy rigid root-leaves, quite white from a covering of silky hairs. The greater number, however, are taller, and furnished with long strap-shaped root-leaves wholly covered with dense white or rusty-coloured wool, which forms for them an admirable protection from the cold, their thick texture and warm woolly covering no doubt suggesting the name 'Lion's ear' which is sometimes given to them by the Spaniards. The stems terminate either in a single flower-head, or more commonly in a corymb of yellow flower-heads, some an inch or more across.

These plants bear much resemblance to *Culticium*, which is found in the same regions, and the Spanish appellation 'Fralejon' is common to both. They differ abundantly, however, in having strap-shaped ray florets, and achenes destitute of pappus. About seven species are known. A

resinous substance is present in most of them, but is produced in greatest quantity by *E. grandiflora*; it is of a beautiful yellow colour, and is valued by the printers of Santa Fé de Bogotà, who use it in the composition of their ink, and give to it the name of *tremithina* (*terebinthine*), though it has neither the odour nor the consistence of the turpentine of commerce. The genus was named by Mutis in compliment to M. Espeleta, who rendered him much service in his botanical labours about Santa Fé. [A. A. B.]

ESPRIT D'IVA. An aromatic liqueur of which *Piarnica moschata* is the basis.

ESQUINANCIE. (Fr.) *Asperula cynanchica*.

ESTERHAZYA. A genus of *Scrophulariaceæ*, closely allied to *Gerardia*, and differing chiefly in the stamens projecting far beyond the corolla, with the anthers thickly clothed with long woolly hairs. There are two or three species, natives of Southern Brazil, erect branching shrubs or undershrubs, with opposite or scattered entire leaves, and large, very showy flowers of a rich red or pink colour, forming short terminal leafy racemes. Notwithstanding their beauty, they have not been introduced into our gardens, and perhaps, like the *Gerardias*, their cultivation may be very difficult.

ESTIVATION. The manner in which the parts are arranged in a flower-bud.

ESTRAGON. (Fr.) *Artemisia Dracunculus*.

ESULE. (Fr.) *Euphorbia Esula*. — **RONDE.** *Euphorbia Pepius*. — **GRANDE.** *Euphorbia Lathyrus*. — **PETITE.** *Euphorbia exigua*.

ETARIO, ETAIRIUM. Such a kind of aggregate fruit as that of the *Ranunculus* or strawberry.

ETERNELLE. (Fr.) *Helichrysum orientale*.

ETERNUE. (Fr.) A kind of *Agrostis*.

ETHULIA. A genus of the *Compositæ*, distinguished by the four or five-angled achenes being surmounted by a minute and entire crown-like ring. It is made up of about seven species, all of them branching weeds of no beauty, found in various tropical and subtropical countries of the eastern hemisphere, extending as far west as Syria in Asia, and Senegambia in Africa. The little purple or white flower-heads are numerous, about the size of a small pea, disposed in a corymb at the end of the twigs. [A. A. B.]

ETIOLATED. Deprived of colour by being kept in the dark; blanched.

RUBOTRYB. A genus of deciduous Ericaceous shrubs, better known under their former name of *Lyonia*. The main characters of the genus are: a five-parted calyx with two small bracts at the base, a more or less cylindrical corolla with a reflexed

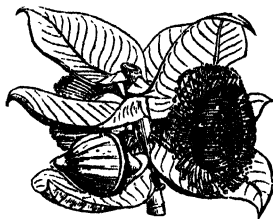
limb, ten stamens with short flattened filaments, a truncate stigma, and a five-celled five-valved capsule. The species are handsome North American shrubs, many of them cultivated in this country. The leaves of *E. arborea* have an acid flavour, whence the name of Sorrel-tree. Hunters in the mountains are said to use these leaves as a means of alleviating thirst. [M. T. M.]

EUBRACHION. A small kind of leafless mistletoe, growing on myrtles on the river Uruguay, in South America, and constituting a genus of *Loranthaceæ*. It has the male and female flowers mixed in small catkin-like spikes on the terminal branches.

EUCALYPTUS. The gigantic Gum-trees, Stringy-barks, and other timbers of the Australian and Tasmanian forests, constitute this genus of *Myrtaceæ*, of which between 100 and 150 species are described, though, owing to the widely different appearances assumed by individual trees at different periods of growth, it is extremely difficult to arrive at a correct estimate of their number. Australia is the headquarters of the genus, numerous species being distributed throughout all parts of that continent; several are also found in Tasmania, where they form extensive forests; and a few extend as far north as Timor and the Molucca Islands. The majority of them are trees, some growing to an immense height and having proportionately thick trunks. Their leaves are of a thick leathery texture, always quite entire, very variable in shape. In young plants they are always opposite, but they generally become alternate as the plant gets older, and their stalks then acquire a peculiar twist, so that the leaves present their edges to the branches. The flowers grow from the angles between the leaves and stem, and are either solitary or in clusters; the calyx is hard and woody, and separates into two pieces, the upper of which resembles a lid or cover, and falls away in a single piece when the flower opens, carrying along with it the corolla, which is intimately combined with it, while the lower is persistent, and bears the very numerous stamens, which form a fringe round its summit. The fruit is closely enveloped in the woody calyx.

The Australian colonists distinguish many of the trees of this genus by characters derived from the bark; some having smooth, others rough or cracked bark; some are solid (iron-bark), while others are fibrous (Stringy-bark); and, finally, in some species the bark scales off in flakes, either from the whole tree or from the upper part only. They are also called Gum-trees, in consequence of the quantity of gum that exudes from their trunks. The timber is exceedingly valuable, and is in common use in our Australian and Tasmanian colonies. In the latter, the three following species yield the best quality of timber, namely: *E. globulus*, the Blue Gum; *E. gigantea*, the Stringy-bark; and *E. mygdalina*, the Peppermint-tree. But of

these the first-mentioned is considered the most valuable, although the Stringy-bark attains the largest size. Trees of the latter species have been felled, measuring upwards of 400 feet high, by 100 feet in girth at a yard from the ground. The blue-gum timber is greatly used by colonial ship-builders, also by mill-wrights, carpenters, and implement-makers, and by engineers in the construction of works requiring beams of great span; it is exceedingly strong and very durable. A plank



Eucalyptus macrocarpa.

of the swamp-gum, forwarded to the International Exhibition of 1863, measured 230 feet in length. For some particulars as to the strength of the timber of these Gum trees, see *Gardener's Chronicle*, 1862, 571.

Several species have been introduced to the Negherry hills, and are thriving admirably. Many species yield a red resinous juice, which hardens into a substance resembling kino, and possessing powerful astringent qualities. *E. Gunnii*, the Tasmanian Cider-tree, yields a cool refreshing liquid, from wounds made in its bark during the spring. A saccharine substance, resembling official manna, exudes from *E. manuifera*, and other species; *E. piperita* yields an essential oil; and the large flakes of bark obtained from several of the species are used by the aborigines for making huts, canoes, &c. [A. S.]

EUCEPHALUS. *Diploappus.*

EUCERÆA. A genus of *Samydaceæ*, nearly related to *Casearia*, from which it may be recognised by its minute greenish-white flowers being disposed in axillary panicles longer than the leaves, not in short axillary fascicles or cymes. *E. nitida*, a Brazilian bush, is the only species. Its spreading branches are furnished with alternate stalked entire leaves, between oval and lance-shaped in form. [A. A. B.]

EUCHAERIDIUM. Two pretty little annuals introduced from California in 1846, belonging to the *Onagraceæ*, and closely allied to *Clarkia*. The genus is distinguished by the long and slender tube of the calyx terminating in four deciduous sepals, by the four three-cleft petals, and by the four-celled, four-valved capsules containing numerous seeds. They grow to the height of about a foot, with somewhat downy stems and foliage; the

leaves are stalked, ovate, and undivided, bearing in their axils solitary purplish flowers. [C. A. J.]

EUCARIS. A beautiful genus of broad-leaved evergreen pandaniform *Amaryllidaceæ*, having ovate bulbs, broadly elliptic or ovate long-stalked leaves, and tall scape-bearing several large white nodding fragrant flowers. The blossoms have a long slender tube, six broad ovate spreading perianth segments, and a large bell-shaped white coronet or cup bearing the six stamens on its margin, each having a later tooth at its base. The species are few in number, and are all natives of South America. *E. grandiflora* is one of the most beautiful of stove bulbs. [T. M.]

EUCHEUMA. A genus of rose-spored *Algae* belonging to the natural order *Gelidaceæ*, consisting of cartilagino-gelatinous tuberculated or spinous species, remarkable for thick-walled capsules, containing a central placenta, which at length becomes hollow in the middle and bears neck-laces of spores. *E. speciosum* is the Jelly-plant of Australia, and is one of the best species for making jelly, size, cement, &c. A very fine species, possessing doubtless similar properties, occurs in the United States. [M. J. B.]

EUCHILUS. A genus of much branched Australian under-shrubs of the leguminous family, and usually united with *Pultenaea*, but differing in having a disproportionately large upper lip to the calyx, instead of two nearly equal lips, and a stalked instead of a sessile pod. They have slender twiggy stems, separately or densely clothed with leaves, which are sometimes juniper-like, and sometimes small, round, or inversely heart-shaped; while the little yellow pea-flowers are solitary in the axils of the leaves, and either few, distant, and stalked, or numerous at the ends of the twigs, and nearly sessile. *E. obovatus* is the best known species. [A. A. B.]

EUCHRESTA. A genus of *Leguminosæ*, nearly allied to the W. Indian cabbage trees (*Andira*), but differing in having the base of the tubular five-toothed calyx slightly projecting above, and in the standard or upper petal being very narrow, not broad and rounded. *E. Horsfieldii*, the best known species, grows in mountain districts in Java and Formosa, and is an elegant smooth shrub with unequally pinnate leaves; the slender branches terminated by erect racemes of numerous white, waxy, vetch-like flowers, succeeded by stalked elliptical one-seeded pods. According to Dr. Horsfield, the whole plant is intensely bitter, and much sought after by the natives because of its medicinal properties. They employ the seeds against any poison that may have been taken into the stomach, exhibiting one of them triturated with water to counteract the effects. According to Leschenault, the powdered fruits mixed with food are regarded as having the power of preventing diseases and giving tone to the stomach.

Mixed with lemon juice, they are applied to wounds caused by any venomous animal. The fruits are sold for five or even ten sous, French money, each. This plant holds the first rank among the medicinal plants of the island in the opinion of the natives. [A. A. B.]

EUCLEA. A genus of simple-leaved African bushes, of the family *Ebenaceæ*, numbering about twenty species. One is found in Abyssinia, another on the west coast south of the line, and the remainder in the southern districts. Their nearest relationship is with *Royena*, from which they are readily distinguished by their flowers being disposed in racemes, not one or three together in the axils of the leaves, and by the males and females growing on different plants. The leaves are alternate or opposite, entire, oval lance-shaped or oblong, sometimes crisped or wavy; and the little white flowers, disposed in racemes shorter than the leaves, are a good deal like those of some whortleberries, having a bell-shaped corolla with five to seven teeth. The fruit is globular, fleshy, and juicy, sometimes as large as a cherry. Those of many of the species, known by the colonists as Guarri, are eaten, and are sweet and slightly astringent. The wood of *E. Pseudo-Ebena*, a species with narrow lance-shaped leaves, is said to be extremely hard and black. [A. A. B.]

EUCLIDIUM. A genus of *Cruciferae*, found in South-eastern Europe and Western Asia. It is known from the other genera in which the radicle of the seed is bent round and lies along the edges of the cotyledons, by having a smooth subglobular indehiscent pouch, with a complete partition, and a single seed in each cell. *E. syriacum*, the only European species, is a small annual with rigid branches, runcinate root-leaves, and lateral spikes of small white flowers. [J. T. S.]

EUCNEMIS. A name given by Lindley to a Mexican Orchid, since referred to *Gomphia*.

EUCNIDE. A genus of *Loasaceæ*, now often united with *Neranthus*, but differing in the tube of the calyx being short and top-shaped; in the numerous stamens collected into five bundles, each of which is attached to one of the five large spreading petals; and in the one-celled fruit opening by five slits at the top, and containing innumerable minute seeds arranged in five rows. *E. bartonioides*, sometimes known as *Microperna bartonioides*, a native of Mexico, is a garden annual, with hairy stems, jagged leaves, and large showy sulphur yellow flowers, furnished with very long conspicuous yellow stamens. [T. M.]

EUCODONIA. A Mexican generad allied to *Achimenes*, forming a dwarf herb, with ovate obtuse pubescent crenated leaves, and lilac flowers, of which the calyx is deeply five-parted, and the corolla large, ventricose, campanulate with an oblique spreading limb; there are four included stamens, a membranaceous outer glandular ring, and a bilobed stigma. The plant, which is cultivated for the sake of its

flowers, is sometimes called *Scheeria lanata* and *Mandirola lanata*. [T. M.]

EUCOMIS. A genus of *Liliaceae*, consisting of South African bulbs, with broad root-leaves, and a simple raceme of rather large usually greenish flowers, surmounted by a tuft of empty leaf-like bracts, called a coma. The perianth is six-parted and spreading, the stamens inserted in its segments, with the filaments dilated at the base. The capsule is three-winged, the few seeds with a hard black seed-coat. Several handsome half-hardy species are in cultivation. *E. bifolia* has only two leaves lying flat on the ground, and a short raceme of pale green flowers. [J. T. S.]

EUCOSIA *carnea* is a terrestrial orchid of Java, with a stem about a span high, bearing four to six ovate leaves, and terminating in a downy spike of about three small flesh-coloured flowers, each supported by a long narrow bract. The plant has the habit of some *Goodyeras*, but the internal structure of the flower is quite different. The remarkable thing is, that the anther is attached to a filament which grows out quite distinctly from the base of the column, whereas in most orchids the anther has no filament, but rests in a niche at the apex of the column. The plant is beautifully represented by Blume in his splendid folio work on the orchids of the Indian Archipelago. [A. A. B.]

EUCORINUM. A subgenus of *Fritillaria*, proposed by Nuttall to include a few species which approach to *Lilium*, but differ from both genera, in having an undivided stigma, and the cup formed by the perianth segments broadly funnel-shaped. The habit is that of *Fritillaria*. The *F. tulipifolia* from the Casus, and the American *F. pudica*, to this section. [J. T. S.]

EUCO [A. A genus of stove bulbs of the order *maryllidaceae*. *E. bicolor*, the only species, a native of S. America, has round bulbs, wide petiolated leaves, and a tapering scape, supporting an umbel of four or more vermillion-coloured flowers, which have an oblique perianth tube, compressed recurved limb segments, and a declined cup; abbreviated and rostrate above, and shovel-formed and prolonged below. It comes near *Etienna*. [T. M.]

EUCYPPHIA. [A genus placed by most authors in *Myrtaceae*, from which it differs in foliage, in the presence of stipules, and in the albuminous seeds. It was referred by Benth and Hooker to the *Rosaceae*, and is now placed in *Sanicragaceae* (*Cunoniaceae*) by the former.] The 4-5 leaved calyx is thrown off in the form of a cap; the 4-5 petals are roundish; the stamens numerous and disposed in many series; and the ovary 5-12 celled, surmounted with as many styles. The fruits are little woody capsules. The four known species are opposite-leaved trees or shrubs, two found in Tasmania, and two in Chili. *E. Billardieri* is one of the most beautiful trees of Tasmania, sometimes growing to sixty or a feet high, and covered in February

with an abundance of white cistus-like flowers, one to two inches across. These are solitary and stalked in the axils of the narrow obtuse leaves, which are gummy above, and white underneath. *E. pinatifolia*, one of the Chilian species, is remarkable in the family, as well as in the genus, for having pinnate leaves, which are made up of two pairs of smooth serrated leaflets, and an odd one; the single white flowers themselves are a good deal like those of a wild dog-rose, and solitary near the ends of the branches. The name *Carpodontos* is sometimes given to the Tasmanian species, which differ from the Chilian ones in having five-celled fruits. [A. A. B.]

EUCYOLA. A genus of *Polygonaceae*, allied to *Eriogonum*, having the plicate coloured perianth salver-shaped, the three outer divisions diverging and orbicular, and the three inner linear oblong, forming a cylinder. The flowers are yellow or purple. The species are natives of the Rocky Mountains. [J. T. S.]

EUDESMIA. A handsome Swaz River myrtaceous shrub. The branches are four-cornered, with lance-shaped thick leaves; the flowers red, disposed in umbels, with four-parted stamens, united into four bundles; capsule four-celled. *E. tetragona* is in cultivation. [M. T. M.]

EUDIANTHE. A section of *Lychitis*, comprising those species which have the calyx tube contracted at the top. The pretty rosy-pink *L. Cali-rosa*, which is often cultivated as an ornamental annual, under the name of *Viscaria*, belongs to this section. [J. T. S.]

EUDOXIA. Peruvian herbs belonging to *Gentianaceae*, with large handsome drooping flowers, in a terminal panicle. They have a bell-shaped membranous calyx; a bell-shaped five-cleft corolla, having the segments convolute before expansion; and the filaments of the stamens are channelled on the inner surface. Ovary two-celled, two-valved; stigma sessile, with two dilated revolute segments. [M. T. M.]

EUFRAZIA. A genus separated from *Bartsia* mainly on account of the structure of its seeds, which are 'slightly angular, very minute, crenate-ribbed, the hilum basal.' *E. viscosa*, an erect unbranched annual with viscid foliage and yellow flowers, not uncommon in marshy ground in the west of England and some parts of Ireland and Scotland, is the same as *Bartsia viscosa*. [C. A. J.]

EUFRAISE. (Fr.) *Euphrasia officinalis*.

EUGENIA. A genus of *Myrtaceae*, comprising several trees or shrubs, for the most part natives of tropical America and the West Indies. The flowers are placed in the axils of the leaves, white, with a four-parted calyx, four petals, and numerous stamens. The berry is crowned by the calyx, one or two-celled, and contains one or two seeds.

The most important species is *E. Pimenta*,

which furnishes Allspice. This consists of the fruits gathered before they are quite ripe, and dried in the sun. The Allspice tree is cultivated in the West Indies and Jamaica, where the trees are planted in rows called pimento walks; the produce is sometimes very large. The Allspice or Pimento berries of commerce are of the size of a small pea, of a dark colour, and surmounted by the remains of the calyx. The odour and flavour are supposed to resemble a combination of those of cinnamon, cloves, and nutmeg, hence the name allspice; they are due to a volatile oil, which is obtained by distillation. Allspice is largely used for flavouring purposes, being cheap. The oil is occasionally employed as a carminative.

Many of the species yield agreeably tasting fruits, such as *E. cauliflora*, which furnishes the Jaboticaba fruits of Brazil, described as being of the size of a green-gage, and very refreshing; it is cultivated in some parts of Brazil. The Rose Apples of the East are the produce of *E. malaccensis* and *E. Jambos*. *E. Ugni*, a native of Chili, has lately been introduced into English gardens, where it is at least as hardy as its near ally, the myrtle. Its fruit is highly esteemed in Chili. Those grown in this country are glossy black when ripe, and have an agreeable flavour and perfume. Numerous other species are grown either for their handsome foliage or for their flowers. *E. Luma* is one of the most beautiful of these. [M. T. M.]

EUKYLISTA *Spruceana*, the only species of the genus, is described as a tree attaining the height of fifty to seventy feet, with bark which scales off like that of the plane tree; its flowers show it to be one of the *Cinchonaceae*. The flower buds are at first enclosed within membranous bracts, which ultimately fall off; the limb of the calyx is scarcely developed; the tube of the corolla is short, its limb divided into six to eight lobes, and its throat lined with dense hairs; stigmas two. Fruit a capsule, dividing into two places, the seeds winged. [M. T. M.]

EULOBUS. A Californian annual, with narrow leaves, and rather large white flowers often tinged with red, constituting a genus of *Oenagræaceae*, distinguished from *Eriogonum* chiefly by its long slender linear capsules incompletely divided into four cells.

EULOPHIA. A numerous genus of epiphyll or terrestrial orchids, natives of tropical Asia, Africa, and America, but occurring in greatest numbers at the Cape. They have either pseudobulbs with one or two leaves, or tuberous rhizomes of the size of potatoes or larger, with the leaves and flower-scapes arising laterally from near the base. The leaves are grassy, or lance-shaped and plaited; and the flower-scapes either simple or branched, bearing few or many flowers, which seldom exceed an inch in diameter, the prevailing colour being yellow. The sepals and petals are nearly equal; the lip pouch or spurred, with an

entire or trilobed limb, bearded or crested in the middle; the column with a terminal helmet-shaped anther-case, enclosing the two pollen masses with their very short caudicle, attached to a rather large diverging gland. A few of the species have been in cultivation. *Cyrtopora*, *Galeandra*, and *Zygopetalum*, have all been referred to this genus by Dr. Blume. [A. A. B.]

EUMORPHIA. The name of a pretty little South African bush of the composite family, nearly related to, and having flower-heads like those of the chamomile. It differs, however, in the achenes, which are four or five-angled, and destitute of pappus. The leaves also are very different, being minute, heath-like, and closely packed on the twigs, which are terminated by three white-rayed flower-heads. The plant was first gathered by Mr. Drege, a collector in South Africa, and is named after him *E. Dregeana*. [A. A. B.]

EUONYMUS, or Spindle-tree, is a genus of *Celastraceae*, the common species, *E. europæus*, being a familiar shrub or small tree, the wood of which is known as Dogwood, Pegwood, Skewerwood, and Prickwood. It has ovate lanceolate shining leaves, and small pale green flowers, each composed of four petals, issuing cross-wise from a whitish disk. These are borne two to five together on a stalk in the axils of the leaves, and are succeeded by top-shaped seed-vessels of three blunt lobes, and as many cells, each containing a solitary seed. Towards autumn these become more conspicuous among the leaves (now turning yellow) by their assuming a pink hue; and when the tree has entirely lost its foliage, they are highly ornamental. Each of the lobes of the capsule, which has by this time acquired a bright rose-coloured hue, opens at the projecting angle, and discloses the seed wrapped in an orange-coloured arillus. The foliage, flowers, and fruit of the Spindle-tree are poisonous, but the last are sometimes used as a dye. The wood, which is of a light yellow hue, being strong, compact, and easily worked, is applied to many useful purposes. 'Skewers, pegs for shoes, spindles, toothpicks,' readily suggest the derivation of its various names. The charcoal made from the young shoots is also much approved by artists for its smoothness, and the ease with which it may be erased. Among foreign species cultivated in British gardens, *E. latifolius* is the handsomest, from its broad shining leaves and its large red pendulous seed-vessels, with orange-coloured seeds, which, when the capsules open, are highly ornamental. *E. japonicus* is an evergreen species with rounded ovate-toothed leaves. French, *Fusain*; German, *Spindelbaum*.

EUPATOIRE D'AVICENNE (Fr.) *Eupatorium cannabinum*. — DE MÉSUE. *Achillea Agrostium*.

EUPATORIUM. An extensive genus of *Compositæ*, consisting for the most part of

herbaceous plants. The species agree in having all the florets tubular, perfect, and furnished with a long branched style, and in colour either purple, pink, or white, never yellow. They are mostly natives of America; but one species, *E. cannabinum*, Hemp Agrimony, a tall plant with unbranched stems, downy leaves, and terminal crowded corymbs of dull pale purplish flowers, inhabits watery places and damp hedges in Britain. *E. perfoliatum* has some reputation in America as a tonic stimulant, and is administered in the form of a decoction of the leaves; it is employed also as a remedy in intermittent fevers. French *Eupatoire*; German *Adkraut*. [C. A. J.]

The leaves of *E. glutinosum* have been considered to be the Matico of the Peruvians, a substance that is used as a styptic and for other medicinal purposes. It is possible that more than one plant bears the name Matico, but the leaves brought to this country under that name are those of *Arianthe elongata*. [M. T. M.]

EUPETALUM. A genus of begoniads, represented by undershrubs found in Peru. The staminate flowers have four, and the pistillate from five to eight sepals. There are four species. The name is derived from two Greek words, *eu* well or good, and *petalon* a petal, in allusion to the character of the sepals. The species were formerly included under *Begonia*. [J. H. B.]

EUPHORBIACEÆ. (*Pseudanthææ*, *Trewiaceæ*, *Spurge-worts*.) A natural order of monochlamydeous dicotyledons, typical of Lindley's euphorbial alliance of diclinous Exogens. They are trees, shrubs, or herbs, with opposite or alternate often stipulate leaves, and involucre incomplete sometimes achlamydeous flowers. Perianth when present inferior, lobed, with glandular scaly or petaloid appendages; stamens definite or indefinite, separate or united in one or more bundles. Ovary one two three or more celled; ovules one or two. Fruit usually of three carpels, which separate in an elastic manner, sometimes fleshy and not opening; seeds with albumen, and often an aril; embryo with a superior radicle. The plants abound in equinoctial America; they are also found in North America, Africa, India, and Europe. They are generally acrid and poisonous, and contain much milky juice. Some yield starch, others oils and caoutchouc. *Euphorbia Lathyris*, the caper spurge, has purgative seeds, and a resinous matter having similar qualities is procured from other species, such as *E. officinarum*, *antiquorum* and *complanata*. Catimandoo, a kind of caoutchouc, is got from another species in India. Castor oil is procured from *Ricinus communis* seeds; croton oil from those of *Croton Tiglium*. The seeds of *Jatropha Curcas*, or physio-nut, are purgatives. *Stillingia sebifera* is the tallow tree of China—the fatty matter being procured from the fruit. Dyes are supplied by *Crotophora tinctoria*, the turnsole, and *Rottlera tinctoria*; the latter plant also yields kamila, a powder from its cap-

sule, used for worms. African Oak or Teak is yielded by *Oldfieldia africana*; caoutchouc by *Siphonia elastica*, *tutes*, *brevisfolia*, *brasilensis*, and *Spurceana*; and the poisonous manchineel by *Hippomane Maniciniella*. *Jamipha Manihot* or *Manihot utilissima* furnishes cassava and tapioca, which consist of the starchy matter from its root. *Alcurites triloba* yields kekone oil; *Azidoophyllum laurinum* bears an acid fruit called monkey-apple in Sierra Leone. *Colliguaja odorifera* has peculiar jumping or moving seeds, owing to their becoming the habitation of the larva of an insect. Boxwood is the produce of *Buzus sempervirens*. *Hura crepitans*, the sandbox tree, has a fruit consisting of numerous carpels which, when dry, separate with a loud report. Species of *Euphorbia* abound in Africa, and some of them attain a height of thirty or forty feet, with a diameter of two feet at the base of the stem. There are 230 known genera, and about 2,600 species. Examples: *Euphorbia*, *Hura*, *Mercurialis*, *Acalypha*, *Siphonia*, *Jatropha*, *Ricinus*, *Andrachne*, *Xylophylla*, *Phyllanthus*. [J. H. B.]

EUPHORBIA. The Spurge genus, which gives its name to the order *Euphorbiaceæ*, comprises a very large number of species distributed throughout almost the whole world, and varying exceedingly in general or outward appearance, but corresponding closely in the structure of the flowers. All have to a greater or less extent a milky juice. In the temperate regions of the northern hemisphere the species are for the most part herbaceous; in warmer countries, especially those of the southern hemisphere, they have a shrubby or even tree-like habit. Many of the South African kinds, as well as those of other countries, possess succulent spiny leafless stems like *Cacti*. Variable as is the appearance of these plants as regards their stems and leaves, their flowers are all arranged on the same plan. The flowers are monocious, collected into heads, surrounded by bracts constituting an involucre; these flower-heads are placed in umbels variously branched or aggregated into clusters round the top of the stem. The involucre is more or less cup-shaped, four or five-toothed, the lobes or teeth alternating with a number of glands of various form. Within the involucre are a number of stamens surrounding a stalked ovary, hence giving the appearance of a single flower; but this is not really so, as each stamen represents a single male flower, because it is jointed in the middle, and has at its base a separate scale. There are really several monandrous male flowers surrounding a central stalked female, which latter consists of a three-celled ovary, with a three-cleft style. The fruit consists of three single-seeded carpels.

A comparatively small number of kinds are cultivated in this country, either for their beauty or as objects of curiosity, of the former *E. punicea*, *E. splendens*, *E. fulgens*, *E. prunifolia*, and *E. Bojeri* may be mentioned. These are all remarkable for the brilliant scarlet colour of the bracts,



VEGETATION OF TENERIFFE, WITH SUCCULENT EUPHORBIAS
(After Webb)

of the involucre, and as they flower in winter time and remain long in bloom, they are deservedly great favourites.

Those cultivated for their singular and grotesque appearance are such as have succulent prickly cactus-like stems, and are for the most part without leaves. Among the best known are *E. grandidens*, a tall-growing kind, sending out whorls of branches like those of a candelabrum; *E. officinarum*, *E. antiquorum*, and *E. canariensis*, all somewhat similar; *E. Hystrix*, which has long spines and lance-shaped leaves at the top part of the stem, the lower portion being destitute of them; and *E. meloformis*, a dwarf species, in shape like a melon or an *Echinocactus*, but without spines. Several of them are so like cactuses that they are frequently mistaken for them, especially as the flowers are comparatively rarely seen; a slight puncture with a pin or the point of a knife will, however, immediately decide the matter, as, should the plant be a *Euphorbia*, a milky fluid will ooze out.

In some districts the succulent Spurges are found in great abundance, as they are able to thrive where little else can grow. Thus in the Canary Islands and Teneriffe *E. canariensis* grows in great abundance in arid rocky districts. Professor Smythe speaks of this plant as attaining a height of ten or more feet, while the branches spread on all sides over twenty feet. The stems are erect, stiff, leafless, prismatic and ill-favoured, 'the product of light and raw bent, salt land, and no shade or genial moisture.' In some parts of South Africa, too, the tall columnar species constitute the characteristic feature of the landscape—*E. grandidens* for one, being said to attain a height of thirty feet and upwards.

The milky juice, which forms one of the constant characteristics of these plants, contains active medicinal properties. Hence in all countries where they grow, some of them have been, or are, employed

them, as they produce incessant sneezing. Euphorbium is an intensely acrid substance, which severely affects the eyes, nose, and lungs of those who come in contact with the drug in its powdered state, if the greatest precautions be not taken. It is said also to induce delirium. From its violent action, it is now rarely if ever used in medicine, but it was employed as an emetic, purgative, etc., and externally as a rubefacient.

The natives of India are said to use the juice of *E. antiquorum* as an external application in rheumatism and neuralgia, and when diluted as a purgative. *E. Nivulia* is used for similar purposes. The juice of *E. heptagona* and other African species is employed by the natives to poison their arrows, while the same purpose is effected in Brazil by the juice of *E. cotinifolia*; that of *E. ligularia* is used in India for the removal of warts; the root, moreover, of the Indian species first named is employed both internally and externally in cases of snake-bite. So also many of the leafy species in which the stem is not fleshy, are considered valuable as purgatives in many parts of the world. Others are esteemed for the cure of syphilis; while some are employed to poison fish. *E. hiberna* is said to have been used in Ireland for this purpose. The roots of some species are emetic, such as those of *E. Gerardiana*, as well as those of *E. Pithyusa* in the south of Europe, and of *E. Ipecacuanha* in America, but they are not to be relied on, as they are apt to produce dangerous purging. Nor are astringent and aromatic properties wanting, for *E. thymifolia*, an Indian plant, has these qualities, as also *E. hypericifolia*, a native of tropical America.

The poisonous principle pervading these plants is more or less dissipated by heat, and hence we hear of a few of them forming articles of diet; thus *E. adulis* is mentioned as a pot herb, so also *E. balsamifera*; the juice too of the latter is said when concentrated (by heat?) to furnish an

supplying this resinous substance has been recently identified with *E. resinifera*.] *E. canariensis*, *E. officinarum*, *E. antiquorum*, and *E. tetragona* have all been mentioned. In commerce Euphorbium exists in the form of small irregular yellowish lumps, pierced with one or more holes, in which are often found the remains of the prickles of the stem from which the resin exuded. The drug is procured from Barbary, where the natives are said to make incisions into the branches, in consequence of which the milky juice exudes. This is so acrid, that it excoriates the hand when applied to it. The juice is allowed to dry and harden on the stem, and after a time the lumps fall off and are collected with caution, the collectors being obliged, says Mr. Jackson in his account of Morocco, to tie a cloth over their mouth and nostrils, to prevent the small dusty particles from annoying

In the habit of removing the bark from *E. canariensis*, and then sucking the inner portion of the stem, in order to quench their thirst. This is indeed not so improbable as at first appears, as it is the limpid watery ascending sap which is taken, while the acrid milky descending sap is removed with the rind of the tree, which it percolates. The juice of *E. Cathartico*, a native of the Madras presidency, furnishes caoutchouc of a quality which is such as to enable it to be put to a variety of uses; some of it was favourably reported on in the Jury Reports of the Great Exhibition of 1851. Dr. Wight, in his *Icones Plantarum India orientalis*, gives the following information on the authority of Mr. Elliot:—'The milk is obtained by cutting off the branches, when it flows freely. It is collected and boiled on the spot, at which time it is very elastic, but after being formed into cakes or cylinders, it becomes

resinous or brittle, in which state it is sold in the bazaars, and employed as a cement for fixing knives into handles, and other similar purposes, which are effected by heating it. It is also employed medicinally as an outward application in cases of rheumatism. The gum has not the valuable property, like gutta percha, of being ductile at all times. It can be moulded to any shape when first boiled, but as far as we know not afterwards, though some plan may be found for rendering it subsequently pliable. Dr. Wight further remarks that when exposed to the heat of a fire or lamp it rapidly softens, and becomes as adhesive to the hand as shoemaker's wax, but when soaked for some time in warm water, it slowly softens, becomes pliable and plastic, and in that state takes any required form. Another of the Indian species, *E. Trucalli*, is frequently used in Coromandel, for making hedges, as animals for the most part will not touch it, though goats will eat it in spite of the acrid juice, which latter is used medicinally by the natives. It goes by the name of Milk Hedge. *E. phosphorea* derives the name from the fact of its sap emitting a phosphorescent light on a warm night in the Brazilian forests. There are several British species, which partake more or less of the acrid properties so general in this group. [M. T. M.]

EUPHORBIALES. One of Lindley's alliances, including *Euphorbiaceæ*, and a few small related groups.

EUPHORIUM. A gum resin obtained from certain succulent species of *Euphorbia*, especially *E. resinifera*.

EUPHRASIA. The Eye-bright is a small annual belonging to the *Scrophulariaceæ*, distinguished by a tubular four-cleft calyx, a two-lipped corolla, the upper lip two-lobed, the lower three-lobed, and an oblong compressed capsule, containing numerous pendulous ribbed seeds. Eye-bright is a common plant in heaths and dry meadows, growing to the height of six to twelve inches, with small sessile leaves arranged in opposite pairs, and several flowers near the ends of the branches, white spotted with yellow and purple. From the frequent mention of Euphrasy by the poets, it would appear to have been formerly held in high repute for its medicinal virtues, a view which is confirmed by the statements of the old herbalists, who recommended its use both outwardly and inwardly, in powder and in decoction, for complaints of the eyes. It is still a rustic remedy as an eye-water, but is said by some to be injurious rather than beneficial. French, *Eytraise*; German, *Augen-trost*. [C. A. J.]

EUPHROSINE. A genus of *Compositæ*, composed of two annual Mexican weeds, which grow from one to two feet high, and have alternate twice or thrice pinnatisect leaves, and terminal panicles of little white flower-heads, each about the size of a pea. The flowers have much re-

semblance to *Ambrosia*, but differ in having male and female flowers in the same capitulum. [A. A. B.]

EUPLOCA. A North American genus of *Ehretiaceæ*, probably not distinct from *Messerschmidia*, and consisting of herbs furnished with rough leaves, and funnel-shaped flowers. [J. T. &.]

EUPOMATIA. A genus of laurel-like shrubs, natives of the eastern extratropical parts of New Holland. It forms at present a kind of botanical puzzle, being evidently allied to *Anonaceæ*, and yet differing very materially from the other genera of that family. *E. laurifolia* was discovered by the late Robert Brown, and though it is cultivated in conservatories, it has not produced its flowers. The stamens are perigynous, and the inner ones sterile, petal-like; the tube of the calyx is coherent with the ovaries, while the limb separates by a transverse slit, like a lid, from the tube. In these flowers the access of the pollen to the stigmas appears to be completely cut off by the number and disposition of the internal barren petal-like stamens; but the communication is restored, says the learned botanist who first described the plant, by certain minute insects eating the petal-like filaments, while the antheriferous stamens, which are either expanded or reflected, and appear to be even slightly irritable, remain untouched. Recently a second species has been discovered, and named by Dr. Mueller *E. Bennettii*, in compliment to Dr. Bennett, the well-known Australian naturalist. This species has produced flowers in this country, and is figured in the *Botanical Magazine* (t. 4848), under the name of *E. laurina*, its distinctness from that species not having been at first detected. [M. T. M.]

EUPTERIS. A sectional name applied by Agardh to the normal forms of *Pteris*, as distinguished from the groups represented by *P. aquilina* and *Lilobrochia vesperilionis*. It is applied by Newman as a generic name to the common Bracken, *Pteris aquilina*.

EUROTIA. A genus of *Chenopodiaceæ*, found in Russia and Siberia, and consisting of annuals with numerous branches, narrow entire leaves, and male flowers four or five together at the apices of small branches. The female flowers are solitary in the axils of the leaves, with the fruiting perianth limb growing out in the shape of two horns. [J. T. &.]

EURYA. A genus of *Ternstroemiaceæ*, composed of a number of evergreen shrubs or small trees found in India, China, and the adjacent islands, one species extending to the Feejee Islands. Their very minute and unisexual flowers, together with their small berried fruits, serve to distinguish them. The leaves are not unlike those of the tea plant, and the small white flowers are arranged in bundles in their axils. [A. A. B.]

EURYALE. Before the discovery of the *Victoria regia*, the Indian aquatic herb bearing the above name took rank, perhaps, as the noblest aquatic plant in cultivation, at least as to its leaves, which are much like those of the *Victoria*, but smaller, of a circular form, with very prominent and spiny veins on the rich purple under-surface: the upper surface being covered with rounded eminences, and of a dark green colour; and the size varying from one to four feet in diameter. The flowers are stalked, and have a calyx which is adherent below to the ovary, but above it is divided into four segments; the whole outer surface of this calyx is covered with strong spines; the petals are from twenty to thirty, smaller than the calyx, and of a purple colour; the stamens numerous, detached, all fertile. Fruit a round many-seeded berry, crowned by the persistent calyx. By these characters *Euryale* is distinguished from *Victoria*: both belong to the *Nymphæaceæ*. *E. ferox* is a native of the eastern part of Bengal and other quarters of India, where also it is frequently cultivated. Its seeds are starchy, and after being baked in sand are eaten by the natives. The Hindoo physicians, moreover, say that they possess medicinal virtues. The plant is also grown in China for the sake of its seeds. [M. T. M.]

EURYBIA. A genus of trees or shrubs of the composite family, confined to Australia, Tasmania, and New Zealand, and numbering upwards of sixty species. In many respects it is allied to *Aster* of the northern hemisphere, but the flower-heads do not contain nearly so many florets. The genus *Olearia* is their closest relationship, but there the pappus is double, while here it is single. They are very variable in appearance, some being large trees, others heath-like shrubs; and the daisy-like flower-heads are either solitary or numerous and panicled at the ends of the branches.

The silver-leaved Musk tree, *E. argophylla*, is a Tasmanian plant, attaining a height of twenty to twenty-five feet, with a girth of three feet. It is often seen in greenhouses as a shrub, where it is cultivated for the musky odour of its leaves. The wood of the tree is hard and takes a good polish. The larger-leaved species, which are chiefly confined to New Zealand and Tasmania, are much like this in appearance. The smaller-leaved ones are more common on the continent. Amongst these latter is *E. Dampieri*, found in great abundance by Dampier on one of the islands on the north-west coast, which now bears his name, and called by him Rosemary, from its resemblance to that plant. The name Daisy-tree is given to *E. hirta* in Tasmania. The name of the genus is that of the mother of the stars in Greek mythology. [A. A. B.]

EURYCLES. A genus of amaryllids, of the pancratiform group, found in the Eastern Archipelago and in New Holland. The bulbs are ovate; the leaves are broad and petiolated; and the scape, which

scarcely precedes the leaves, supports a many-flowered umbel of flowers, of which the tube is cylindrical, the limb regular, with equal segments, and the cup frequently imperfect. *E. amboinensis* is a stove bulb. *E. australasica*, or *Cunninghami*, a smaller species from Australia, is called the Brisbane Lily. [T. M.]

EURYCOMA. A genus of shrubs from Sumatra, referred by Planchon to the *Simarubaceæ*. The leaves are compound, and clustered at the extremity of the branches; the flowers are panicled, of a purple colour, and on some plants unisexual, on others perfect. *E. longifolia* is stated to be a valuable febrifuge. [M. T. M.]

EURYLOBIUM. A genus of *Stilbaceæ*, a family of corollidorsal dicotyledons, consisting of shrubs furnished with rough linear leaves; and terminal spicate white flowers of which the calyx is five-toothed, the corolla tubular, five-cleft, its two upper lobes larger and connate, the tube hairy within, and the stamens four in number. *E. latum*, the only species which is known, is a native of South Africa. [J. H. B.]

EURYNEMA. A small annual Arabian plant belonging to the *Zygophyllaceæ*. The flowers are on long stalks, which are bent in the middle; stamens five, their filaments dilated at the base, shorter than the anthers; ovary on a short stalk, with several ovules in each of its five compartments. Fruit capsular. [M. T. M.]

EURYOPS. A genus of *Compositæ*, nearly allied to *Senecio*, but differing in the nature of the involucre, which is composed of one series of scales having their margins more or less united, so that the involucre has the appearance of a toothed cup; while in *Senecio* the scales are free. The hairs of the short woolly pappus are curiously bent in a zig-zag manner, and their outer row is often deflexed. Of about thirty known species, one is found in Arabia, another in Abyssinia, and the remainder in S. Africa. They are handsome often resinous under-shrubs, very variable in appearance, some having the leaves smooth undivided pine-like, while in others they are wedge-shaped and toothed, and in a goodly number are pinnately-lobed and cut. The yellow-rayed flower-heads are small disposed in corymba, or large and solitary. *E. spectabilis* is called Rosebush by the colonists, because of a gummy exudation often seen on the stem and leaves. The handsome flower-heads are nearly four inches across. [A. A. B.]

EUSCAPHIS *staphyleoides* represents a genus of *Staphyleaceæ*, found in Japan, the Corea, and the Loo Choo islands. It resembles the common *Staphylea pinnata*, but it is easily recognised by its fruits, which are composed of three distinct bladder-like carpels; while in *Staphylea* the carpels are united so as to form one bladder capsule. The plant grows to a bush of about twelve feet high, and is furnished with opposite pinnate smooth leaves, which

are a good deal like those of the elder; and so also are the little white or yellowish flowers, which are numerous and disposed in terminal panicles. According to Siebolt, the plant is a favourite in Japanese gardens from its neat habit and its pretty bladdery fruits, which are of a red colour when ripe, and remain on the bush till winter approaches. It is prized also for its medical properties. The inner bark of the root is bitter and astringent, and is given in infusion in cases of dysentery and chronic diarrhoea. The leaves are not so efficacious, and have when fresh a disagreeable fishy smell. The name of the genus has reference to the pretty fruits, which open along the inner surface into the form of a little boat. [A. A. B.]

EUSTACHYS. A genus of grasses belonging to the tribe *Chlorideæ*; now included in *Chloris*. [D. M.]

EUSTEGIA. A genus of South African *Asclepiadaceæ*, containing a few species of decumbent branching perennial herbs, with opposite hastate leaves, and sub-umbellate flowers, the calyx of which is five-parted, and the corolla rotate and five-cleft, with a triple staminal crown: the divisions of the two inner whorls of the latter alternating with the lobes of the outer whorl and with the anthers. [W. C.]

EUSTIGMA oblongifolium. A small tree of Hong Kong, forming a genus of *Rhamnideæ*, distinguished chiefly by its long broad flat stigmas. The flowers are in small loose bruds, without any petals, except five small gland-like scales, and have five stamens, with obtuse two-valved anthers, and a half-inferior ovary.

EUSTOMA. A gentianaceous annual plant, native of North America, the flowers of which are white, with a deeply five-cleft calyx, a funnel-shaped corolla, with a contracted tube into the middle of which the stamens are inserted, and a large two-lobed stigma. [M. T. M.]

EUSTREPHYS. A genus of *Liliaceæ*, consisting of twining woody-stemmed plants, from the warmer parts of Australia, with elliptical or lanceolate leaves, and aggregate, pedicellate flowers, from the axils of the leaves and the end of the stem. The flowers are purplish, with a six-parted spreading perianth, the inner divisions fringed. [J. T. G.]

EUTASSA. A genus of coniferous plants, sometimes considered as a section of *Araucaria*, and including those species which have been called needle-leaved, such as *A. excelsa*, *Cunninghami*, and *Cookii*. [See *ARAUCHARIA*.] The species included under *Eutassa* are found in Australia, as at Norfolk Island, Moreton Bay, New Holland, and New Caledonia. As a sub-genus of *Araucaria*, sometimes called *Eutacta*, it is thus defined: scales of the cone broadly winged; a distinct basilar appendage to the seed; anthers six to ten-celled; cotyledons four. [J. H. B.]

EUTAXIA. A genus of pretty leguminous bushes found in Australia, but chiefly confined to the western portions, and comprising about eight species. They have much the appearance of *Putenca* or *Dalrymplea*, so well known as greenhouse plants, and differ from the former in the standard being about as broad as it is long, not broader; from the latter in the wings being shorter than the keel, not equal to it in length; and from both in having opposite leaves. They are for the most part much-branched low-growing bushes, with small often heath-like leaves, and axillary golden-yellow pea-flowers, two or three together. *E. myrtifolia* is a well-known greenhouse plant, whose slender stems are often seen thickly covered in the spring and summer months with the pretty yellow blossoms. [A. A. B.]

EUTERPE. A genus of palms of extremely graceful habit, having slender almost cylindrical stems, sometimes nearly a hundred feet in height, surmounted by a tuft of pinnate leaves, the leaflets of which are narrow, very regular and close together, and generally hang downwards. The bases of the leaf-stalks are dilated, and form cylindrical sheaths round a considerable portion of the upper part of the stem, giving it a woollen appearance. Ten species are known, all natives of the forests of tropical South America, where they grow together in large masses; some inhabiting moist swampy places on the banks of rivers, and others extending a considerable height up the sides of mountains. Their flower-spikes, which grow out horizontally from the stem below the swelling of the leaf-stalks, are simply branched, and the flowers are seated in little furrows upon the branches, with bracts at their base: the males and females being in pairs on the lower parts of the branches, while the males are most numerous on the upper parts. The fruits are of a dark purple colour, with a thin fibrous fleshy rind, enclosing a single seed.

E. edulis, the Assai Palm of Pará, grows in swampy places, particularly upon the banks of rivers within the tidal limits, where it attains a height of thirty or forty feet, and has a stem about as thick as a man's arm, slightly bulged out at the base, and generally curved or leaning over. Its fruit, which resembles a sloe in size and colour, has a thin coating of clotted fibrous flesh, from which the inhabitants of Pará manufacture a beverage called Assai. This is prepared by throwing the ripe fruits into a vessel containing warm water, and allowing them to soak for about an hour, and then, the water being partly poured off, kneading them thoroughly with the hands, fresh cold water being occasionally added, until all the pulp is detached, when the liquid is separated by straining, and is then fit for use. It is of a thick creamy consistence, and of a fine plum colour; and when sweetened with sugar, and thickened with cassava farina, it is very nutritious, and forms the greater part of the daily food of

a large number of the inhabitants of Pará, with whom Assai is a great favourite.

E. montana, a West Indian species, is cultivated in the hothouses of this country. It attains a height of about twenty feet, and has the base of its stem much swollen or bulged out. The central portion of the upper part of the stem, including the leaf-bud, of this and the other species is eaten either when cooked as a vegetable or pickled; but the tree must be destroyed in order to obtain it. [A. S.]

EUTHALES. A goodeniaceous genus, native of the south-west coast of Australia. It bears a tubular unequally five-cleft inferior calyx, a corolla cleft on one side at the apex with a bilabiate limb, free anthers, an undivided style, with the indurium of the stigma bilabiate, and a four-valved capsule. They are stemless herbs with long-stalked nearly entire leaves, and yellow flowers. [R. H.]

EUTHEMIS. A genus placed by some authors in *Sauvagesiacæ*, and by others in *Ochnaceæ*; differing from any in the former in its berried fruit, and from any in the latter in the fruit being composed of five united carpels, instead of numerous free carpels seated on a rounded and thickened receptacle. It is composed of a few beautiful little shrubs of the Malayan Archipelago, having smooth rounded stems furnished with alternate, elliptical or lance-shaped leaves beautifully and minutely serrulate at the margins, and the glossy blades exquisitely marked with a great abundance of parallel nerves running at right angles to the midrib, the spaces between them forming a beautiful network of veinlets. The flowers are white or tinged with purple, and disposed in axillary or terminal compound racemes. [A. A. B.]

EUTHYSTACHYS. A genus of *Subbaccæ*, entirely confined to S. Africa, and differing from its nearest ally, *Campylostachys*, in its straight, not curved, flower-spikes, whence the name of the genus, and in the little funnel-shaped corollas, which have a five-lobed instead of a four-lobed border. The only known species, *E. abbreviata*, is a smooth shrub, with henth-like four-ranked leaves thickly set on the stems, which terminate in a bracted spike of flowers. From the other genera this differs in having a calyx two of whose narrow segments are free, and three are united by their margins nearly to the summit. [A. A. B.]

EUTOCA. Annual herbs belonging to the *Hydrophyllaceæ*, of an erect habit, with rough leaves, and clusters of showy flowers. They are natives of North America, especially California, and are often grown in European gardens. The species mostly cultivated are *E. Menziesii* or *multiflora*, about eighteen inches high, with downy narrow leaves, either entire or lobed, and blue flowers. *E. viscidæ* is much branched, with heart-shaped deeply-cut toothed clammy leaves, and elongated racemes of blue flowers with a rose-coloured tube.

All the species are elegant and hardy. French, *Eutoqua* [C. A. J.]

EUTRIANA. A genus of grasses belonging to the tribe *Chlorideæ*. The inflorescence is for the most part in short racemose spikes; spikelets one-sided, alternately sessile, two to three-flowered; glumes two, keeled, the exterior larger; paleas two, of thickish texture, the inferior one three-cleft, the superior two-keeled. The score of known species are nearly all natives of South America. [D. M.]

EUTROPIS. An imperfectly described genus of *Asclepiadaceæ*, containing a single species, abundant in the Punjab, and forming a low twining fleshy lance-leaved undershrub. Its position is between *Calotropis* and *Paratropis*, having the angular and saccate sinuose corolla, membranaceous-lipped anthers and corona of the former; and the coronal leaflets cleft, and the pollen masses oval and ventricose, as in the latter. [W. O.]

EUXENIA. A genus of opposite-leaved Chilisan shrubs belonging to the composite family, and distinguished amongst its allies by each yellow flower-head being entirely composed of unisexual florets, all of which are tubular and five-toothed. The leaves, somewhat rough to the touch, are broadly oval or lance-shaped; and the globose yellow flower-heads usually grow two or three together, and are stalked at the ends of the twigs, and about half an inch across; the achenes are four-sided, without pappus. There are but two species. *E. grata*, with broadly oval leaves, is called by the Chilians Palo Negro; the other, *E. Matigui*, with lance-shaped leaves, is called Matigui. In both the leaves have a pleasant aromatic scent. [A. A. B.]

EVANESCENTI-VEBOSE. When lateral veins disappear within the margin.

EVAX. A genus of *Compositæ*, found in the Mediterranean region and in California, and composed of a few minute tufted annual herbs, having all their parts clothed with white wool like many of the cudweeds. In some species, as in *E. eriosphæra*, the whole plant does not exceed a quarter of an inch in diameter, and looks like a little ball of wool, whence the specific name. None of them exceed four inches in height, and it branched the branches are not more than two inches long, and terminate in a sessile flower-head surrounded by a rosette of oblong woolly leaves. The genus is chiefly distinguished among its allies by the elongated cone-shaped receptacle on which the florets are seated, and by the achenes being destitute of pappus. [A. A. B.]

EVELYNA. A numerous genus of South American epiphytall orchids, found growing on stems and trunks of trees, and readily known by their habit. They have erect wiry stems, one to three feet high, furnished with lance-shaped strongly ribbed leaves, and terminating in a few-flowered spike, the flowers enveloped by

long coloured bracts. The anther is two-celled, with eight pollen masses attached in fours to a very short caudicle with a triangular gland. *E. Carinata*, from the West Indies and French Guiana, is in cultivation. It has hispid stems a foot high, bearing long lance-shaped rough leaves, and bright yellow flowers with a beautifully fringed lip, almost hidden from view by long pink bracts. The genus bears the name of John Evelyn, an eminent patriot of the seventeenth century. *Elleanthus* is a synonym. [A. A. B.]

EVENING FLOWER. *Hesperantha*.

EVENNESS. An absence of elevations or depressions of the surface of any part or organ.

EVERGREEN. Continuing to bear green leaves all the year round.

EVERNIA. A small genus of lichens belonging to the usneoid tribe of *Parmeliaceae*, differing from *Ramalina* in their having a distinct under-surface to the flat erect branched fronds. They are sometimes prettily coloured, *E. favicans* and *vulpina* being of a beautiful yellow. *E. prunastri* is common in almost every thicket, and was formerly ground down with starch to make hair powder. It was used, at the instigation of Lord Dundonald, as a substitute for gun in cotton-printing. The yellow species contain two distinct colouring principles, and of these *E. vulpina* is said to be poisonous to wolves. *E. favicans* occurs in the south of England, but prefers warmer regions. [M. J. B.]

EVIA. A genus of Indian trees belonging to the *Anacardiaceae*, and, judging from description, so closely allied to *Spondias* as hardly to be distinguished from it. In *Evia* the filaments are awl-shaped, in *Spondias* thread-like. The fruits of *Evia* are edible. [M. T. M.]

EVITTATE. Not striped; destitute of vittae.

EVODIA. A genus of small rutaceous trees or shrubs, natives of tropical New Holland and the Indian Archipelago. The flowers are disposed in a paniced manner, and the flower-stalks are jointed in the middle. The parts of the flower are fourfold; the calyx persistent; the petals and stamens inserted at the base of a cup-shaped sinuous disc, which encircles the lower part of the four ovaries; the styles are four, becoming after a time fused into one. The fruit consists of four carpels which separate. *E. triphylla* is a stove-shrub with white flowers. [M. T. M.]

EVODIANTEUS. A genus of Pandanaceae, consisting of climbing somewhat palm-like plants, with cleft leaves, and monocious flowers arranged on stalked spadices, which are protected by three bracts. The perianth of the male flower, in which the distinguishing characters of the genus reside, is tubular, funnel-shaped and curved, the lower portion fleshy and triangular, the upper part bell-shaped, some-

what four-cornered, the limb very short and divided into several lobes, which are arranged in two rows, those of the outer row detached one from the other, those of the inner confluent, and provided with two teeth. The species are natives of Costa Rica, and greatly resemble those of *Carludovica*. [M. T. M.]

EVOLUTIO. The act of development.

EVOLVULUS. A considerable genus of *Convolvulaceae*, containing nearly sixty described species, natives chiefly of tropical America, but with one or two species from the warmer regions of the Old World. They are annual herbs, or have a perennial sometimes woody stock, and bear entire usually small nearly sessile leaves, and small flowers on axillary peduncles, or in terminal spikes or racemes, with the corolla campanulate or funnel-shaped, and angular or lobed. [W. C.]

EVONYMUS. *Euonymus*.

EVOSMIA. Tropical American shrubs or small trees, belonging to the *Cinchonaceae*, and having red flowers on slender axillary stalks, the corolla wheel-shaped, the stamens short. The fruit is a four-celled berry, crowned by the limb of the calyx, and having an agreeable odour. Sir R. Schomburgk says that cases of poisoning among the Indians have arisen from their using the wood of one of these plants, *E. corymbosa*, as a spit whereon to cook meat. [M. T. M.]

EWALDIA. A genus of begoniads, consisting of villous shrubby plants found in Brazil. Their staminate flowers have four, and the pistillate five sepals; anthers oblong, with united filaments; style persistent, its branches surrounded by a continuous papillose band, which makes two spiral turns; placentas undivided, their transverse sections being ovate. There are two known species, *E. ferruginea* and *E. lobata*; both of them formerly included under *Begonia*. The genus is named in honour of Dr. Ewald, of the Berlin Academy. [J. H. B.]

EX. See *E*. But *exo* signifies outwards or external, as in *exogens* and *exintine*, quasi exintine.

EXACUM. Erect branched annual herbs, with opposite sessile leaves and showy, blue, yellow, or white flowers, belonging to the *Gentianaceae*. The calyx is bell-shaped and four-cleft; the corolla salver-shaped, four-cleft, with an inflated tube; the capsule globose, two-celled, many-seeded, and splitting; the seeds minute. The plant described by Sir J. Smith under the name of *Exacum filiforme* is the *Gentiana filiformis* of Linnaeus and the *Oicendia filiformis* of modern botanists. French, *Gentianella*; German, *Kugelsöhre*. [O. A. J.]

EXADENUS. Tropical American annuals of the gentian family, with linear leaves and four-parted flowers, the corolla wheel-shaped, four-cleft, persistent, and each of its four segments provided on the outside

near the base with a sessile or stalked gland; capsule two-seeded. [M. T. M.]

EXALBUMINOSE. Having no albumen.

EXANTHEMATA. Skin diseases, blotches of leaves, &c.

EXAREOLATE. Not spaced out.

EXARISTATE. Destitute of an arista, awn, or beard.

EXASPERATE. Covered with hard short stiff points.

EXCENTRIC. Out of the centre.

EXCIPULE. That part of the thallus of a lichen which forms a rim and base to the shield. Also a similar part in certain fungi.

EXOCOCARIA. A small genus of spurge-woods consisting of about eighteen species, five or six of which belong to India, while the remainder are natives of the West Indies and Brazil. Most of them are woody shrubs, but a few form small trees. Their leaves are usually alternate, and either entire or with their margins toothed. The flowers are produced in catkins, some species having the males and females on distinct trees, and others bearing them in different parts of the same catkin. The individual flowers have neither calyx nor corolla, but their place is occupied by a variable number of little bracts. The fruit is three-celled.

E. Agallochum was at one time supposed to yield the fragrant resinous Indian wood called Agallochum, Aloes or Eagle wood, which is now, however, known to be the produce of *Aquilaria Agallochum*, a plant belonging to a totally different natural order. It is a native of India, where it is commonly found growing in salt marshes, and is sometimes employed for strengthening the banks of rivers in places within the influence of the sea water. It forms a small crooked tree or large branching shrub, with egg-shaped leaves, having round blunt teeth along their edges. The different sexes of the flowers are borne on distinct trees, the male catkins being very long, and either solitary or in pairs, while the females are much shorter, and sometimes three together. When the tree is wounded, a white milky juice flows from it, which is of a very acrid nature, producing inflammation and ulceration if allowed to come in contact with the skin. If it gets into the eyes it causes blindness. The wood is used for charcoal and firewood, but the smoke from it is said to cause intolerable pain in the eyes. [A. S.]

Gussonia of Sprengel from Brazil, and *Gymnanthes* of Swartz from the W. Indies, both monœcious, are included by modern authors in the present genus.

EXCRETION. Any superfluous matter thrown off by the living plant externally.

EXCURRENT. Running out. When a stem remains always central, all the

other parts being regularly disposed round it, as in the stem of a fir tree.

EXEMBRYONATE. A name given to cryptogams in consequence of their spores not containing an embryo like the seeds of phanogams. Though, however, the spores contain no embryo in the higher cryptogams, the archegonia contain a cell which goes through the same process of cell-division as the embryonic cell in phanogams, sometimes producing a distinct plant, sometimes only fruit. [M. J. B.]

EXILE. *Thevetia nerifolia*.

EXINDUSIATE. Without an indusium.

EXINTINE. The middle coat of a pollen grain, or if three or four coatings are present, then that next the intine.

EXOCARPUS. A genus of *Thymelaceæ* or *Daphnaceæ*, though some refer it to a separate order, *Anthoboleæ*. The flowers are sometimes perfect, at other times incomplete. The perianth is four to five-parted; stamens four to five, inserted on the base of the perianth, the filaments short; ovary free, one-celled; the style very short, and the stigma capitate. Fruit, a single-seeded nut, supported on an enlarged berried peduncle. Trees and shrubs of New Holland; found also sparingly at the Moluccas. They have scattered, often minute, leaves, which have no stipules; flowers small in axillary spikes, with caducous bracts, the flow or-stalk enlarging after fertilisation. There are four known species. [J. H. B.]

EXOCHORDA. A beautiful Chinese bush of the rose family, cultivated in England and quite hardy. It is remarkable for the structure of its fruits, which consist of five small compressed bony carpels adhering round a central axis in a star-like manner. From the axis or growing point stand five erect placental cords, which enter the carpels on their inner face near the top, suspending from the apex two thin seeds. These cords remain after the carpels have fallen, and have suggested the name of the genus. The only species, *E. grandiflora*, is a smooth bush with alternate nearly lance-shaped entire leaves, the stems terminated by racemes of handsome white flowers, which appear in May, and are nearly as large as those of the mock-orange; they have a bell-shaped calyx with a five-parted border, five rounded petals, and fifteen to twenty stamens. The plant bears also the name of *Spiræa grandiflora*. [A. A. B.]

EXOGENS. A name given to one of the great classes of the vegetable kingdom, corresponding with the Dicotyledons. The name Exogen is derived from the Greek words signifying 'outwards' and 'to grow,' meaning growing outwardly, and has reference to the mode in which the woody circles are produced, viz. from the centre outwardly towards the circumference. The age of an exogenous tree, particularly in temperate climates, may be

determined by counting the number of zones or circles in the woody stem, each circle marking one year's growth, and the last-formed circle being external. All the native trees of Britain are exogenous. The characters of the class are given under the head DICOTYLEDONS. [J. H. B.]

EXOGENOUS. Growing by addition to the outer parts of the stem.

EXOGONIUM. A genus of *Convolvulaceæ* very closely allied to *Convolvulus* and *Ipomœa*, from both which it is distinguished by its stamens projecting from the tube of the corolla; and from the former by its button-like stigma. *E. Purga*, a Mexican climbing plant, with salver-shaped purplish flowers, furnishes the true Jalap tubers of commerce. These are roundish, of variable size, the largest



Exogonium Purga.

being about as large as an orange, and of a dark colour. They owe their well known purgative properties to their resinous ingredients, and hence worm-eaten tubers are more valued than sound ones, as the insects eat the farinaceous and woody portions of the tuber and leave the resin. Various species of *Ipomœa* are also said to furnish a spurious kind of jalap. [M. T. M.]

EXORHIZE. A name given to exogenous or dicotyledonous plants, from the mode in which the young root sprouts when the seed is placed in the ground. The term is derived from the Greek *exo* outwardly, and *rhiza* a root, meaning root pushing outwardly, in allusion to it pushing out directly in a tapering manner, and not coming out in the form of numerous rootlets through sheaths as in the *Endorhizeæ*, or monocotyledons. [J. H. B.]

EXORHIZAL. That kind of germination in which the point of the radicle itself becomes the first root.

EXOSMOSE. That force which causes a viscid fluid lying on the outside of an

organic membrane to attract watery fluid through it.

EXOSTEMMA. A genus of tropical trees or shrubs of the *Cinchona* family. They have whitish or pink flowers of a funnel-like form, the segments of the limb linear and rolled back; the five stamens project to a considerable distance from the corolla, hence the name of the genus. The ovary is two-celled, with a long style, and almost undivided stigma; capsule two-seeded: some of the kinds are in cultivation. The barks of the West Indian species possess febrifugal qualities, as in the closely allied *Cinchona*. [M. T. M.]

EXOSTOME. The aperture in the outer integument of an ovule.

EXOSTOSIS. A name given to a diseased condition in plants, in which hard masses of wood are produced, projecting like warts or tumours from the main stem or roots. Most cases seem to arise from tissues developed round adventitious buds which do not properly break through the bark. These are sometimes completely concealed, as the knurs in beech, which are often quite free. Sometimes there is a continued multiplication of fresh buds, and in proportion as these are more or less developed, we have the besom-like hedges on birch, or the rough tumours on elms. Cypress knees, which sometimes grow to a great size, and when hollowed are used for beehives in the United States, grow by a similar disease on the roots of *Taxodium*. Fine specimens may be seen at Sion. The tumour at the junction of a graft with its stock seems to arise from some different cause, which is not at present ascertained. [M. J. B.]

EXSERTED. Projecting beyond the outline of an organ.

EXSUCCOUS. Juiceless.

EXTINE. The outer coat of a pollen grain.

EXTRA. On the outside of, or beyond; as *Extra-axillaris*, beyond the axil; *Extra-foliaris*, beyond a leaf; *Extra-medianus*, beyond the middle.

EXTRORSE. Turned outwards from the axis of growth of the series of organs to which it belongs.

EYE. A term in gardening for a leaf-bud; also for the centre or the central markings of a flower.

EYEBRIGHT. *Euphrasia*.

EYSENHARDTIA. A genus of *Leguminosæ* nearly related to *Amorpha* and *Dalea*, but differing from the former—which has only one petal, and that the standard—in its corolla of five petals, and from the latter, in its little sabre-shaped pod being much longer than the calyx.

E. amorphoides is a much-branched shrub or small tree, five to twenty feet high, found in Texas and Mexico; its slender ash-coloured branches are furnished with

an abundance of pinnate leaves, and the little white pea-flowers are very numerous, and disposed in dense racemes at the ends of the twigs, succeeded by thin sabre-shaped pods. The only other species, *E. spinosa*, also a Mexican bush, has the ends of its flower spikes hardened into spiny points after the flowers have fallen. The genus bears the name of C. W. Eysenhardt, once professor in the university of Königsberg. [A. A. B.]

FAAM, or FAHAM. *Angræcum fragrans*.

FABA. The typical genus of the order *Fabaceæ* or *Leguminosæ*. It consists of annual plants rising from two to four feet high, having smooth quadrangular hollow stems; alternate pinnated leaves, formed of from two to four pairs of entire oval leaflets; and numerous large white or violet highly fragrant blossoms, marked with dark violet-coloured veins and blotches on the petals. The seeds are produced within a long green pod, or legume, and are roundish kidney-shaped, and more or less depressed or flattened.

The common Bean, *F. vulgaris*, is a hardy annual, generally believed to be a native of the shores of the Caspian Sea, as well as of Egypt and other parts of the East. It is a vegetable of very great antiquity, and is noticed in sacred history upwards of a thousand years before the Christian era (2 Samuel xvii. 28). The earlier Greeks and Athenians are stated to have cultivated beans, and offered them as a sacrifice to their gods—a practice which, according to Pliny, was in later times followed by the Romans. One of the noblest families of ancient Rome—the Fabii—derived its name from its ancestors having been celebrated for the great success which attended their culture of beans. Yet, strange to say, the most superstitious notions were entertained respecting their composition, and fitness for being used as food for man, so that some of the ancient philosophers enjoined their followers to abstain from eating them. They appear to have been known in this country from time immemorial; when, or how, they were introduced we have no information; it is, however, generally supposed to have been by the Romans.

Among the industrious classes, beans when full grown are a favourite vegetable, and considered to be very nutritious to persons with strong constitutions, but to those of a delicate habit they are not to be recommended unless in a very young state, when, if properly dressed, they form an excellent dish. There are several varieties in cultivation, which chiefly differ from one another in being tall or dwarf, early or late; or in the colour of the beans being brownish red, or green. [W. B. B.]

FABACEÆ. The bean or leguminous family, a natural order of calycifloral dicotyledons, better known by the name *Leguminosæ*, under which head their peculiar characteristics are described. The plants are distinguished either by their pa-

pillonaceous (pea-like) flowers, or by their fruit being a legume: in other words, a pod like that of the pea or bean. [J. H. B.]

FABAGELLE. (Fr.) *Zygophyllum*.

FABIANA. A genus of South American shrubs, belonging to the *Solanaceæ*. They have alternate scattered or overlapping leaves, and extra-axillary flower-stalks, bearing a single flower, with a tubular five-cleft calyx, and funnel-like corolla, whose tube is gradually dilated upwards, and whose limb is divided into five short lobes. The five stamens are included, and of unequal length; the anthers open by slits; the capsule is two-celled, included within the persistent calyx, and divided by two valves. *F. umbroscata* is a neat half-hardy shrub, of fastigate habit, with white flowers, and has much of the general appearance of a leath. [M. T. M.]

FABRICIA. A genus of *Myrtaceæ*, consisting of New Holland shrubs, with broad oblong glaucous dotted leaves, and solitary axillary white or yellow flowers; with a bell-shaped adherent calyx-tube, and a five-cleft deciduous limb; the five petals roundish, attached to the throat of the calyx; numerous stamens, inserted with the petals, and shorter than they; and a partly-adherent many-celled ovary, each compartment containing several ovules. The fruit is a capsule opening at the top through the backs of the valves. Two or three species are in cultivation. [M. T. M.]

FABRICOUPLIER, or FALABRIQUIER. (Fr.) *Celtis australis*.

FACELIS. A little annual composite plant found in Chili, and also on the opposite side of the continent. It resembles a cudweed in appearance, and differs from its allies in having the tubular ray-florets female and in many series, and those of the disk fewer in number, more slender, and perfect. The weak stems seldom exceed eight inches high, and are furnished with numerous narrow somewhat wedge-shaped leaves; and the little narrow flower-heads, containing pink-tipped florets, are clustered at the ends of the stem. The achenes are silky, and crowned with a pappus of one series of feathery hairs. [A. A. B.]

FACIES. The general appearance of a plant.

FADYENIA. A curious West Indian aspidioid fern, remarkable for having its small sterile recumbent fronds broader than the fertile, and attenuated and proliferous at the point, the fertile being erect and blunt, almost covered by the two rows of sori. The only species is *F. prolifera*, a dwarf plant but a few inches in stature, both forms of fronds being simple. The fronds have netted veins, and are remarkable for the large size of the sori, and the very much elongated stinus of the indusium, which is reniform.

The name *Fadyenia* has also been pro-

posed by Endlicher, for the *Garrya Fadyenii* of Hooker. [T. M.]

PAFEER. One of the Arabian names of *Papyrus*.

PAGARA. A genus of *Rutaceæ*; *Xanthoxylum*, now united with *Xanthoxylum*.

PAGASTRUM. This name was applied by Don to a South African shrub, which has since been referred by Professor Harvey to *Xanthoxylum*, and by Professor Oliver to *Clausena*. According to the former author, it is 'characterised by a four-parted tetrandrous flower, and a single carpel.' *P. capensis* (X. *capensis* of Harvey) is a large much-branched shrub, or small tree, the branches and twigs armed with strong horizontal prickles, usually placed under the insertion of the petiole. The fruit is called Wild Cardamom by the colonists, and is sometimes prescribed for flatulency and paralysis. [J. Br.]

PAGE. (Fr.) *Fagus sylvatica*.

PAGELIA. A genus of *Leguminosæ*, of only one species, *P. bluminoæ*, a twining, strong-smelling shrub, native of S. Africa. It is more or less clothed with yellowish clammy hairs, and has ternate leaves somewhat like those of *Phaseolus multiflorus*, but smaller, with nearly triangular leaflets. The pretty yellow pea blossoms are borne on long axillary racemes. The chief distinguishing characters of the genus are, the deeply divided calyx, the obtuse keeled petal longer than the wings, and the two-seeded turgid pods, about half an inch long. [A. A. B.]

PAGHUREH of Avicenna. *Xanthoxylum hastile*.

PAGOPYRUM. The common Buckwheat and a few other species, of Asiatic origin, are included in this genus of *Polygonaceæ*. They are herbaceous plants, with erect branching stems, and heart-shaped or halbert-shaped leaves. The perianth is cut into five equal divisions, and does not increase in size along with the fruit, like that of some allied plants; and the eight stamens alternate with eight round glands. The fruit is three-sided, and not enveloped in the perianth, like that of *Polygonum*; the seed is mealy.

The common Buckwheat, or Brank as it is sometimes called, *F. esculentum*, is an annual plant with a branched stem, growing two or three feet high. It is a native of central Asia, but has been so long extensively cultivated, that it has become naturalised in various parts of Europe. In this country it is only grown to a small extent, and principally for the purpose of affording food for pheasants. On the continent, however, and also in some parts of the United States, Buckwheat is largely employed for human food; and the thin cakes made of it are said to be very delicious. As a food, its nutritious properties are greatly inferior to wheat; but it ranks much higher than rice. In France it is called Sarrasin and Blé noir. The plant is still sometimes called *Polygonum Pagopyrum*. [A. B.]

PAGEEA. A genus of Asiatic or Polyne-

sian *Loganiaceæ* consisting of thick-leaved trees or shrubs, sometimes found growing on loose mould that may have gathered on the stems or forks of other trees. Their chief distinguishing features consist in the border of the tubular corolla being five, rarely six to seven-lobed, the lobes twisted in the bud; and in the fruit being a two-celled berry. From most genera in the family they are readily recognised by the remarkably thick and leathery texture of their smooth and entire, usually elliptical or lance-shaped leaves. The flowers are white or cream-coloured, and often fragrant; in some very large, and thick in texture, with a trumpet-like tube, two to five inches long (in *F. auriculata*, one of the largest-flowered species, with a border six inches across); in others, where the flowers are very numerous and disposed in terminal corymbs, the corollas are much smaller. The flowers are succeeded by berries, which in the larger-flowered species are of the size of a duck's egg, and contain numerous seeds. Altogether they have much the appearance of *Gardenia*, and are chiefly distinguished by their ovaries being superior. Upwards of thirty species are known. The name *Cyrtophyllum* is sometimes given to some of the smaller-flowered species. [A. A. B.]

PAGER. A genus of *Corylaceæ*, distinguished by having triangular nuts enclosed within a spiny capsule or husk. The most important of the few species is *F. sylvatica*, the Common Beech, a well-known European tree, and a native also of Armenia, Palestine, and Asia Minor. It forms a large and very handsome tree, especially when growing on chalky hills; and though its timber is not of the best quality, it is found extremely useful for a variety of purposes, and is also one of the best kinds of wood for fuel. The nuts or mast are, like acorns, much sought after by swine; and in some parts, where the tree abounds, the animals are driven into the beech-woods in autumn. A useful oil is also expressed from the nuts. For a full account of the uses of the Beech, the reader is referred to Loudon's *Arboretum Britannicum*.

There are some very ornamental varieties of the common Beech to be met with in cultivation; as, for example, the Purple Beech, with purple leaves; Copper Beech, with copper-coloured leaves; and Fern-leaved Beech, with the leaves variously cut into narrow segments resembling the fronds of a fern. [T. M.]

FAIR MAID OF FRANCE. *Ranunculus acutifolius* fl. pleno.

FAIRY RINGS. Green circles or parts of circles in pastures produced by various species of agarics and other *Fungi*. They appear to be generated in the following manner:—A patch of spawn, according to the fashion of many *Fungi*, spreads centrifugally in every direction, and produces a crop at its extreme edge. The soil in the inner part of the disc is exhausted, and the spawn there dies or becomes

effete. The crop of fungi meanwhile perishes and supplies a rich manure to the grass, which is in consequence of a vivid green: the parts within the ring, in consequence of former exhaustion, looking dry and parched, and those beyond less luxuriant from comparative want of manure. Thus, year after year, the ring increases in diameter till it attains dimensions of many yards across. If any accident happens to the spawn in the first instance, a part only of the circle may be developed. Rings of fungi often occur in woods, but as they grow amongst decayed leaves, the circles are seldom observed by any except professed mycologists. *Marasmius oreades*, *Agaricus gambosus*, and *A. arvensis* are amongst the most prominent inhabitants of Fairy Rings. [M. J. B.]

FALCATE, FALCIFORM. Plane and curved in any degree, with parallel edges, like the blade of a reaper's sickle; as the pod of *Medicago falcata*.

FALCONERIA. The name of a few Indian trees of the spurgewort family, very nearly related to *Sapium*, and chiefly differing in having the male and female flowers on different instead of on the same tree. The species are trees of considerable dimensions, sometimes attaining a height of sixty feet, the stems abounding in a milky juice, the branches furnished with stalked smooth leaves, and the inconspicuous green flowers arranged in axillary tufted, erect or drooping spikes. The fruits are about the size of a pea. The genus bears the name of Dr. H. Falconer, an English botanist and zoologist, distinguished for his discoveries in fossil zoology. It is referred to the *Stilaginaceæ* by Lindley, but that family is now pretty generally acknowledged to be a mere group of *Euphorbiaceæ*. [A. A. B.]

FALKIA. A genus of *Convolvulaceæ*, containing two species, one of which is scattered pretty generally over the world, and the other confined to Mexico. They are small creeping pubescent herbs, without milky juice, and have reniform petiolate entire leaves, and cbracteate one-flowered axillary peduncles. The calyx is five-parted, and the corolla campanulate and five-cleft. [W. C.]

FALLING STARS. The popular name in many districts of the common *Nostoc*, which often surprises by its sudden appearance on gravel walks, after a shower, where it was unnoticed just before. Dryden alludes to this substance when singing of fairies in the following lines, more fanciful than truly poetical:—

And lest our leap from the sky prove too far,

We slide on the back of a new falling star,

And drop from above
In a jelly of love.

[M. J. B.]

FALL POISON. *Antianthum muscatolicum*.

FALSE BARK. That layer on the outside of the stem of an Endogen, which consists of cellular tissue into which fibrous tissue passes obliquely.

FALSE-NERVED. When veins have no vascular tissue, but are formed of simple elongated cellular tissue; as in mosses, seaweeds, &c.

FAN-SHAPED. Planted like a fan; as the leaf of *Borassus flabelliformis*.

FAN-VEINED. When the veins or ribs are disposed like those of a fan.

FARIAM. In rows: thus *bifariam*, in two rows; *trifariam*, in three rows, &c.

FARINACEOUS. Having the texture of flour, as the albumen of wheat.

FARINOSE. Covered with a white mealy substance; as the leaves of *Primula farinosa*.

FAROUCHE. (Fr.) *Trifolium incarnatum*.

FARRO. Polish wheat, *Triticum polonicum*.

FARSETIA. A genus of *Cruciferae*, allied to *Alyssum*, differing by the oblong pouch containing numerous seeds which have the funicle free from the body of the seed. They are natives of the Mediterranean region and temperate Asia. *Berteroa* is scarcely different, the chief distinction being that the partition of the pouch is destitute of the nerve which occurs in *Farsetia*; and *Aubrieta* has as little claim to be separated on account of its seeds not being margined. Small plants, often shrubby at the base, with white, yellow, or purple flowers. [J. T. S.]

FASCIA (adj. **FASCIATE**). A cross band of colour.

FASCIATED. When a stem becomes much flattened instead of retaining its usual cylindrical figure, as in the cockscomb, &c.

FASCIARIUS. Narrow; very long, with the two opposite margins parallel, as the leaves of the seawrack.

FASCICLE, FASCICLED, FASCICULATED. When several similar things proceed from a common point, as the leaves of the larch, or the tubers of a dahlia.

FASCIULATO-RAMOSE. When branches or roots are drawn closely together so as to be almost parallel.

FASTIGIATE. Tapering to a narrow point, pyramidal; as the branches of the Lombardy poplar.

FAT PORK. *Clusia flava*.

FAU. (Fr.) *Fagus sylvatica*.

FAUREA. A genus of *Proteaceæ*, containing a single species, *F. saligna*, distinguished by having a club-shaped tubular silky calyx with a four-cleft limb; four stamens, with short filaments, attached to the segments of the calyx; and an ovary

covered with silky hairs, and crowned with a filiform style and oblong stigma. The fruit is a bearded nut, tipped with the permanent style. It is a small tree of South Africa, with alternate lanceolate acute subfalcate shining leaves, and bearing its flowers in solitary terminal densely crowded spikes. [R. H.]

FAUSSE-AIRELLE. (Fr.) *Gaylussacia*. — **CAMPANULE.** *Michauxia campanuloides*. — **GESSE.** *Vicia lathyroides*. — **IRIS.** *Moraea trichoides*. — **JOUBARBE.** *Gregoria Vitaliana*. — **LYCHNIDE.** *Nyctorhiza Lychnidea*. — **PAQUERETTE.** *Bellium bellidoides*. — **RENOCULE.** *Anemone ranunculoides*. — **VIPELINE.** *Onoma echinoides*.

FAUX. The orifice of a calyx or corolla.

FAUX-ACACIA. (Fr.) *Robinia*. — **ARMERIA.** *Armeria Pseudo-Armeria*. — **BAGUENAUDIER.** *Coronilla Emerus*. — **COTONNIER.** *Gomphocarpus fruticosus*. — **DRAGONNIER.** *Yucca Dracoms*. — **EBENIER.** *Cytisus Laburnum*. — **FRAISIER.** *Potentilla Fragariastrum*. — **HELIOTROPE.** *Tournefortia*. — **INDIGO.** *Amorpha fruticosa*. — **JALAP.** *Mirabilis Jalapa*. — **LISERON.** *Polygonum Convolvulus*. — **MUSCARI.** *Muscari monstrosum*. — **NARCISSE.** *Narcissus Pseudo-Narcissus*. — **NEFLIER.** *Pyrus Chanemespilus*. — **NERPEUN.** *Hippophae rhamnoides*. — **PARTHENIUM.** *Anthemis parthenioides*. — **PERSIL.** *Ethusa Cynapium*. — **PIMENT.** *Solanum Pseudo-capsicum*. — **PISTACHIER.** *Staphylea pinnata*. — **PLATANE.** *Acer Pseudo-Platanus*. — **SAPIN.** *Abies excelsa*. — **SÈNÉ.** *Colutea arborescens*. — **TEUCRIUM.** *Verbena teucrioides*. — **THUJA.** *Cupressus thyoides*. — **TREMBLE.** *Populus tremuloides*. — **TURBITH.** *Thapsia villosa*.

FAVA DE S. IGNACIO. *Antispermia Passiflora*.

FAVELLÆ. A term applied by algologists to those capsules in *Algae* in which the nucleus, consisting of many spores, is formed within a single mother-cell, as in *Ceramium*. When several contiguous cells are fertile, the group is called a *favellidium*. Sometimes a coecidium, when enclosing a multitude of nuclei, or favellus, is called a *favellidium*. [M. J. B.]

FAVEOLATE. Honeycombed. The same as *Favose*.

FAVIOLLE À BOUQUETS. (Fr.) *Phacelus multiflorus*.

FAVOSE. Excavated in the manner of a section of honeycomb, as the receptacle of many composites.

FAVOSO-AREOLATE. Divided into spaces resembling the cavities of honeycomb.

FAVOSO-DEHISCENT. Appearing honeycombed after dehiscence, as the anther of *Viscum*.

FAYARD. (Fr.) *Fagus sylvatica*.

FAY-BERRY. *Ribes Grossularia*. The same as *Fea-berry*.

FEA-BERRY. *Ribes Grossularia*.

FEATHER-FEW or FEATHER-FULLY. *Pyrethrum Parthenium*.

FEATHERFOIL. *Hottotia*.

FEATHER-VEINED. Having veins which proceed from a midrib at an acute angle.

FEATHERY. Consisting of long hairs which are themselves hairy, as the pappus of *Leontodon Taraxacum*.

FEDIA. A synonym of *VALIMIANELLA*: which see.

FÉEÀ. A small genus of hymenophyllid fungi, separated from *Trichomanes* by their dimorphous fronds, and from *Hymenostachys*, which has dimorphous fronds, by their free veins. They are dwarf tropical subpellucid plants, with the sterile fronds pinnatifid or pinnate, and the fertile ones reduced to a mere spike with marginal cysts containing the spore cases. [T. M.]

FEELER-WORT. *Catasetum*.

FEIJOA. A Brazilian genus of *Myrtaceæ*, having the habit of *Persea*, from which it is easily distinguished by its stamens. There is but one species. It is remarkable in the order for its albuminous seeds. [J. Br.]

FELICIA. A genus of *Compositæ*, separated from *Aster* chiefly by its short universal withering pappus, the hairs of which are filiform, flexuose, and serrulate. They are herbs or suffrutescent plants of the Cape of Good Hope, with branching stems, narrow alternate leaves, and flower-heads with usually white or blue rays. One of the species, *F. tenella*, is sometimes cultivated among annuals under the name of *Aster tenellus*. [T. M.]

FELLEUS. Bitter as gall.

FELONWORT, or FELON-WOOD. *Solanum Dulcamara*, from its former use in curing whitlows or felons.

FELWORT. *Suertia*; also an old name for *Gentiana lutea*.

FELOUGNE. (Fr.) *Chelidonium majus*.

FEN-BERRY. *Oxyococcus palustris*.

FENDLERA. The shrub so named in honour of a well-known botanical collector, belongs to the order *Philadelphaceæ*. The tube of the calyx is marked with eight ridges, the limb four-parted; petals four, deltoid, stalked, irregularly notched; stamens eight, the filament prolonged beyond each side of the anther, into a linear lobe, and the anthers provided with a

small spiny point; styles more or less consolidated, permanent on the four-celled capsular fruit. [M. T. M.]

FENESTRA (adj. **FENESTRATE**). An opening through a membrane, like a window in a wall.

FENNEL. *Feniculum vulgare*. —, **AZOREAN**. *Feniculum dulce*. —, **GIANT**. *Ferula*. —, **HOG'S**, or **BOU**. *Peucedanum officinale*. —, **SWEET**. The *Finocchio*, *Feniculum dulce*.

FENNEL-FLOWER. *Nigella*.

FENOUIL. (Fr.) *Feniculum*. — **RÂTARD**. *Anethum graveolens*. — **DE MER**. *Orithium maritimum*. — **DE PORC**. *Peucedanum officinale*.

FENUGREEK. *Trigonella Fœnum græcum*.

FENU-GREC. (Fr.) *Trigonella Fœnum græcum*.

FENZLIA. A genus of tropical New Holland shrubs, belonging to the *Melastomaceæ*. They are covered by bran-like scales, and have thick entire leaves, and rose-coloured flowers on short axillary stalks. The calyx has two bracts at the base, a globose tube, and a limb of five acute, spreading segments; petals five; stamens numerous, shorter than the petals, with globular anthers, whose two cells are separated by a thickened connective, and which open by long clefts. The fruit is a berry, crowned by the calyx-limb, one-celled, one-seeded by abortion. [M. T. M.]

The name *Fenzlia dianthiflora* is applied in gardens to a beautiful dwarf Californian annual belonging to the *Polemoniaceæ*, which in cultivation forms a closely ramified spreading tuft, bearing a profusion of its delicate rosy-tinted flowers with a yellow throat, surrounded by five dark-coloured dots. These flowers have a tubulose-campanulate deeply five-cleft calyx, and a funnel-shaped corolla, with broad spreading obovate dentate limb segments. This plant is more correctly called *Gilia dianthoides*. [T. M.]

FER, **FERUS**. A Latin termination signifying the carrying of something, as *florifer*, the carrier of flowers.

FERRUGINOUS. Light brown, with a little mixture of red.

FERDINANDA. A genus of yellow-flowered Mexican bushes of the Composite family, nearly allied to *Helopsis*, from which they are easily recognised by having numerous small flower-heads arranged in corymbs at the ends of the branches, instead of single and large flower-heads. The alternate or opposite leaves are rough; and the flower-heads have an involucre of one to three series of narrow scales, the outer row of florets being strap-shaped and female, the inner tubular and perfect. The achenes are four-sided, each embraced by a chaffy scale, and seated on a conical receptacle; the pappus is entirely absent,

or present in the outer florets in the form of two to five scales. [A. A. B.]

FERDINANDEZIA. A genus comprising ten species of epiphytal orchids from tropical America. They differ more in habit than character from *Oncidium*; and have slender stems thickly covered with overlapping triangular leaves, the edges, instead of the flattened portion, pointing upwards; the flowers are small, yellow, and disposed in axillary racemes or panicles from the axils of the upper leaves; the two pollen-masses are pear-shaped, without a caudicle, and attached to a small ovate gland. The species have much in common. *Lochneria* is another name for the genus. [A. A. B.]

FERDINANDUSA, or **FERDINANDIA**. These names both refer to the same genus of *Cinchonaceæ*, which consists of Brazilian trees, with leathery leaves, and the flowers in panicles, with a funnel-shaped corolla, whose limb is divided into four ovate notched revolute segments, and four stamens slightly protruding from the corolla. The fruit is a two-celled capsule bursting by two valves, which separate also from the calyx, which is cleft lengthwise; the seeds are winged. [M. T. M.]

FER-Â-CHEVAL. (Fr.) *Hippocrepis unisiliquosa*.

FERN, **REECH**. *Polypodium Phegopteris*. —, **BLADDER**. *Cystopteris*. —, **BRISTLE**. *Trichomanes*. —, **BUCKLER**. *Lastrea*. —, **CINNAMON**. *Osmunda cinnamomea*. —, **CLIMBING**. *Lygodium*. —, **FEMALE**. *Athyrium Filix-femina*; also *Lastrea Thelypteris*, and *Pteris aquilina*. —, **FILM**. *Hymenophyllum*. —, **FLOWERING**. *Osmunda*, and also *Ayenia*. —, **HARD**. *Blechnum Spicant*. —, **HARE'S-FOOT**. *Davallia canariensis*. —, **HOLLY**. *Polystichum Lonchitis*. —, **LADY**. *Athyrium Filix-femina*. —, **LIP**. *Chellanthus*. —, **MAIDEN-HAIR**. *Adiantum Capillus Veneris*. —, **MALE**. *Lastrea Filix-mas*. —, **MARSH**. *Lastrea Thelypteris*. —, **MOUNTAIN**. *Lastrea montana*. —, **OAK**. *Polypodium Dryopteris*. —, **OSTRICH**. *Struthiopteris*. —, **PARSLEY**. *Allosorus crispus*; also sometimes applied to *Athyrium Filix-femina crispum*. —, **POD**. *Ceratopteris thalictroides*. —, **RATTLESNAKE**. *Botrychium virginicum*. —, **ROYAL**. *Osmunda regalis*. —, **ROYAL of Calabar**. *Loblochia Orreri*. —, **SCALE**. *Ceterach*. —, **SENSI**. *Tive*. *Onoclea sensibilis*. —, **SHIELD**. *Aspidium*. —, **STONE**. *Allosorus crispus*. —, **SUN**. *Polypodium Phegopteris*. —, **SWEET**. *Lastrea fragrans* and *montana*. —, **SWORD**. *Xiphopteris*. —, **TARA**. *Pteris esculenta*. —, **WALKING**. *Campyosorus rhizophyllum*. —, **WALL**. *Polypodium vulgare*. —, **WATER**. *Osmunda*. —, **WOOD**. A name applied to the American *Lastreas*.

FERN-BUSH, **SWEET**. An American name for *Comptonia asplenifolia*.

FERN-ROOT, **TASMANIAN**. The caudex of *Pteris esculenta*.

FERNS. The highest of the sub-groups of *Acrogens*, technically called *FILICES*: which see.

FERONIA. The Wood-apple or Elephant-apple tree of India, *F. elephantum*, is the only species of this genus of *Aurantioideae*. It is common throughout India, Burmah, Ceylon, and Java, and forms a large tree, yielding a hard, heavy wood, of great strength but not durable. When wounded, there flows from it a transparent gum, which is mixed with other gums and sent to this country under the name of East Indian Gum Arabic. The tree has pinnate leaves composed of shining stalkless leaflets, and the flowers are arranged in racemes, containing a mixture of male, female, and perfect blossoms; these have a flat five-toothed calyx, five (occasionally four or six) white spreading petals, ten stamens, and a five-celled ovary. The fruit, which is about the size of an apple, has a very hard, rough, woody rind, and contains a pulpy flesh with numerous seeds imbedded in it. This pulp is eatable, and, like that of the Bengal quince, which is the fruit of a closely allied tree, it exerts a beneficial action in cases of dysentery and diarrhoea; a jelly resembling black currant jelly is also prepared from it. The leaves have an odour like that of anise, and the native Indian doctors employ them as a stomachic and carminative. [A. S.]

FERRARIA. A genus of Cape *Iridaceae*, with tuberous rhizomes, simple or paniculately branched stems, two-ranked ensiform thick nerveose glaucous leaves, and very fleeting flowers, which consist of a six-parted perianth, with oblong undulated spreading or reflexed segments, the exterior ones being broader than the others; three stamens, with the filaments connate into a tube; and a three-celled many-seeded ovary, surmounted by a filiform style, and three dilated petaloid multifid stigmas. The flowers are highly curious, but dingy, and very fugacious. [T. M.]

FERTILE. Having the power of producing perfect seeds; or fertilised; or producing a large quantity of seeds.

FERULA. A genus of *Umbelliferae* characterised by the presence of compound umbels, variable involucrea, a five-toothed calyx, ovate pointed petals, and compressed fruits: each half of which is surrounded by a membranous border, and has three thread-like ridges, the two lateral ones losing themselves in the wing-like margin. There are three or more channels for oil in the furrows between the ridges, and four on the surface that touches the other half of the fruit.

The species are natives of the Mediterranean and Persian regions, with tall-growing pithy stems and deeply-divided leaves, the segments of which are frequently linear. *F. communis* attains sometimes in English gardens a height of fifteen feet, and is known under the name of Giant Fennel. It is a common plant in

Sicily, where the pith in the interior of the stem is used for tinder. *F. persica*, a dwarf species, was formerly supposed to be the source of asafoetida, but the greater portion of this drug is the produce of *Narthex Asafoetida*. *F. orientalis* and *F. tingitana* are said to yield African Ammoniacum, a gum-resin like asafoetida, but less powerful. Sagapenum, a similar drug, is supposed likewise to be the produce of some species of this genus, but great uncertainty prevails on the subject. [M. T. M.]

FESTUCA. A very extensive genus of grasses, typical of the tribe *Festuceae*. The species have either a panicle or racemed inflorescence, with flattened spikelets, which are two to many-flowered; glumes two, unequal, thinner than the pales, which latter are ribbed, rounded on the back, acute, with the setae terminal or nearly so; stamens three, rarely one to two; styles two, short; stigmas feathery. The genus embraces about 200 species, which have a wide geographical range over nearly the whole surface of the globe, and are divided into four sections, namely, *Nardurus*, *Sclernochloa*, *Vulpia*, and true *Festuceae*. There are nine of the species natives of Britain, and among them some of our most valuable meadow and pasture grasses. *F. pratensis*, the Meadow Fescue, and *F. durtuscula*, the Hard Fescue, are both excellent kinds, and highly prized for agricultural purposes. *F. ovina*, the Sheep's Fescue, is important for subalpine pastures, where it grows freely, and is much relished by sheep. It is also useful for forming lawns, where the grass is required to be kept short and neatly dressed. Many of the foreign species are also useful for the same purposes, especially *F. heterophylla*, *Halleri*, and *valesiaca*. Although the Fescue grasses are rather remarkable among the family, for the large quantity of saccharine matter in their composition, one species, *F. quadridentata*, is said to be poisonous in Quito, where it is called Pignonil. See *Linley's Vegetable Kingdom*, p. 113. [D. M.]

FETID. Having a disagreeable smell of any kind.

FÊTUQUE. (Fr.) *Festuca*. — **DES BREBIS.** *Festuca ovina*. — **TRAÇANTE.** *Festuca rubra*.

FEVILLÆA. A genus of tropical American *Cucurbitaceae*, belonging to the small section of that order which is distinguished by the anthers not being sinuous. The species are perennial herbaceous plants, with rather woody stems, climbing up trees to a great height and supporting themselves by means of tendrils, which are said to proceed from the axils of the leaves, instead of from the sides as in the common gourd. They have large, roundish, smooth leaves, frequently lobed, and the male and female flowers are borne on distinct plants, both having a five-lobed calyx, and a wheel-shaped corolla with five divisions. The fruit is globular and has a woody shell, marked with a scar which forms a zone round it, and shows the division between

the enlarged calyx and the shell of the fruit; it contains a number of large flat seeds embedded in solid flesh, and does not split open when ripe.

F. cordifolia is the Séqua or Cacaoon Antidote of Jamaica, where it is a common plant in shady woods, climbing to a great height up the trunks of trees. The fruits are four or five inches in diameter, and contain from twelve to fifteen large flat seeds, which possess purgative and emetic properties and have an intensely bitter taste. In Jamaica the negroes employ them as a remedy in a variety of diseases, and consider them to be an antidote against the effects of poison; they also obtain a large quantity of semi-solid fatty oil, which is liberated by pressing and boiling them in water.

The seeds of an allied species called Abilla in Peru, contain so much oil that the Peruvians use them for making candles. These are made by cutting cubical pieces of the seed and stringing them upon a thin piece of stick, the point of which is lighted. The candles thus rudely constructed, burn well, with a tolerably clear light, and, not being readily extinguished by wind, are commonly used in the open-air processions of the Roman Catholic Church. Another curious use is made of these Abilla seeds: the shell is lined with a soft felt-like substance, which when dry forms an excellent tinder, and the Indian, by rapidly twirling a pointed stick upon it, soon obtains a light; thus the same seed furnishes him with his candle, and with tinder for lighting it. [A. S.]

FEVE, or F. DE MARAIS. (Fr.) *Faba vulgaris*.

FEVER-BUSH. An American name for *Benzoin*.

FEVERFEW. *Pyrethrum Parthenium*. —, BASTARD. *Parthenium Hysterophorus*.

FÉVEROLLE. (Fr.) *Faba vulgaris*.

FEVERWORT. *Triosteum*.

FÉVIER. (Fr.) *Gleditschia*. — D'AMÉRIQUE. *Gleditschia triacanthos*.

FIBRE, ELEMENTARY. That thread which is turned round the interior of the tubes that are called spiral vessels, or of any similar kind of tissue.

FIBRILLÆ (adj. FIBRILLOSE). The roots of lichens; any kind of small thread-shaped root; also applied occasionally among fungals to the stipe.

FIBROUS. Containing a great proportion of woody fibre; as the rind of a cocoa-nut.

FIBRO-VASCULAR. Consisting of woody tissue and spiral or other vessels.

FICAIRE. (Fr.) *Ficaria ranunculoides*.

FICARIA. This genus is distinguished from *Ranunculus* by its having three deciduous instead of five persistent sepals,

and nine petals instead of five; in all other respects it is a true crowfoot; indeed, our native species, *F. ranunculoides*, is not unfrequently described under the name of *Ranunculus Ficaria*. Though called Small Celandine and Lesser Celandine, it is totally distinct from the true celandine (*Chelidonium*). Being one of the earliest of British flowering plants, and its petals being of a beautiful golden-yellow, and its leaves a glossy green, it is a general favourite. Its roots consist of a number of small fleshy tubers, which store up nourishment like bulbs during the whole of the summer and autumn. Gerard's description of its duration is worth quoting for its accuracy and quaintness: 'It commeth forth about the calends of March, and flourisheth a little after; it beginneth to fade away in April, it is quite gone in May, afterwards it is hard to be found, yea, scarcely the root.' This might be taken for an allegorical epitome of the life of man. The young leaves of *Ficaria*, according to Linnæus, are sometimes used as greens in Sweden. A variety with double flowers is occasionally cultivated. French, *Petite Chelidone*; German, *Feigmarunkel*. [C. A. J.]

The trivial name of Pilewort has been bestowed upon this plant from the structure of its tubercles, which grow in bundles of small tubers, so like the shape of those excrescences which occur in the more distressing cases of piles (hemorrhoids), that our forefathers, who chose their medicines, not from a knowledge of the properties and qualities of the plants, but from a kind of fancy as to Nature's external impress indicating innate virtues, adopted it as a remedy for this malady. Oulpepper is most enthusiastic in describing its virtues: 'Here is another secret for my countrymen and women—a couple of them together. Pilewort made into an oil, ointment, or plaster, readily cures both the piles, or hemorrhoids, and the king's-evil. The very herb borne about one's body next the skin helps in such diseases, though it never touched the place grieved. Let poor people make much for their uses. With this I cured my own daughter of the king's-evil.' Confident as are these assertions, yet the use of the plant is all but discontinued in the present day, medical practitioners very properly looking for sounder principles than those derived from the doctrine of similitudes.

In *Green's Universal Herbal* we find the following observations:—'The particular form of the roots probably recommended this plant as a cure for the piles; and this fancied quality was the origin of the English name. The roots are sometimes washed bare by the rains; and this induced the ignorant and superstitious to imagine that it rained wheat, to which the uncovered tubercles bear a little resemblance.' That this plant, from these and other reasons, was long considered as a 'herb of grace,' there can be no doubt; however, it is at present looked upon principally as a weed which can best be got rid of, when trouble-

some, by opening drains and thinning out trees or thickets. [J. B.]

FIGINIA. A genus of cyperaceous plants belonging to the tribe *Scirpeæ*. The inflorescence is either in solitary spikes or in conglomerated heads of spikes. Scales imbricated, some of the lower empty; styles three-cleft, rarely two-cleft; ovary with a fleshy disc; achenes sharply pointed or muticous. There are upwards of forty species, nearly all of which are natives of South Africa. [D. M.]

FIGOIDALES. One of Lindley's alliances of perigynal Exogens, represented by *Mesembryanthemum*.

FIGOIDE. (Fr.) *Mesembryanthemum*.

FIGOIDEÆ, or Fig-Marigold family. A natural order of calycifloral dicotyledons, the type of Lindley's figoidal alliance. The order is better known as *Mesembryaceæ* or *Mesembryanthemaceæ*. [J. H. B.]

FIGUS. A genus of *Moraceæ*, including the cultivated Fig. The flowers are usually incomplete, collected on axillary receptacles, which are either stalked or sessile, pear-shaped or globular, with three bracts at the base. There is a four to six-leaved perigone; in the staminate flowers one to six stamens; and in the pistillate a one-celled ovary. The fruit consists of globose or angular achenes, with a dry thin rarely pulpy pericarp. They are erect or creeping trees or shrubs, found in Southern Europe and Africa, and in large numbers in the warm parts of India, and in the islands of the Indian Sea and of the Southern Ocean. They have alternate rarely opposite entire or lobed leaves. There are nearly 160 known species. Of the cultivated Fig there are a vast number of varieties. The part eaten is the hollow receptacle which contains the flowers. The achenes, or, as they are commonly called, seeds, are ultimately immersed in the pulpy mass of the receptacle. Turkey figs are imported from Smyrna in small boxes called drums. From the old genus *Ficus*, Miquel has separated the genus *Urostigma*, *Pharmacosycea*, *Pogonotrophe*, *Sycomorua*, *Covillia*, and *Synocia*. See Plate 6, figs. a, f; and Plate 10, fig. b. [J. H. B.]

The Fig of our gardens is the *F. Carica* of botanists. The name *Ficus* applied to this very anciently known fruit, is most probably derived from *Feg*, its Hebrew name; that of *Carica* is from *Caria* in Asia Minor, where fine varieties of it have long existed. According to various authors, it is a native of Western Asia, Northern Africa, and the south of Europe, including Greece and Italy. It is certainly indigenous to Asia Minor; but it may have been thence introduced and naturalised in the islands of the Mediterranean, and the countries near its shores, both in Europe and Africa.

The Fig is a deciduous tree, fifteen to twenty or even thirty feet high in favourable climates. The alternate leaves are cordate, more or less deeply three to five-

lobed, and rough. The fruit is generally shortly turbinate, but some varieties are of an elongated pyriform shape; the skin soft, with shallow longitudinal furrows; the colour yellowish-white, greenish-brown, purplish-brown, violet, or dark purple. It consists of a hollow fleshy receptacle with an orifice in the top, which is surrounded and nearly closed by a number of imbricated scales—as many as 200, according to Duhamel. The flowers, unlike those of most fruit-trees, make no outward appearance, but are concealed within the fig on its internal surface; they are male and female, the former situated near the orifice, the latter in that part of the concavity next the stalk. On cutting open a fig, when it has attained little more than one-third its size, the flowers will be seen in full development, and, provided the stamens are perfect, fertilisation takes place at that stage of growth. But it often happens that the stamens are imperfect, and no seeds are formed; nevertheless the fruit swells and ripens.

Under favourable circumstances, a fruit or two is formed along the shoots at the base of almost every leaf. Of these the quantity that sometimes attains maturity is enormous; but frequently, from vicissitudes of cold in some climates and heat in others, much of the fruit drops prematurely. It may not do so at the time when dryness prevails, but at some future period when moisture is sufficiently abundant; in fact, the injury caused by drought to this fruit becomes most apparent after moisture has started the tree into vigorous growth, and hence the true but remote cause of failure in the crop is apt to be overlooked. And if this be sometimes the case now, it was much more likely to be generally so in former times, when there was among cultivators but little intelligence as regards tracing effects to their causes. Accordingly, to prevent the fruit of the Fig tree from dropping prematurely, and to hasten its ripening, the process of *caprification* was resorted to. This consisted in placing the fruit of a wild sort, called the *Caprifig*, amongst the cultivated ones. An insect of the gnat family infests the former, which it leaves to attack the latter, entering to the interior of the fruit by the orifice. It is a very ancient practice, for it is mentioned by the earliest Greek writers on natural history, and is even minutely described by Theophrastus. It appears to have originated in Greece. Pliny remarks that it was only used in the islands of the Archipelago; that, in his time, it was entirely unknown to the Italians; and that there was no tradition of its ever having been introduced to Syria or Palestine. Its utility was doubted by some authors, and among others by the celebrated Duhamel. He thought it questionable whether by caprification the maturity of the fruit was hastened, except in the same way as apples and pears are when attacked by the grub. Professor Gasparriani, in an essay written for the Royal Academy of Sciences of Naples, details a number of

experiments which he had made, and repeated in different years. Their results led to the conclusion that caprification is useless for the setting and ripening of the fruit, and instead of making the figs remain on the tree, it either causes or facilitates their fall, especially when the insect has penetrated into the inside, and produced decay by its own death. According to Gasparini, the practice of caprification ought to be abolished, as it entails expense, and deteriorates the flavour of the figs. The French naturalist, Oliver, says it is being abandoned in some islands of the Archipelago where it was formerly practised, but in which excellent figs are still produced. We have thought it necessary to briefly notice the operation, as so much has been written with regard to its presumed advantageous effects; but from what has been stated, it will be seen that, according to the investigations of modern science, it is proved to be not only unnecessary, but positively injurious.

Figs have been used in the east as an article of food from time immemorial. They were amongst the fruits brought back from Canaan by the Israelites sent by Moses to report on the productions of that land. We read of a present having been made to David of 200 cakes of figs. They were probably used chiefly in the dried state. The drying is easily effected in a warm climate by exposure to the sun's rays, in the same way as those grapes are dried, which are culled from that circumstance raisins of the sun. Like the grape, the substance of the fig abounds in what is termed grape sugar. In drying, some of this exudes and forms that soft white powder which we see on the imported dried figs. They are thus preserved in their own sugar, and rendered fit for storing up as an article of food.

Figs were considered of such necessity by the Athenians that their exportation from Attica was prohibited. Those who informed against persons violating this law were called 'Sycophantæ,' from two Greek words signifying the discoverers of figs. These informers appear to have been especially disliked, for their name gave rise to the term sycophant, used for designing liars and impostors generally, as well as flatterers.

The Figs of Athens were celebrated for their exquisite flavour; and Xerxes was induced by them to undertake the conquest of Attica. The African figs were also much admired at Rome, although Pliny says, 'It is not long since they began to grow figs in Africa.' Cato, in order to stimulate the Roman senators to declare war against Carthage, showed them a fig brought from thence. It was fresh and in good condition, and all agreed that it must have been quite recently pulled from the tree. 'Yes,' said Cato, 'It is not yet three days since this fig was gathered at Carthage; see by it how near to the walls of the city we have a mortal enemy.' This argument determined the senate to commence the third Punic war, the result of

which was that Carthage, the rival of Rome, was utterly destroyed.

Only six varieties of Figs were known in Italy in the time of Cato. Others were introduced from Negropont and Scio, according to Pliny, who gives a catalogue of thirty sorts. The fig may have been introduced into Britain, along with the vine, by the Romans, or subsequently by the monks. But if it had, it seems to have disappeared till brought from Italy by Cardinal Pole, either when he returned from that country in 1525, or after his second residence abroad in 1548. In either case the identical trees which he brought, and which were planted in the garden of the Archiepiscopal Palace at Lambeth, have certainly existed for more than 300 years. This proves that the fig lives to a great age, even under less favourable circumstances than it enjoys in its native country. Another tree, brought from Aleppo by Dr. Pocock, was planted in the garden of one of the colleges at Oxford in 1648. Having been injured by fire in 1809, the old trunk decayed and was removed, but fresh shoots sprang up, some of which in 1819 were twenty-one feet high. In this country a chalk subsoil, and a climate like that near the south coast, appear to suit the fig best. There the trees grow and bear as standards. They are liable, however, to be killed to the ground in winters of excessive severity; but they spring up afresh from the roots. There was an orchard, not exceeding three-quarters of an acre, at Tarring, near Worthing, in Sussex, containing 100 standard fig-trees. About 100 dozen of ripe figs were usually gathered daily from these trees during August, September, and October. By selecting similarly favourable spots, it may be fairly concluded that this country could supply itself with abundance of fresh figs. As for dry ones, they are obtained in large quantities from Turkey, the Mediterranean, and other countries; but the supply for centuries back has chiefly been from Turkey. The import has been as much as 1,000 tons a year; and now that the duty is taken off, the quantity imported will doubtless be much greater. The wood of the Fig is soft and spongy; and as it ran in consequence be easily charged with oil and emery, it is used in some countries by locksmiths and armourers for polishing. [R. T.]

FIDDLE-SHAPED. Obovate, with one or two deep recesses or indentations on each side, as the leaves of the fiddle-dock, *Rumex pulcher*.

FIDDLEWOOD. *Citharexylon*.

FIDUS, FISSUS. Divided half-way into two or more parts.

FIELDIA. A genus of Australian *Geraneaceæ*, having only a single species, *F. australis*. It has a five-parted calyx with blind apathaceous bracts; a tubular swollen corolla, with a five-parted slightly two-tipped limb; five stamens, four of which are fertile; and a style scarcely as long as

the stamens, terminating in a bilamellar stigma. The fruit is an ovate many-seeded berry. The plant has opposite, remote, shortly-stalked broadly lanceolate leaves, and axillary, solitary pendulous flowers of a pale green colour. It is a climber, with a rooting stem, attaching itself to the trunk of tree ferns, &c. The name is sometimes applied to certain *Vandus*. [R. H.]

FIG. *Ficus*. — ADAM'S. *Musa paradisiaca*. — BARBARY. *Opuntia vulgaris*. — COMMON. *Ficus Carica*. — DEVIL'S or INFERNAL. *Argemone mexicana*. — HOTTENTOTE. *Mesembryanthemum edule*. — INDIAN. *Opuntia*, especially *O. vulgaris*; also a general name for the *Cactaceæ*. — KEG, of Japan. *Diospyros Kaki*. — PHARAOH'S. *Sycomorus antiquorum*. — SAURED. *Ficus religiosa*.

FIG-MARIGOLD. *Mesembryanthemum*.

FIGUE BANANE. (Fr.) *Musa sapientum*. — CAQUE. *Diospyros Kaki*. — MODIQUE. *Cusia flava*.

FIGUIER. *Ficus*. — COMMUN. *Ficus Carica*. — D'ADAM. *Musa paradisiaca*. — D'INDE. *Opuntia vulgaris*.

FIG-WORT. *Scrophularia*. The term Figwort has also been applied to the scrophulariaceous order.

FILAMENT. The stalk of the anther. Any kind of thread-shaped body.

FILAGO. A genus of small herbaceous *Compositæ*, distinguished by their chafy receptacle, the absence of a pappus, and by the female florets being mixed among the scales of the imbricated involucre. They are mostly annuals of low stature, having the stems and leaves hoary with cottony down, and inconspicuous flowers of the texture popularly known as everlasting. The commonest British species are *F. minima*, a hoary little plant three to four inches high, with erect stems, very narrow leaves, and brownish-yellow flowers; and *F. germanica*, a plant of similar habit, six to eight inches high, with an erect stem terminating in a globular head of small conical flowers, from the base of which usually spring two or three horizontal branches terminating in like manner. This curious mode of growth occasioned the term *Herba impta* to be applied by the old botanists to this plant, as if the offspring were unduly elevating themselves above the parent. None of the foreign species are worthy of especial notice. French, *Colonnière*; German, *Filstrau*. [C. A. J.]

FILBERT. *Corylus Avellana*. — WEST INDIAN. *Entada scandens*.

FILFIL BURREE. An Indian name for the fruits of *Vilox trifolia*.

FILIOES. One of the principal groups of cryptogams, some of the leading peculiarities of which will be found explained in the article ACROGENS. They are commonly called Ferns, and consist of arborescent or herbaceous perennial, very rarely annual plants; those of arborescent

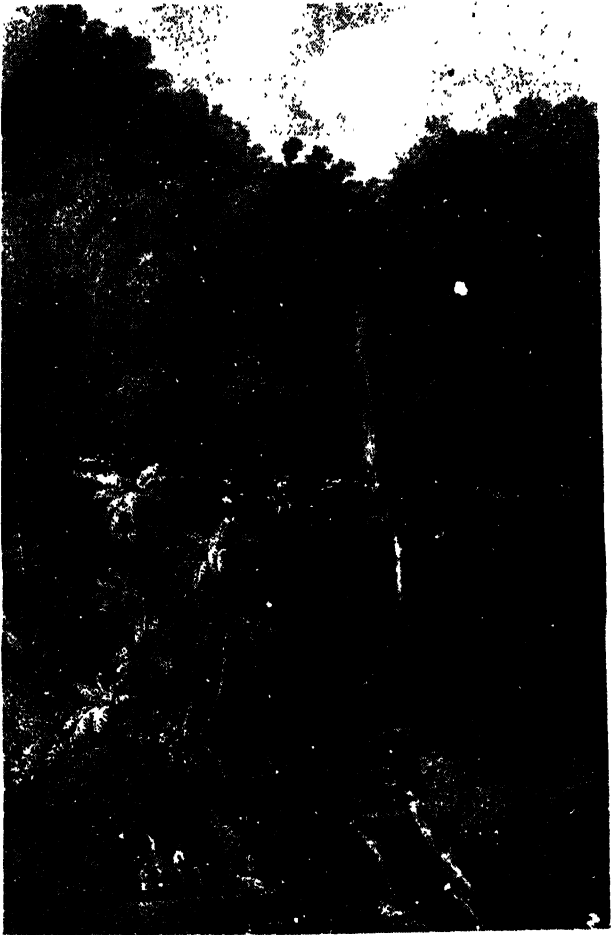
habit having a trunk varying from two or three to sixty or eighty feet in height, and formed of the consolidated bases of the fronds, surrounding a soft central mass of tissue; those of herbaceous habit either having a caudex formed on a plan similar to the arborescent kinds, but on a smaller scale, the young fronds forming the growing point, or having a more or less fleshy rhizome whose growing point is in advance of the development of the fronds, which are produced from its sides instead of its apex. Arborescent Ferns are represented in Plates 2, fig. 2, 9, and 12; and a simple-fronded Fern in Plate 12.

All true Ferns, under which name are included nearly all the ferns that are known, may be recognised by the circinate growth of their young leaves, and by their hypophyllous fructification. The fronds are very various in regard to size and form, some being simple, others many times cut or divided; while some measure but an inch, and others many feet, in length. In the majority of instances there is no material difference of aspect between those fronds which are fertile and those which are sterile; but in others, including whole groups, the *acroeticeæ* for example, there is a manifest contraction of the fertile fronds, which are sometimes reduced to mere ribs and spikes clustering with masses of the spore-cases.

The spore-cases, which are collected into heaps called sori, consist of little one-celled vesicles, girt either longitudinally, vertically, or obliquely by a jointed ring, which nearly, or in some cases completely, surrounds them. This ring is elastic, and by its contraction disrupts the spore-case and scatters the contained spores—mere dust-like atoms, invisible except in a mass to the naked eye. The sorus, or heap of spore-cases, is in some groups naked, but in others covered while young by a membrane called the indusium.

The spores of Ferns are produced by cell-division within the spore-cases, and are consequently unattached, and variously shaped and sculptured. They consist of two coats containing a grumous mass. On germination the outer coat bursts, and the inner is elongated and protruded, and by cell-division becomes converted into a thin marchantiform frond or prothallus. On the under-surface of the prothallus, two kinds of bodies are borne, one of which, the antherid, produces spiral ciliated spermatozooids, while the other, which forms the archegone or female cell, is sunk in the tissue. The cell at the base of the archegones, after impregnation, gives rise to a new plant, which is gradually developed, and is of different duration in different species, producing successive crops of fronds and spore-cases.

Many schemes have been proposed for the classification of Ferns, but that seems to be preferable, which is based on the modifications of the vascular system taken in conjunction with the fructification. All Ferns are referrible to one of the groups *Ophioglossaceæ*, *Marattiaceæ*, or *Polypodi-*



VEGETATION OF JAVA TREE FERNS IN THE FOREGROUND A FOREST OF
AMENTACEAE IN THE DISTANCE
(After Blume)

case, of which the two first, sometimes called pseudo-Ferns, are very limited, while the latter, containing the true Ferns, includes the greater portion of all the known species.

The three groups just named are distinguished from each other by the nature and structure of their spore-cases. The presence of the annulus or ring around the spore-case, in some form, either completely surrounding it, or in a more or less rudimentary condition, is the distinctive peculiarity of the *Polypodiaceæ*; while the *Marattiaceæ* and the *Ophioglossaceæ* are separated from it by the absence of any such ring, rudimentary or otherwise, and are distinguished from each other by the obvious characters that the *Marattiaceæ* have their sori dorsiferous, that is, on the back or under surface of their fronds, as is commonly the case among true Ferns, while the *Ophioglossaceæ* have their sori marginal, the spore-bearing or fertile fronds being contracted. The *Ophioglossaceæ* are few in number, and present little difference of structure; the *Marattiaceæ*, however, form three small tribes, of which the *Marattineæ* have their sori ranged in two lines facing each other, forming distinct oblong masses; the *Kaulfussineæ* have distinct circular sori, the spore-cases of each sorus being concrete into a single annular series, and furnished with openings towards the centre; and the *Danettineæ* have their sori connate over the whole under surface, which then shows long parallel lines of small round cavities.

The *Polypodiaceæ* offer so much variety of structure that it becomes necessary to subdivide them, and for this purpose the peculiarities in the form of the spore-cases, or in their number and position, or in the structure and development of the annulus or ring, are most relied on. This gives the following groups:—*Polypodiaceæ*, the most extensive of all, with spore-cases almost equally convex, having a vertical and nearly complete ring, and bursting transversely at a part on the anterior side, called the stoma, where the strise of the ring become dilated into elongate parallel cells. *Cyatheaceæ*, with spore-cases sessile or nearly so, seated on an elevated receptacle, oblique-laterally compressed, the nearly complete ring being, in consequence, more or less obliquely vertical, that is, vertical below, curving laterally towards the top, bursting transversely; they approach very near the *Polypodiaceæ*, through some species of *Aisophila*, in which the characteristic obliquity of the ring is little apparent. *Matonineæ*, a single species only, with spore-cases sessile, bursting horizontally, not vertically, the ring broad, sub-oblique, and nearly complete, the sori dorsal and oligocarpous, covered by umbonate-hemispherical indusia, which are petiole or affixed by a central stalk. *Gleicheniaceæ*, with the ring complete transverse, either truly or obliquely horizontal, the spore-cases globose-pyriform, forming oligocarpous sori, i.e. sori consisting of but few

spore-cases (two or four to ten or twelve) situated at the back of the frond, sessile or nearly so, and bursting vertically; fronds rigid and opaque, and usually dichotomously-branched. *Trichomanineæ*, with the ring resembling that of the *Gleicheniaceæ*, but the spore-cases lenticular, clustered on an often exerted receptacle, which is a prolongation of the vein beyond the ordinary margin of the frond, so that the sori become extrorse marginal or projected outwards, as well as opening outwardly; fronds pellucid-membranaceous. *Schizaineæ*, with the ring horizontal or transverse, situated quite at the apex of the oval spore-case, which is, in consequence, said to be radiate-striate at the apex; the spore-case also sometimes resupinate, or turned upside down, so that the true apex is below; habit sometimes scandent. *Ceratopteridineæ*, one or two aquatic species, the spore-cases sometimes furnished with a very rudimentary ring, reduced, as in *Osmundineæ*, to a few parallel strise, sometimes furnished with a very broad and more lengthened ring; spores bluntly triangular, marked with three series of concentric lines. *Osmundineæ*, with the spore-cases two-valved, bursting vertically at the apex, the ring very rudimentary, reduced to a few parallel vertical strise on one side near the apex of the spore-case. In all but the last of these groups, the spore-cases are not valvate, and consequently, when they open for the liberation of the spores, they burst partially or irregularly, and do not split at the top in two equal divisions, as occurs in the *Osmundineæ*.

These primary and secondary groups will be more readily comparable in the following summary:—

Spore-cases ringless.

1. *OPHIOGLOSSACEÆ*—Fructifications marginal on rachiform fronds.
2. *MARATTIACEÆ*—Fructifications dorsal on flat leafy fronds.
 - § *Marattineæ*—Sori oblong, distinct, longitudinally biserial.
 - § *Kaulfussineæ*—Sori circular, distinct; spore-cases annularly concrete.
 - § *Danettineæ*—Sori connate throughout.

Spore-cases having a jointed ring.

3. *POLYPODIACEÆ*—Spore-cases not valvate; rarely somewhat two-valved vertically.
 - § *Polypodiaceæ*—Ring vertical, nearly complete; spore-cases usually stalked, gibbous; receptacles superficial or immersed.
 - § *Cyatheineæ*—Ring obliquely vertical, nearly complete, narrow; spore-cases crowded, sessile or subsessile, oblique-laterally compressed; receptacles elevated.
 - § *Matonineæ*—Ring sub-oblique, nearly complete, broad; spore-cases few, sessile, gibbous; sori oligocarpous.
 - § *Gleicheniaceæ*—Ring zonal, horizontally or obliquely transverse, complete; spore-cases sessile or subsessile, ver-

tically compressed; sori dorsal; fronds rigid.

♣ *Trichomanineæ*.—Ring and spore-cases as in *Gleichenineæ*; sori extrorse-marginal; fronds pellucid.

♣ *Schizaineæ*.—Ring apical, complete, horizontally transverse; spore-cases sessile or subsessile, oval, crowned by the convergent strise of the ring, sometimes resupinate.

♣ *Ceratopteridineæ*.—Ring rudimentary or more or less incomplete, very broad, flat, obliquely-vertical; spore-cases sessile, globose.

♣ *Osmundineæ*.—Spore-cases vertically two-valved; ring rudimentary, transverse.

The *Polypodineæ* are further divided into lesser groups characterised by the form, position, and vestiture of the sori. There is little difference of opinion amongst pteridologists as to the three principal divisions, but a good deal of diversity as to the value of the minor ones. [T. M.]

FILICOLOGY. That part of Botany which treats of Ferns.

FILICALES. That alliance of Acrogens to which the Ferns belong.

FILIFORM, FILIFORMIS. Slender, like a thread.

FILIPENDULE. (Fr.) *Spiræa Filipendula*.

FIMBRIA. A fringe. An elastic toothed membrane, situated beneath the operculum in urn-mosses.

FIMBRIATE. Having the margin bordered by long slender processes, forming a fringe.

FIMBRIATO-LACINIATE. Having the edge cut up into divisions which are fimbriated.

FIMBRILIFEROUS. Bearing many little fringes, as the receptacle of some composites.

FIMBRISTYLIS. A genus of cyperaceous plants, belonging to the tribe *Scirpeæ*, having the inflorescence in spikes, solitary, in pairs, or in crowded heads, many-flowered; scales imbricated all round, the lower larger, one or two of them barren; style compressed and fringed, its base enlarged, adhering to the ovary. This genus embraces nearly 200 species, which have a wide geographical range, though most of them are natives of rather warm countries. [D. M.]

FIMETARIOUS. Growing on or amidst dung.

FINCKEA. A name given to a section (originally proposed as a genus) of the genus *Griselinia* in *Ericaceæ*. The two South African species included in it differ from other *Griselinias* in having the capsule usually unilocular and one-seeded. The corolla is ovate-tubulous, not urceolate or campanulate, as in others of the genus. [J. Dr.]

FINGERED. The same as Digitate.

FINGERHUTHIA. A genus of grasses belonging to the tribe *Phalarideæ*. Glumes two, equal, with bristly points, keeled and membranaceous; lower flowers fertile, as long as the glumes; pales rigid, the lower rather the longest, keeled, with a short bristle at the point, five to seven nerved, the upper shorter and slightly compressed; stamens three, with bearded anthers; styles two; upper flowers imperfect. Only two species are described, both of which are natives of South Africa. [D. M.]

FIN HOUSSY. (Fr.) *Trifolium repens*.

FINLAYSONIA. A genus of *Asclepiadaceæ*, containing a single species, native of India. It is a twining glabrous plant, yielding a milky juice, and having opposite obovate leaves, and numerous small flowers arranged in interpetiolar corymbis. The calyx is small, five-cleft; and the corolla rotate. The staminal crown, which rises from the throat consists of five delicate white slightly converging threads, each bent back at the apex so as to form a small hook; the stamens are distinct, with short filaments, and large anthers adhering to the stigma; and the divaricate follicles contain numerous large flat obovate seeds with a few silky fibres. [W. C.]

FINOCCHIO. *Feniculum dulce*. —, *ASSES*. *Feniculum piperitum*.

FIORIN. *Agrostis stolonifera*, and *Agrostis alba*.

FIORIN DES ANGLAIS. (Fr.) *Agrostis stolonifera*.

FIR. A general name for the trees referred to the coniferous genera *Pinus*, *Abies*, *Larix*, &c. —, **BALM OF GILEAD.** *Abies balsamea*. —, **HEMLOCK SPRUCE.** *Abies canadensis*. —, **PARASOL.** *Scadopytus verticillata*. —, **PLUM.** *Prumnopitys elegans*. —, **SCOTCH.** *Pinus sylvestris*. —, **SILVER.** *Abies pertinata*; also a general name for the species sometimes referred to *Picea*. —, **SPRUCE.** *Abies excelsa*; also a general name for the species of true *Abies*.

FIREWEED. An American name for *Erechtites hieracifolia*.

FIR-RAPES. Lindley's name for the *Monotropaceæ*.

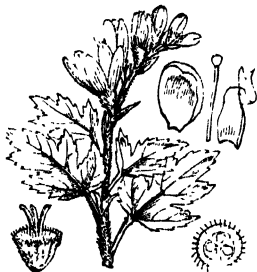
FIRS, JOINT. A name proposed by Lindley for the order *Gnetaceæ*.

FISCHERIA. A genus of *Asclepiadaceæ*, containing about ten species from the West Indies and Central America. They are twining hairy shrubs, with opposite cordate leaves, and many flowers in racemes on long interpetiolar peduncles, which thicken upwards and are scarred by the deciduous pedicels. The calyx is five-parted; the corolla is rotate and five-cleft, the divisions having a curled indentation at their apices; the staminal crown is simple or double; the pentagonal stigma

covers the pollen-masses; and the follicles are ovoid and fleshy. [W. C.]

FISH-POISON. *Lepidium Piscidium*. —, JAMAICA. *Piscidia Erythrina*.

FISSENIA (correctly, **KISSENIA**). A genus of *Loasaceæ*, found in Arabia and in South and Central Africa, the only representative of the family in the eastern hemisphere. It differs from other genera in having a three-celled fruit, with one seed in each cell. The only species, *F. spathulata*, is a branching bush with straw-



Fisselia spathulata.

coloured stems, alternate stalked lobed leaves not unlike those of the gooseberry but larger, and pale green flowers four to six together at the ends of the twigs; the flowers have ten petals, five large and rounded, and five small and narrow, very numerous stamens, and three styles. The little ten-ribbed fruits or nuts crowned with the five long narrow calyx lobes, look like miniature shuttlecocks. [A. A. B.]

FISSICALYX. A tree from Venezuela, with pinnate leaves and terminal panicles of yellow flowers, forming a genus of *Leguminosæ* of the tribe *Dalbergiæ*, distinguished from all others by the irregularly split calyx; by the anthers opening in terminal pores; and by the fruit being surrounded by a broad membranous wing proceeding from the centre instead of the edges of the valves, thus giving the fruit the appearance of that of *Gualacum*.

FISSIDENS. A pretty genus of mosses, containing both acrocarpous and cladocarpous species, and at once distinguished by their peculiar habit arising from the flat broad-keeled two-ranked leaves with a sheathing base. The peristome is single, and the sixteen teeth of which it is composed deeply cleft. The species grow on banks, on stiff soil, or near watercourses, and vary from a line to two inches in length. They occur in both hemispheres and in various climates, the species of very distant countries being frequently identical. The shoots sometimes bear reproductive bodies

at their apex, distinct from the proper fruit. These are occasionally close to the male organs. [M. J. B.]

FISSIDENTEÆ. A natural order of mosses which are remarkable for their peristome being like that of *Dicranum* or almost rudimentary, accompanied by a totally different habit due to the flat broad-keeled sheathing leaves. *Fissidens* has already been noticed. *Drepanophyllum*, from which the order is sometimes called *Drepanophyllæ*, is a magnificent moss abounding in Cayenne, with a tawny tint, the habit of a *Jungmannia*, and a nearly naked peristome. The tips of the male plants bear, in close connection with the antheridia, tufts of jointed fusiform purplish gemmæ. *Crommium* is an aquatic genus, and has irregular unequally split often truncate teeth without any central line, and a nitraform veil. The species grow in running water, and one only has at present been found in Europe. [M. J. B.]

FISSIPAROUS. Propagating by a subdivision of the anterior of a cell into two or more other cells, by the production of a membranous partition or septum, from the lining of the mother cell.

FISSES. Divided halfway; usually into a determinate number of segments. We say *bifidus*, split in two; *trifidus*, in three, and so on; or *multifidus*, when the segments are very numerous.

FISTULAR, FISTULOUS. This is said of a cylindrical or torcite body which is hollow, but closed at each end, as the leaves and stems of the onion.

FISTULINA. A genus of pore bearing *Fungi*, sometimes wrongly associated with *Udium*. It is distinguished from the fleshy *Polypori* by the free tubes which are at first closed and look like little stellate pink or cream-coloured pimples. *F. hepatica*, our only species, grows on the trunks of old oaks, and acquires sometimes a very large size. When divided it looks like beet-root, and drips with red juice. It is not unwholesome, but in our opinion not a pleasant article of food, however disguised with lemon juice, cayenne pepper, or other condiments. [M. J. B.]

FITCH. The Vetch or Tare.

FITCHIA. A genus of arborescent elchoreaceous *Compositæ* founded on a single species, *F. nutans*, from Elizabeth Island in the South Pacific. It is a noble plant nearly related to *Rea*, and has thick woody stems, opposite broad ovate-cordate leaves, and large terminal drooping heads of flowers, hanging by longish stalks. The involucre is broadly campanulate, composed of about three series of orbicular scales, which enclose numerous ligulate male flowers; the females are unknown. The filaments and style are very much exerted. The achenes are compressed, clothed with silky hairs, and terminated by a pair of elongated hairy setæ. It is named in compliment to Mr. W. Fitch, a

clever botanical artist, by whom the drawings of the plants figured in this work have been executed. [T. M.]

FITWEED. *Bryngium fatidum*.

FITZROYA. A genus of coniferous or cone-bearing plants belonging to the sub-order *Oupressimæ*. It was named by Dr. Hooker in honour of Captain Fitzroy, who first discovered the tree. The fruit is in small starlike cones which consist of nine scales, three in each whorl; the lower three and upper three are barren, while the intermediate three are fertile, and bear each three winged seeds. The leaves are in threes, sometimes twos or fours, ovate-oblong, flat, without stalks. There is one species, *F. patagonica*, an evergreen tree growing to the height of 100 feet, with slender spreading branches which curve at the extremities. The tree, which is found on the mountains of Patagonia, bears the ordinary winters of Britain. [J. H. B.]

FIVE-FINGERS. *Potentilla reptans* and *canadensis*.

FLABELLATUS, FLABELLIFORMIS. Fan-shaped.

FLACCID. Wilted, or relaxed in consequence of the loss of moisture.

FLACOURTIACEÆ. (*Bizacæ*, *Bizads*.) A natural order of thalamifloral dicotyledons belonging to Lindley's violal alliance of hypogynous Exogens. They are shrubs or small trees with alternate leaves having no stipules, often marked with round transparent dots. Sepals and petals four to seven, the latter sometimes wanting; stamens same number as petals or a multiple thereof; ovules attached to parietal placentas. Fruit one-celled, either fleshy and indehiscent, or a four to five valved capsule containing pulp, in which numerous albuminous seeds are enveloped. The plants are natives of the East and West Indies, and of Africa. Two or three species are found at the Cape of Good Hope, and one or two in New Zealand. Some of the plants are bitter and astringent; others yield edible fruits. Arnotto is the red pulp enclosing the seed of *Bixa Orellana*, and it is used as a dye, for staining cheese, and in the manufacture of chocolate. Some *Flacourtiæ* yield subacid fruit. There are some two dozen genera, including *Flacourtia*, *Mayna*, *Bixa*, *Azara*, *Erythropspermum*; and about 150 species. Bentham and Hooker include *Pangliaceæ*. [J. H. B.]

FLACOURTIA. The typical genus of *Flacourtiaceæ*, characterised by having a succulent fruit and several stigmas. It has distinct male and female apetalous flowers, usually borne on different plants; the males have a great number of stamens crowded together upon the dilated receptacle, but not surrounded by glands like those of *Rourea*; the females have an ovary crowned with from four to nine narrow radiating stigmas. The species are mostly shrubs, but some few, however, attain a height of twenty or thirty feet, and nearly

all are armed with thorns. They are found in tropical Asia, Africa, and America.

The young shoots and leaves of *F. cataphracta* are used medicinally by the native Indian doctors, who prescribe them in diarrhoea, and also as an infusion to remove hoarseness; they are astringent and stomachic. *F. Ramontchi* is a small tree, native of Madagascar and India, producing a dark violet or black fruit about the size and shape of a plum, and having a sharp but sweet taste. *F. sepiaria*, a bushy shrub, is used in some parts of India for making hedges, its spiny nature rendering it peculiarly suitable for that purpose. The fruits are sold in the markets, and, like those of *F. Ramontchi* and *sapida*, have a pleasant subacid flavour when perfectly ripe, but the unripe fruit is extremely astringent. The Indian doctors use a liniment made of the bark in cases of gout, and an infusion of it as a cure for snake-bites. [A. S.]

FLAG. *Iris*. —, **CAT-TAIL.** An American name for *Typha*. —, **CORN.** *Gladiolus*. —, **SWEET.** *Acorus Calamus*. —, **YELLOW.** *Iris Pseud-acorus*.

FLAGELLARIA. A genus of *Commelynaceæ*, but referred to *Juncaceæ* by some authors. Natives of India and Australia, with lanceolate leaves, sheathing the stem at the base, and terminating in a spiral tendril; flowers paniculate, bracteolate, the perianth six-cleft coloured persistent, with the three inner segments largest; stamens six, with simple glabrous filaments, fruit a pea-like drupe containing a single seed. [J. T. S.]

FLAGELLIFORM. Long, taper, and supple, like the thong of a whip, as the runners of many plants.

FLAGELLUM. A twig, or small branch; also a runner like that of the strawberry.

FLAMBE. (Fr.) *Iris Pseud-Acorus*. — **PETITE.** *Iris pumila*.

FLAMBOYANTE. (Fr.) *Tulipa turcica*; also *Poinciana regia*.

FLAME-COLOURED, FLAMMEUS. Very lively scarlet; fiery red.

FLAME TREE. *Drachycten acrifolium*.

FLAVEDO Yellowness; a disease in plants in which the green parts assume that colour.

FLAVESCENS, FLAVIDUS, FLAVUS. A pure pale yellow.

FLAVO-VIRENS. Green, much stained with yellow.

FLAVERIA. An herbaceous biennial composite, distinguished by having the common involucre imbricated with unequal scales, and the partial of two to five leaves containing as many florets, a naked receptacle, and no pappus. *F. Contrayerba* is a native of Peru, and derives its name from its being used to dye yellow. It grows to the height of eighteen inches,

with lanceolate serrated sharp-pointed leaves, and terminal heads of yellow flowers. [O. A. J.]

FLAX. The common name for *Linum*; also the fibre obtained from the stems of *Linum usitatissimum*. —, **FALSE.** An American name for *Camelina*. —, **NEW ZEALAND.** *Phormium tenax*. —, **TOAD.** *Linaria*.

FLAX-BUSH. *Phormium tenax*.

FLAX-SEED. *Radiola*.

FLAX-STAR. *Lysimachia Linum-stellatum*.

FLAXWORTS. A name for the order *Linaceæ*.

FLEABANE. *Conyza*; also *Pulicaria vulgaris* and *dysenterica*; also *Euphorbia ruscifolia*, *gracilens*, and *aerr.* —, **AFRICAN.** *Tarsonanthus*. —, **MAHSE.** *Pluchea*.

FLEA-SEED. The seed of *Plantago Psyllium*.

FLEAU DES PRÉS. (Fr.) *Phleum pratense*.

FLEAWORT. *Pulicaria vulgaris*; also *Plantago Psyllium*.

FLÉCHIERE. (Fr.) *Sagittaria sagittifolia*.

FLEMINGIA. A genus of erect, prostrate, or sometimes twining plants of the pea family, and nearly allied to *Rhynchosia*, but differing in having a turgid and two-seeded, instead of a flattened and many-seeded pod. Most of the twenty known species are found in India, a few extending to the northern and eastern portions of Australia, and one, *F. betulifolia*, occurring in W. Africa. The stems are furnished with simple or trifoliate stalked leaves, often having glandular dots; in some species the stipules are large and chaffy. The small vetch-like flowers are purple, white with pink lines, or yellow, and disposed in axillary compound racemes or panicles.

One of the most elegant of them, *F. strobilifera*, is remarkable for its drooping catkin-like racemes, furnished with large, pale yellow kidney-shaped bracts, each of which encloses a fascicle of white flowers marked with pink lines. The leaves are simple, ovate and acute, and vary much in size. The plant has been in cultivation.

A beautiful purple-flowered species, *F. vestita*, is cultivated in many parts of N. W. India for the sake of its edible tuberous roots, which are nearly elliptical, and about an inch long. The plant is prostrate, with weak stems, and hairy clover-like leaves, formed of rounded hairy leaflets. The purple blossoms are larger than in any other of the genus, and are remarkable for being placed two or three together on the apex of a slender axillary flower stalk, those of the other species being disposed in racemes. The genus bears the name of Dr. J. Fleming, an Indian botanist. [A. A. B.]

FLÉOLE. (Fr.) *Phleum pratense*.

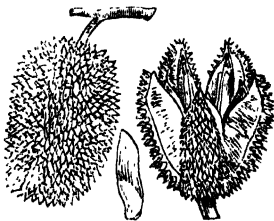
FLESH of vegetable bodies. The soft parts.

FLEUR DE COUCOU. (Fr.) *Lychnis Flos-cuculi*; also *Primula veris*, and *Narcissus pseudo-Narcissus*. —, **DE GRAPAUD.** *Stapelia variegata*. —, **DES DAMES.** *Heliotropium peruvianum*. —, **DE JUPITEIL.** *Lychnis Flos-Jovis*. —, **DE LA PASSION.** *Passiflora*. —, **DE LA TRINITÉ.** *Viola tricolor*. —, **DE LIS.** *Thalungium Liliago*; also *Iris germanica* and other European species. The *Fleur de lis* representing the *Iris* is the emblem of France, and was called by old English authors *Flower de Luce*. —, **DE MIEL.** *Melanthus major*. —, **D'ORET D'ARGENT.** *Lourea confusa*. —, **DE PAON.** *Poniciana pulcherrima*. —, **DE PAQUES.** *Bellis perennis*. —, **DE PARADIS.** *F. cuna pulcherrima*. —, **DE QUATRE HEURES.** *Mirabilis dichotoma*. —, **DES VEUVES.** *Scabiosa atropurpurea*. —, **DU DIABLE.** *Iris sativum*. —, **DUNE HEURE.** *Hibiscus venecianus* and others. —, **DU GRAND-SEIGNEUR.** *Amorboan moschata*. —, **DU SOLEIL.** *Melanthus ammus*. —, **EN CASQUE.** *Aconitum Napellus*.

FLEURYA. A genus of *Urticaceæ* composed of a number of annual or perennial weeds, found in the tropics of both hemispheres. They are much like common nettles in appearance, and some of the species are furnished with stings, but they may be readily distinguished from them by their alternate (not opposite) leaves, as well as by the narrow bilid stipules which accompany them. From other allied genera they differ in their little, oblong or rounded and compressed achenes having concave depressions on both surfaces. [A. A. B.]

FLEXUOSE. Zig-zag; having a wavy direction, gently bending alternately inwards and outwards.

FLINDERSTIA. A genus of *Cedrelaceæ*, having a calyx of five short teeth; five



Flinderstia australis.

white, ovate, plane petals, slightly hairy on the exterior; ten stamens of which only five are fertile, the alternate ones being sterile; and a simple erect obtusely five-angled style, with a peltate five-lobed

stigma. The capsule is woody, oblong, obtuse, five-valved, the exterior thickly covered with sharp-pointed tubercles. They are lofty trees, having alternate pinnate leaves; found in New South Wales and the Moluccas. The natives of these islands use the rough tuberculated fruit as rasps in preparing roots &c. for food. [H. H.]

FLIX-WEED. *Sisymbrium Sophia*.

FLOCCI. Woolly threads, found mixed with sporules in fungals; also any wool-like hairs.

FLOCCOSE. Covered with close woolly hairs, which fall away in little tufts.

FLORAL. Of or belonging to the flower. — **ENVELOPES.** The calyx and corolla, one or both.

FLOR DE AROMA. *Acacia Farnesiana*. — **DE ISABEL.** *Banksia spectabilis*. — **DE JESUS.** *Lasia acuminata*. — **DE MAYO.** *Lasia nupalis*.

FLORESTINA. A genus of Mexican composite herbaceous plants, with the habit of *Stiva*, to which they were formerly referred. They are covered with small appressed white hairs, and have entire or pedately divided leaves, and flowers borne in loose corymbs surrounded by an involucre of eight short bracts. The corollae have all a short tube, and a white-lilac-purple limb divided into five segments. The achenes are somewhat four-cornered, surmounted by a pappus of eight or twelve membranous scales. [M. T. M.]

FLORETS. When many small flowers are collected in clusters or heads, each flower is called a floret. The *florets of the disk* are those which occupy the centre of the head of a composite; while *florets of the ray* occupy the circumference.

FLORIDE. A name given to the rose-spired *Akara*, in consequence of many of them exhibiting the rosy tints of flowers. They are now more generally known as *Rhodoperma*. [M. J. B.]

FLORIFER. Flower-bearing.

FLORIPAROUS. Producing flowers also a monosyllable consisting in the production of other like instead of fruit

FLORIPONDIO. *Datura sanguinea*.

FLORKEA. A North American annual herb, referred to the himanthoid division of *Tropaeaceae*. It is a marsh plant, with slender decumbent stems, and alternate pinnately-parted leaves, bearing solitary small white flowers in their axils. It is distinguished from *Limnanthes* chiefly by its having trimerous instead of pentamerous flowers. [T. M.]

FLORUS. In composition = flowered. thus *uniflorus* is one-flowered; *biflorus*, two-flowered; *triflorus*, three-flowered; *multiflorus*, many-flowered, &c.

FLOS. A flower. — **COMPOSITUS.** An old name for the capitulum.

FLOS ADONIS. *Adonis autumnalis*. — **AERIS.** *Aerides Arachnites*. — **CARDINALIS.** *Quamoclit vulgaris*. — **CUCULI.** *Cardamine pratensis*; also *Lychnis Flos-cuculi*. — **GLOBOSUS.** *Gomphrena globosa*. — **JOVIS.** *Lychnis Flos Jovis*. — **MARTINI.** *Aistrimeria Flos Martini*. — **PASSIONIS.** *Passiflora caerulea* and others. — **SOLIS.** *Helianthus annuus*; also *Helianthemum vulgare*. — **SUSANNE.** *Platanthera Susanna*. — **TRINITATIS.** *Viola tricolor*.

FLOSCOPA. A genus of *Commelynaceae* more usually known under the name of *Dithyrocarpus*, and distinguished by having nearly regular flowers, with six stamens, all fertile, with parallel anther-cells; and a two-celled ovary and capsule, with one ovule and seed in each cell. There are but very few species, natives of the tropical regions both of the new and the old world. The most common species, *F. pauciflora*, is abundant in Asia, and is also found in South Africa and Brazil. It is a herb of two or three feet in height, with acuminate leaves, and a dense hirsute terminal panicle of small blue flowers.

FLOSCULI (adj. **FLOSCULOSE**). The same as *Florets*.

FLOTOVIA. A genus of spiny S. American bushes belonging to the *Compositae*, and nearly related to *Barnadesia*, from which it differs in its regularly five-parted, not two-lipped corollas. The numerous florets of the flower-heads, and the insertion of the stamens on the middle of the corolla tube, are the characters which separate the genus from its other allies. Upwards of twenty species are known, the greater portion found in Brazil, a few in the Peruvian Andes, and one or two in Chili. For the most part they are bushes of four to six feet, with alternate leaves, accompanied by two straight slender spines. The pink flower-heads in some are solitary at the ends of the branches, but more commonly numerous and small; the silky achenes are crowned with a pappus of one series of beautiful feathery awns. *F. argentea*, pretty Andean species, is by some referred to *Dasyphyllum*. [A. A. B.]

FLOURENSIA. A genus of resiniferous composite shrubs found in New Mexico and Chili, and nearly allied to *Helianthus*, differing chiefly in the tongue like branches of the style, which are obtuse and not tipped with an awl-shaped appendage. The leaves are usually covered with a gummy exudation. The yellow rayed flower-heads are usually large and solitary or two to three together at the ends of the twigs. The most handsome species is *F. thurifera*, which grows to a bush of four six feet in Chili, and has its twigs well as its broadly lance-shaped leaves covered with a resinous substance, which is collected and burnt as incense in the churches; its fine yellow flower-heads are single at the ends of the twigs, and more than two inches across. The Chilians call

the plant Maravilla, or Maravilla del Campo. Four species are known. [A. A. B.]

FLOUVE. (Fr.) *Anthoxanthum*. — **DES BRESSANTS.** *Anthoxanthum odoratum*.

FLOWER. That assemblage of organs in a plant, of which the stamens, or pistils, or both, form part.

FLOWER DE LUCE. An old English name for the common species of *Iris* — *germanica*, *florentina*, &c.

FLOWER OF CRETE. *Mesembryanthemum Tripolium*.

FLOWER OF JOVE. *Lychnis Flos Jovis*.

FLOWER-FENCE. *Punciana*. — **BARTADOS.** *Pomeum pancheriana*. — **BASTARD.** *Adenanthura*.

FLOWER-GENTLE. *Amaranthus*.

FLUELLIN. *Linaria Elatine* and *spuria*; also *Veronica officinalis*.

FLUGGEA. A genus of *Euphorbiaceæ* nearly related to *Phyllanthus*, from which it may be recognised by the sterile flowers having three stamens surrounding a rudimentary ovary, there being no rudimentary ovary in those of *Phyllanthus*. The genus consists of several much branched smooth and entire-leaved bushes found in most tropical countries of the eastern hemisphere. The leaves are obovate or ovate. The flowers, sterile and fertile on different plants, are minute, green, and disposed in fascicles or cymes in the axils of the leaves. The fruits are dry capsules or berries about the size of a pea or smaller. The bark of *F. rostrata*, according to Roxburgh, is strongly astringent, and possesses the property of intoxicating fish when thrown in the water, thus rendering them easily caught. The white berries of *F. lucopinus* in India, and *F. abyssinica* in Eastern tropical Africa, are eaten by the natives. A Chinese species, *F. suffruticosa*, has long been known as *Gebura suffruticosa*. [A. A. B.]

FLUITANS. Floating upon the surface of water.

FLUVIAL, FLUVIATILE. Of or belonging to the water.

FLUTEAU. (Fr.) *Alisma Plantago*.

FLUVIALES. A natural order of monocotyledonous aquatics established by Ventenat. The plants are now included in *Najas*; which see. [J. H. B.]

FLY-AGARIC. The common name of *Agaricus muscarius*, a splendid scarlet species studded with white or yellow warts, which is common in birch woods, and is used to make a decoction for destroying flies. Its narcotic properties are so strong that in some countries it is employed, mixed with the juice of cranberries, to produce intoxication, the dry plant being more efficacious for this purpose than the fresh. The effects are some-

what different from those of other narcotics, being characterised by extreme stimulation of the muscles. The nervous system is at times excited to such a degree as to produce the most ludicrous actions. It is a curious fact that the urine of persons who have partaken of the fungus acquires the same narcotic properties; or, in other words, that the narcotic principle, like some other substances, passes through the urine without change. (See E. A. Parkes on the *Composition of Urine*, 1800.) In excess it is doubtless a dangerous poison, and we have known temporary intoxication arise from its accidental use. [M. J. B.]

FLY-POISON. *Amianthium muscatellorum*.

FLY-TRAP. *Apocynum androsaemifolium*. — **VENUS'S.** *Dionaea muscipula*.

FLY-WORT. A name applied to those species of *Catsetum* formerly called *Myanthus*.

FEMINEUS. Female, that is, bearing pistils only.

FENICULUM. A genus of umbelliferous plants, with finely dissected leaves, no involucre, and yellow flowers. It is distinguished from *Anethum*, to which it is very closely allied, by the fruits being somewhat compressed from side to side, and not from back to front. *F. vulgare*, the common Fennel, is a native of temperate Europe and Western Asia; in this country it is usually found in dry chalky soil, at no great distance from the sea. The Sweet Fennel, *F. dulce*, is by some considered as only a variety of the preceding; but it differs in being a smaller plant, in the stem being compressed at the base, not round, in the smaller number of rays to the umbel, in the greater size of the fruit, in flowering earlier, &c. It is grown in this country as a potherb and for garnishing; its fruit supplies an aromatic oil, which is carminative like dill. [M. T. M.]

FENUM GRÆCUM. *Trigonella Fenum græcum*, so called because formerly made into hay in Greece. It was also cultivated by the Romans, and is still occasionally employed in the agriculture of the south of Europe. The plant and seeds are strongly scented, with the new hay-like odour of coumarin.

FOETIDIA. A genus of shrubby plants doubtfully placed in *Myrtaceæ*, the leaves being alternate and without dots, and the flowers destitute of petals. The three known species are natives of the Mauritius and Madagascar, attaining a height of thirty or forty feet, the ash-coloured branches furnished at their extremities with smooth entire, ovate or lance-shaped leaves. The flowers are axillary and solitary, and have a three or four-sided calyx tube, with a border of four triangular lobes, and very numerous stamens. The fruits are woody, four-sided, four-celled, somewhat top-shaped nuts. *F. mauritiana*, known as 'Le Bois puant' in the Mauritius,

furnishes good furniture wood. According to Roxburgh, the bark is very tough, red within, bitter and astringent. It is used by woodmen for banding up the wood, instead of cord. The common appellation of Slinkwood has no doubt suggested the name of the genus. [A. A. B.]

FOG-FRUIT. An American name for *Lippia nodiflora*.

FOLIACEOUS. Having the texture or form of a leaf, as the branches of *Xylophylla*.

FOLIA MALABATHRI. The aromatic dried leaves of *Cannanonum nitidum*.

FOLIAR. Inserted upon, or proceeding from the leaf; thus a *cirrus foliaris* is a tendril growing from a leaf.

FOLIATION. The act of leafing.

FOLIATE. Clothed with leaves.

FOLLICULARES. A suborder of plants belonging to the *Proteaceae*, and referred by DeCandolle to the monochlamydeous dicotyledons. They are distinguished by their coriaceous or woody follicles, which contain one or many seeds. The general characters of the order are given under *PROTEACEAE*. The follicular division contains such genera as *Grevillea*, *Hakea*, *Lambertia*, *Rhopala*, *Knightia*, *Telopoa*, *Lomatia*, *Banksia*, and *Dryandra*. [J. H. B.]

FOLLIPAROUS. Producing leaves only, as leaf-buds.

FOLIOLE (adj. **FOLIOLATE**). A leaflet; the secondary divisions of a compound leaf.

FOLIOSE. Covered closely with leaves.

FOLLE-AVOINE. (Fr.) *Avena sativa*.

FOLLETTE. (Fr.) *Atriplex hortensis*.

FOLLICLE. A kind of fruit, consisting of a single carpel, dehiscing by the ventral suture only, as in *Delphinium*, *Asclepias*, *Apocynum*, &c.

FONTANESIA. A Syrian shrub of the olive family, named in honour of M. Desfontaines, an eminent French botanist. It has lance-shaped leaves, ciliated at the margins; and white clustered flowers with a persistent four-cleft calyx, and four petals united into pairs at the base by the adhesion of the two stamens. The ovary is two to three-celled, with two suspended ovules, the style short, the stigma cleft into two threadlike divisions. The capsule is thin, notched, indehiscent, surmounted by the stigmas, and having a membranous margin. [M. T. M.]

FONTINALEI, FONTINALIS. A small section and genus of pleurocarpous mosses, distinguished by their aquatic habit, the nearly sessile capsule immersed in the perichaetal leaves, and the cancellated inner peristome. The principal genus, *Fontinalis*, contains a few species confined to temperate regions of the northern hemisphere. The leaves are curiously compressed, so

that the stems have a triquetrous outline. There is, however, no nerve as in the *Drepanophyllet*, and they are frequently split down the middle, each division looking like a separate leaf. *F. antipyrretica* is common about millwheels, on stones, roots, &c., in running streams; and does not fructify unless the plant is exposed or the ends of the branches come up to the surface. The dried plant is used by the Laplanders to stuff the space between the chimneys and the wall, to prevent fire, as it does not easily ignite. *Fontinalis* has a mitriform calyptra, but in the neighbouring genus *Dicelasma* the calyptra is dimidiate, while the capsules are more exerted. [M. J. B.]

FONTINALIS, FONTANUS. Growing in or near a spring of water.

FOOL'S-STONES. *Orchis mascula* and *Morio*.

FORAMEN. An aperture. The foramen of an ovule is an aperture through the integuments, allowing the passage of the pollen tubes to the nucleus.

FORAMINULE. The ostiolum of certain fungals.

FORBIDDEN FRUIT. *Citrus Paradisi*. — (of London). A variety of the shaddock, *C. decurmana*. — (of Italy). The Pomme d'Adam, a variety of *C. Limetta*. — (of Paris). The sweet-skinned orange, a variety of *C. Aurantium*.

FORCIPATE. Forked, like a pair of pincers.

FORGET-ME-NOT. *Myosotis palustris*. —, **ANTARCTIC.** *Myosotidium nobile*.

FORFICARIA *graminifolia* is a terrestrial tuberous-rooted orchid of South Africa, with narrow, rigid, grassy leaves shorter than the stem, which is one to two feet high, and terminating in a loose raceme of eight to ten flowers, each supported by a short membranaceous bract. The upper sepal is boat-shaped, the two lateral ones larger, keeled and acute, the petals bristle-like and hairy, and the lip very short, fleshy and pubescent. There is only one species. [A. A. B.]

FORNICATE. Arched.

FORNIX. Little arched scales in the orifice of some flowers.

FORRESTIA. A genus of *Commelynnaceae* found in New Guinea. Herbs with elliptical lanceolate glabrous leaves having hairy sheaths, and red flowers in dense heads, with six stamens, the filaments of which are glabrous. [J. T. S.]

FORSKALEA. A genus of *Urticaceae*, found in various parts of Africa, the Mediterranean region, Arabia, and North-West India. It belongs to a small tribe characterised by the male flowers having but one stamen; and is distinguished from its near allies by its minute flowers being enclosed in a two or many-leaved involucre. The five known species are branching herbs, with tough somewhat woody stems clothed

with rigid stinging hairs, furnished with lance-shaped or ovate leaves, the little flowers densely packed in their axilla, males and females in the same involucre. *F. angustifolia* is said to be used in the Canary Islands to promote perspiration. The genus bears the name of M. P. Forskål, a botanist of the last century who wrote a flora of Egypt and Arabia Felix. [A. A. B.]

FORSTERA. A genus of *Stylidiaceæ* with a calyx of from three to six lobes; corolla white, campanulate, with a four to nine-lobed spreading limb; stamens and style united into a central erect column surmounting the ovary, having at its base two large erect subulate or lunate glands. The anthers, on the top of the column, are sessile, bursting transversely, the two halves hooded, the upper turned back; stigma two-lobed, feathery, and spreading in the female flowers; fruit a membranous capsule. The stems are simple or branched, two to three inches in height; the leaves more or less closely imbricated, alternate; the flowers monocious or dioecious. Very remarkable Alpine plants, natives of Tasmania, New Zealand, and Fuegia. [R. H.]

FORSYTHIA. A genus of shrubs belonging to the *Oleaceæ*, having a four-parted calyx, a shallow bell-shaped four-lobed corolla, a two-lobed stigma, and capsular fruit. *F. viridissima* is very ornamental in March, with its numerous tufts of rather large pendulous bright greenish-yellow flowers, which grow two or three together from all parts of the rod-like branches. After these have faded, the slightly aromatic shining oblong lanceolate leaves make their appearance; they remain till late in autumn, turning yellow or purple before they fall off. The shrub then has somewhat the habit of a willow, but the stems are four-angled and studded with a number of large prominent buds. It is perfectly hardy. [C. A. J.]

FORTUNÆA. A genus of *Juglandaceæ* found in North China and Japan, and represented by a single species, *F. chinensis*, a smooth pinnate-leaved bush with the aspect of a *Sunach*, its leaves being composed of five to seven pairs of lance-shaped unequal-sided sharply serrated leaflets with an odd one. The branches are terminated by a cluster of slender drooping catkins of green male flowers somewhat like those of a willow, and a solitary cone-like and erect female catkin, made up of a number of hard-pointed bracts closely overlapping each other, and each bearing in its axil a little one-seeded, two-winged nut. According to Mr. Fortune, who first gathered the plant, and whose name it bears, the Chinese use the fruits to dye the black colour of their clothes. Its cone-like female catkins suffice to distinguish it from other genera. [A. A. B.]

FORTUYNIA. A genus of *Cruciferae* allied to *Raphanus*, but with the two lower cells of the pod empty, the two upper one-seeded and indehiscent. The pod is flattened, broadly winged, resembling that of

Isatis: indeed, the genus is founded on the *I. Garcinii*, an eastern plant. [J. T. S.]

FOTHERGILLA. A genus of the witch-hazels, named in honour of Dr. Fothergill, a London physician and patron of Botany of the last century. The corolla is wanting; the stamens usually twenty-four in number, their filaments long and clubbed. The species are dwarf deciduous shrubs, natives of North America, having white and sweet-scented flowers. [G. D.]

FOUGÈRE COMMUNE or GRANDE. (Fr.) *Pteris aquilina*. — **FEMELLE.** *Athyrium Filix-femina*, also *Pteris aquilina*. — **FLEURIE.** *Osmunda regalis*. — **MALE.** *Lastrea Filix-mas*. — **MUSQUÉE.** *Myrrhis odorata*.

FOUNTAIN TREE. A popular name for *Cedrus Deodara*.

FOURCROYA. An amaryllidaceous genus closely related to *Agave*, and like it having long-lived massive stems, great fleshy leaves, and a very tall pyramidal terminal inflorescence produced after the lapse of many years. Herbert speaks of *F. longæva* as the most magnificent plant in the order, beyond all comparison: its stem forty feet high; its leaves less rigid and erect than in *Yucca*; its inflorescence thirty feet high, the lower branches of the terminal pyramid twelve to fifteen feet long; and its white flowers innumerable. These flowers consist of a six-parted perianth, with regular nearly patent segments, subulate conniving filaments with versatile anthers, a straight hollow triangular style enlarged below, and a triangular fringed stigma. *F. gigantea* was formerly called *Agave fatida*, and is a smaller plant than the foregoing. The name *Ixoetia regia* has been given in gardens to *F. Boissiphausii*. The species occur in S. America, Mexico, W. Indies, and Madagascar. [T. M.]

FOUR O'CLOCK FLOWER. *Mirabilis dichotoma*.

FOUROUCHE. (Fr.) *Trifolium incarnatum*.

FOUTEAU. (Fr.) *Fagus sylvatica*.

FOVEA (adj. FOVEATE, dim. FOVEOLATE). A small excavation or pit: hence pitted.

FOVEOLE. The perithectum of certain fungi.

FOVEOLARIA. A genus of the *Styracæ* family, peculiar to Peru, and represented by a single species, *F. ferruginea*, so named because of the copious rusty down which clothes the branches, flower racemes, and under surface of the leaves. It is a tall bush, with alternate elliptical entire leaves; and the little white flowers, which are somewhat like those of the *Styracæ*, but smaller, are borne in axillary racemes, and have a five-toothed calyx, five oblong petals, and ten stamens adhering by their stalks into a tube so as to be monadelphous; this latter character being the chief dis-

linguishing feature. The fruits are little ovoid berries. [A. A. B.]

FOVILLA. The imaginary fluid or emanation which it was formerly thought that the pollen discharged when performing the act of fertilisation. The fluid actually contained in the pollen-grain.

FOX-BANE. *Aconitum Vulparia*.

FOX-CHOP. *Mesembryanthemum vulpinum*.

FOXGLOVE. *Digitalis*. —, **DOWNY**

FALSE. An American name for *Gerardia flava*. —, **LADIES'.** *Verbascum Thapsus*.

FOX-GRAPE. *Vitis vulpina*, *Labrusca*, &c.

FOX-TAIL. *Lycopodium clavatum*.

FRACID. Of a pasty texture; between fleshy and pulpy.

FRAGARIA. A genus of *Rosaceæ*, distinguished by its ten-cleft calyx, its five petals, and its seeds inserted on a fleshy receptacle. This fleshy receptacle is the fruit known as the Strawberry. The name *Fragaria* is derived from *fragrans*—the fruit, as is well known, being peculiarly perfumed. The common name of Strawberry has been given, according to Sir Joseph Banks and others, on account of straw having been laid to prevent the fruit from getting soiled in wet weather.

There are several species, of which the principal are, *F. vesca*, to which belong the wood and Alpine varieties; *F. viridis*, the green; *F. elatior*, the Hautbois; *F. virginiana*, the Virginian or scarlet; *F. grandiflora*, the pine; and *F. chiloensis*, the Chilian strawberry.

Previous to 1629, the date assigned to the introduction of the Scarlet Strawberry from Virginia, the Wood Strawberry must have been the sort generally gathered for sale in this country. 'Strawbery ripe,' together with 'Gode Peasecode,' and 'Cherry in the ryse,' were mentioned as some of the London cries by Lidgate in a poem which he wrote, probably 400 years ago, or nearly, for he died in 1433. Peas must have been then cultivated for sale; strawberries may have been partially so, or they may have been chiefly gathered for the purpose where found growing in their wild state. But Hollinshed mentions the fact that Gloucester asked the Bishop of Ely for strawberries when contemplating the death of Hastings; and the circumstance has been dramatised by Shakespeare:—

'My lord of Ely, when I was last in Holborn,
I saw good strawberries in your garden there.'

The palace and garden of the Bishop were situated in that part of London now called Ely Place; and the grounds sloping to the then open stream or rivulet of Holborn must have been well adapted for the growth of strawberries.

The green strawberry is a European

plant, but rarely met with. The fruit is small, very abundant, roundish; the flesh has a greenish tinge, solid, and juicy; and having somewhat of the pineapple flavour, something good might result from crossing it with other sorts.

The Hautbois is a native of England and the continent of Europe. It has not been found in a wild state so plentifully as the Wood or Alpine kinds. The cultivated varieties of this species sometimes bear most abundant crops; occasionally, however, the plants only produce sterile flowers, yet perhaps in another season the same plants again bear profusely, sterility being induced by circumstances which occasion a too rapid development of the parts of fructification, and their consequent imperfection. This led to the supposition that the Strawberry was a diocious plant; but it is not so, for the rudiments of stamens and pistils, more or less perfect, can always be detected. The Hautbois have plicated, rugose leaves, and the fruit has a musky flavour, which many persons greatly prefer.

The Virginian or Scarlet Strawberry has many varieties, of various forms, round, conical, and oblong, some of them sugary and mild, but most of the scarlets have a brisk acidity. The Old Scarlet still ranks amongst the earliest ripening sorts. Although it was almost the only scarlet known for nearly 200 years after its introduction, and a shy bearer, no attempts to change it by crossing appear to have been made till within the last fifty years. By accident some good varieties of it were obtained; now, by artificial crossing, they are exceedingly numerous. They cross readily amongst themselves, and likewise with the pine.

The Pine Strawberries have generally large flowers and fruit, with foliage of a darker green and thicker substance than that of the scarlets, and the leaves are not so sharply serrated. According to some authorities, the species is a native of Surinam, but the true Old Pine was doubtless obtained from Carolina. This sort is very much superior to many formerly cultivated under the denomination of Pine Strawberries, and which, although most abundant bearers, have been abandoned for new sorts that are both prolific and good in quality. Still, as regards richness of flavour, the true Old Pine or Carolina maintains its high character. Instead of being hollow and spongy, it is solid and juicy—so much so, that a basket of it may be detected among other sorts by its greater weight.

The Chill Strawberry is, as its name implies, a native of Chili; but Prof. Decaisne, in his splendid work, the *Jardin Fruitier du Musée*, states that it is not confined to that part of South America, but has also been found on the western coast of North America, in California, and Oregon. The whole plant is covered with silky hairs, those on the scapes and peduncles spreading horizontally. It is of vigorous growth where the climate is suitable for it;

but it was found rather tender for our severe winters, and it does not succeed in the climate of Paris, but in the south-west of France it thrives admirably. It was introduced to Marseilles from Chili, in 1712, by Frezier, a French officer of marine artillery. Five plants were all that survived the voyage; but in 1837 about 450 acres were occupied with this sort alone in the neighbourhood of Brest, where the mildness of the winters and moisture of the air are favourable to its growth. It was cultivated in this country by Philip Miller in 1727; afterwards it appears to have been lost, till reintroduced by the Horticultural Society. Though not itself adapted for our climate, very beneficial results have followed its reintroduction, for, by crossing, a very large variety called Wilmot's Superb was raised; and though this had too much of the tenderness of its parent, yet, by repeated crossing, others less tender and of better quality have been obtained, and among them that so extensively grown and so well known by the name of the British Queen, one of our most valuable sorts.

Formerly strawberries were chiefly carried to the London market by women in head-load baskets. These women came mostly from Wales and Shropshire, and returned after the fruit-gathering season was over. They often made two journeys from Isleworth or Twickenham to London, thus walking between thirty and forty miles daily, with heavy loads on their heads for half that distance. Such labour is now almost entirely done away with, and spring vans are employed for the conveyance of strawberries to the markets. [R. T.]

FRAGILARIA. A genus of *Diatomaceæ* in which the frustules adhere intimately to each other, so as to form long ribbon-like threads which are narrower at one end than the other, probably from the rupture of the thread in the centre. *F. hiemalis* is very common in little pools and runnels in early spring, and is always a pleasing microscopic object. [M. J. B.]

FRAGON. (Fr.) *Ruscus*.

FRAISIER. (Fr.) *Fragaria*. — À CHÂS-SIS. *Fragaria minor*. — BRESLINGE. *Fragaria collina*. — BUISSON. *Fragaria ciliolata*. — D'ANGLETTERRE. *Fragaria minor*. — DE L'INDE. *Fragaria indica*, sometimes called *Duchesnea frugifolia*. — DES BOIS. *Fragaria sylvestris*. — DE TOUS LES MOIS. *Fragaria sempervirens*. — FRESSANT. *Fragaria hortenensis*. — STÉRILE. *Potentilla Fragariastrum*. — DE VERSAILLES. *Fragaria monophylla*.

FRAMBOISIER. (Fr.) *Rubus Idæus*. — DU CANADA. *Rubus odoratus*.

FRANCISCA. A genus of Brazilian shrubs, included among the *Scrophulariaceæ*, and closely allied to *Brunfelsia*, from which it differs in the tube of the corolla being curved and dilated at its summit. There are several species in cultivation as stove plants, most of them

having very showy salver-shaped purple flowers. The root of *F. uniflora*, and, to a less extent, the leaves, are used in Brazil in syphilitic complaints; hence the plant is called by the Portuguese Vegetable Mercury. It is bitter, purgative, emetic, and is poisonous in large doses. [M. T. M.]

FRANCISIA. A name given by Endlicher to a supposed genus of *Chamaeliadaceæ*, founded upon a drawing of Ferdinand Bauer's representing *Darwinia fascicularis*, its stamens by some error, possibly of the press, being described as twenty instead of ten. [J. Br.]

FRANCOICEÆ (*Francoideæ*.) A natural order of calycifloral Dicotyledons belonging to Lindley's Erical alliance of Hypogynous Exogens, referred by Bentham and Hooker to *Saxifragaceæ*. Stemless herbs, with lobed or pinnate exstipulate leaves, and flowers in racemes; the calyx four-cleft; petals four, persistent; stamens about sixteen, attached to the lower part of the calyx, the alternate ones abortive. Ovary free, four-celled; ovules numerous; no style; stigma four-lobed. Fruit a four-valved capsule; seeds numerous, with a minute embryo and fleshy albumen. They are natives of Chili. Their qualities are astringent and slightly scilative. There are two genera, *Francoa* and *Tetilla*; and five species. [J. H. B.]

FRANCOA. A genus of perennial Chilian herbs, typical of the *Francoideæ*, having lyrate pinnatifid leaves which are nearly all radical, and flowers in simple or branched racemes, the pedicels bearing single flowers, and having a persistent bract at the base. The calyx is four-parted, the petals four, the stamens eight fertile alternating with eight sterile, and the ovary free, four-celled, with numerous ovules. There are four or five species. Their juice is said to be sedative, and the roots of some are used for dyeing black. [J. H. B.]

FRANCEARIA. A genus of *Compositæ Asteroideæ*, nearly allied to *Inula* and *Pulsatilla*, and containing only one species, *F. crispata*. This is an erect somewhat shrubby plant varying from subglabrous to densely tomentose, with short oblong semi-amplexicaul leaves, which are much waved at the margins. It is a native of Senegal and Egypt, and a form occurs in India. The flowers are in yellow terminal heads, and resemble those of *Pulsatilla*. [J. Br.]

FRANGIPANE. *Plumeria rubra*.

FRANGIPANIER. (Fr.) *Plumeria*.

FRANKENIACEÆ. (*Frankeniads*.) A natural order of thalamifloral dicotyledons belonging to Lindley's violal alliance of hypogynous Exogens. Herbs or undershrubs with branching stems, and opposite exstipulate leaves with a sheathing base. Flowers sessile, imbedded in the leaves; sepals four to five, united in a furrowed tube, persistent; petals alternate with sepals, often with scaly appendages; stamens four to five or twice these numbers, the anthers roundish, versatile, opening lengthwise. Ovary superior, with a slender cleft style, and numerous anatropal ovules attached to parietal placentas. Fruit a one-celled capsule, enclosed by the calyx; seeds very

small. Chiefly natives of North Africa and the south of Europe; a few have been found in South Africa, South America, the temperate parts of Asia, and Australia. They have scarcely any properties of importance. The leaves of *Beatsonia portulacifolia* are used in St. Helena as a substitute for tea. There are six genera, including *Frankenia*, *Beatsonia*, and *Hypericopsis*, and upwards of thirty species. [J. H. B.]

FRANKENIA. A genus of small heath-like herbs or sub-shrubs giving name to the order *Frankeniaceae*, distinguished by having the petals furnished with claws which are equal in length to the tube of the calyx, six stamens, a three-cleft stigma, and a three-celled many-seeded capsule. *Frankenia* is represented in Great Britain by *F. laevis*, a procumbent plant, with numerous narrow oblong leaves which grow in tufts, and flowers rising from the forks of the stems or from the axils of the upper leaves. It grows in muddy marshes by the seaside in many parts of Europe and the Canary Islands; in England chiefly on the eastern coast. Other species come from the shores of the Mediterranean, the Cape of Good Hope, North America, and New Holland. French, *Franquenne*. [O. A. J.]

FRANKINCENSE. The odoriferous resin called *Olibanum* obtained from *Boswellia*. —, EUROPEAN. A resinous exudation of the spruce fir. The name is also applied to *Pinus Teda*.

FRANKLANDIA. A proteaceous genus containing only one species, *F. lucifolia*, a small upright shrub, very remarkable in its appearance, having scattered filiform dichotomous leaves, covered with orange-coloured glands and warts. The flowers have a salver-shaped calyx with a straight slender cylindrical tube and four-cleft deciduous limb; four stamens included within the tube of the calyx; and a filiform ovary, with spindle-shaped style, and inversely conical stigma. The fruit is a small nut with a single seed. It is a native of South-west Australia. [R. H.]

FRASERA. A North American genus of the gentian family, consisting of biennial herbs with axillary stalked flowers, having a wheel-shaped four-cleft corolla, whose segments have in the middle a glandular depression, protected by a fringed scale. *F. carolinensis*, or *F. Walteri* as it is also called, is a curious little plant found in the morasses of North America. It furnishes a fine gentian-like bitter, and when fresh is said to be emetic and cathartic. The roots have been imported under the name of American Calumba. [M. T. M.]

FRAXINEÆ. The ash tribe, a suborder of *Oleaceæ*. It includes those genera which have a winged fruit or samara, with one or more seeds. Among these are comprised the common ash (*Fraxinus*), and the manna ash (*Ornus*). [J. H. B.]

FRAXINELLA. *Dictamnus albus*.

FRAXINELLE. (Fr.) *Dictamnus albus*.

FRAXINUS. The Ash, a familiar tree belonging to the *Oleaceæ*, well distinguished by its fruit, which is dry and indehiscent, two-celled, two-seeded, compressed, and ending in a leaf-like expansion (samara). *F. excelsior* is indigenous throughout the greater part of Europe, the north of Africa, and some parts of Asia. Not remarkable for robustness, grandeur, or longevity, it rests its claim to distinction among European trees on qualities scarcely less striking. In height, gracefulness of form, and elegance of foliage, it has no superiors, scarcely any competitor. 'Its branches at first keep close to the trunk, and form acute angles with it; but as they begin to lengthen, they generally take an easy sweep, and the looseness of the leaves corresponding with the lightness of the spray, the whole forms an elegant depending foliage.' (Gulpin.) The 'sweep' described by Gulpin is especially remarkable in old trees, the lower pendent branches of which are curved upwards at the extremities in a way which quite typifies the tree. In early spring the spray assumes a characteristic appearance, occasioned by the numerous clusters of flowers which appear at the extremities of the branches, at least a month before the leaves. These flowers are minute and remarkably simple in their structure, being destitute both of calyx and corolla; but, being exceedingly numerous, and of a dark purple colour, they are very conspicuous. They grow in dense clusters on the extremities of those branches which were produced in the former year, and eventually become diffuse, and are finally succeeded by bunches of pendent seeds not inappropriately called keys. The foliage of the ash is very late in making its appearance, and it takes its departure among the first, though the precise time at which it sheds its leaves varies much in different individuals. The leaves are composed of about five pairs of acute notched leaflets with a terminal odd one, which last is occasionally abortive. A variety named *heterophylla* has most of the leaves simple. Another variety is well known as the Weeping Ash, all the existing specimens of which were originally derived from a tree discovered about the middle of the last century growing near Wimpoie in Cambridgeshire.

As a timber tree the Ash is exceedingly valuable, on account of its quick growth, and the toughness and elasticity of the wood, in which latter quality it surpasses every European tree. In its younger stages (when it is called Ground-Ash), it is used for walking-sticks, hoops, and hop-poles. The matured timber is converted into ploughs, axle-trees, harrows, oars, carts, ladders, handles for tools and a variety of other implements; and as fuel it is unrivalled. Several American species of ash resemble the European ash in general appearance and qualities. The Ash is the badge of the clan Menzies. French, *Frêne*; German, *Esche*. [O. A. J.]

The Common Ash has perhaps a greater number of superstitions connected with it

than almost any other tree, for it would seem that in England it unites the honours usually attributed to the rowan tree, or mountain ash of Scotland, with those peculiar to itself. Or perhaps the supposed powers of keeping witches at a respectful distance of the mountain ash—

‘Rowan tree and Red Thread
Keep the witches at their speed—

have been attributed to it from the similarity of the leaves of the one to those of the other, thus giving rise to the name of ash for very dissimilar trees.

One of the most remarkable, and perhaps the most ancient, usages to which the Ash was appropriated, was that of passing children who were ruptured through a cleft in the bole of a young tree. Evelyn says: ‘I have heard it affirmed with great confidence, and upon experience, that the rupture to which many children are obnoxious is healed by passing the infant through a wide cleft made in the bole or stem of a growing ash tree; it is then carried a second time round the ash, and caused to repass the same aperture as before. The rupture of the child being bound up, it is supposed to heal as the cleft of the tree closes and coalesces.’ In this case, where both parents were living, the father presented the child, and the mother received it. In the Museum of Natural History in Worcester is a portion of a young ash which was probably submitted to this operation not many years since, and which did not heal as it grew, but retained an oval aperture in the stem. This superstition lingered until very recently, the late Rev. W. T. Dree describes a case as having occurred in Warwickshire.

A superstition prevailed among the old leeches that a shrewmouse, on creeping over the limbs of man or the lower animals, was the cause of cramp and paralysis. To cure this, a hole was made with an auger in the bole of an ash tree, and a poor live shrew was fastened in with the plug of wood that had been abstracted. It is even now a not quite exploded belief that a shrewmouse running over the foot, will cause lameness, the antidote for which was the application of a twig of ‘shrew ash.’ Thus Gilbert White says: ‘We have several persons now living in the village, who, in their childhood, were supposed to be healed by this superstitious ceremony, derived down, perhaps, from our Saxon ancestors, who practised it before their conversion to Christianity.’ The same author describes the preparation of the ‘shrew ash’ as follows:—‘At the south corner of the glebe, or area, near the church, there stood, about twenty years ago, a very old, grotesque, hollow pollard-ash, which for ages had been looked upon with no small veneration as a shrew ash. Now a shrew ash is an ash whose twigs or branches, when gently applied to the limbs of cattle, will immediately relieve the pains which a beast suffers from the running of a shrewmouse over the part affected; for it is supposed that a shrewmouse is of

so baneful and deleterious a nature, that whenever it creeps over a beast, be it horse, cow, or sheep, the suffering animal is afflicted with cruel anguish, and threatened with the loss of the use of the limb. Against this accident, to which they were continually liable, our provident forefathers always kept a shrew ash at hand, which, when once medicated, would maintain its virtue for ever. The manner of preparing the shrew ash was by means of the shrewmouse as already described, in which doubtless some strange invocations were used; but as we do not know them in these degenerate days, we may suppose the charm is lost. Not so, however, that attributed to the even-leaf from the Ash, that is, where the leaf terminates with two opposite plumes instead of the usual single terminal leaflet. In Wiltshire and Gloucestershire it is not at all uncommon for the lucky finder of the often much coveted even-leaf to invoke it as follows:—

‘Even-ash, I do thee pluck,
Hoping thus to meet good luck;
If no luck I get from thee,
Better far be on the tree.’

This simple charm keeps away witches; and we can only say that in our younger days we have travelled with an even-leaved ash on many an eerie night, and we never saw a witch.

Evelyn says that ‘the chymists exceedingly recommend the seed of ash to be an admirable remedy for stone. But whether by power of magic or nature, I determine not’—doubtless from the power of its roots to rive rocks, and the facility with which this tree will grow in stony places. Be this as it may, it is, though a very old remedy, now discarded; and, indeed, of the many virtues the Ash was once supposed to possess (and we have not named them all), it now boasts none but the utilitarian one of being a most useful timber tree. However, in this relation we must not forget to mention that the root of the ash yields a most curious veined or camletted wood in which superstition, ere now, has traced extraordinary figures. Thus Evelyn quotes one Jacobus Gaffereus for the assertion, in his book of *Unheard-of Curiosities*, that ‘of a tree found in Holland, which being cleft, had, in several silvers, the figures of a chalice, a priest’s ash, his stole, and several other pontifical vestments.’ [J. B.]

FREE. Not adhering to anything else; not adnate to any other body.

FREMENTIA. A remarkable and beautiful Californian bush, belonging to the *Sterculiaceae*. Along with the hand-plant of Mexico (*Cheilotanum*), it differs from the others in that group in the flowers having no petals; and from the latter it is readily recognised by the bell-shaped calyx, which remains attached, and does not fall away when the flower withers.

F. californica was first discovered by Col. Fremont (whose name it bears), in one of his Californian expeditions in the northern

part of the Sierra Nevada. It forms a deciduous bush four to ten feet high, having much the aspect of an ordinary fig-tree. The rounded five to seven-lobed leaves, however, are smaller than those of the fig, and clothed with rusty hairs underneath.



Fremontia californica.

The handsome yellow flowers are produced singly on the ends of short spur-like branches, and consist of a broadly bell-shaped calyx of five spreading divisions, clothed sparsely with cinnamon-coloured down outside; five stamens having their stalks united below into a cup; and an ovoid ovary surrounded by the staminal cup, and terminating in a simple style. The fruits are oval capsules, which, when ripe, split into five woody portions, each of which contains a few black seeds. [A. A. B.]

FRENCH BERRIES. The fruits of *Rhamnus infectiorius*, *saxatilis*, *avrygdalinus*, &c.

FRENELA. A genus of *Coniferae* of the tribe *Cupressineae*. The flowers are incomplete, the staminate and pistillate ones on the same plant: the former in cylindrical catkins, with numerous stamens, imbricated in six rows; the latter in globular or conical cones of six scales. The seeds are numerous, winged on both sides. Resinous trees or shrubs of New Holland, with cylindrical or three-angled branches, and ternate, scale-like, persistent, and decurrent leaves. They are two years in ripening their seeds. The name was given by Mirbel after M. Frenel. There are twenty known species. [J. H. B.]

FRÊNE. (Fr.) *Fraxinus excelsior*. — **À FLEURS.** *Ornus europæa*. — **À LA MANNE.** *Fraxinus rotundifolia*.

FRESENIA. A South African genus of *Compositae* characterised by its yellow flower-heads containing about fifteen florets, all of which are tubular and perfect; and by its achenes crowned with a double pappus, the exterior short and

chaffy, the interior of rough hairs. *F. leptophylla* and *scaposa*, the only species, are dwarf undershrubs, the former with opposite linear smooth, the latter with alternate downy leaves, and both with small terminal flower-heads. [A. A. B.]

FRESHWATER SOLDIER. *Stratiotes aloides*.

FREYCINETIA. A genus of *Pandaneæ* consisting of climbing or scrambling trees, natives of the Indian Archipelago, Norfolk Island, New Zealand, &c. They have the habit of *Pandanus*, from which they are distinguished by having their male flowers upon an unbranched spadix, by their female flowers having abortive stamens, and by the ovaries having numerous ovules placed on three parietal placenta. The fruit consists of numerous fleshy drupe-like carpels, completely or partially fused together, so that there are many or only one cell containing the numerous seeds. Examples of this genus are shown in Plate 10, fig. c, and Plate 14, fig. c. [M. T. M.]

FREYERA. A genus of umbellifers, having the fruit flattened laterally, each half with five sharp wing-like ridges; and comprehending a single herbaceous plant, a native of Illyria, the stem of which is slightly branched, with compound leaves twice divided, the divisions one or three-lobed; flowers white; fruit black. [G. D.]

FREZIEBA. A South American genus of *Ternstroemiaceæ*, chiefly found in the temperate regions of the Andes. They are evergreen bushes or trees of considerable magnitude, often with the aspect of laurels, but their leaves are usually covered beneath with close-pressed silky down. The little white flowers are usually two or three together, sometimes solitary in the axils of the leaves; they have a five-leaved calyx, five rounded petals, numerous stamens, and a thence to five-celled ovary, which becomes a small dry berry with numerous seeds. *Cleyera*, to which this genus is most nearly allied, has few seeds in each cell. The wood of *F. chrysophylla* is preferred to many others in the Peruvian Andes for making charcoal; its lance-shaped leaves are clothed beneath with golden down. *F. theodes*, a common West Indian species, has smooth leaves like those of the tea, said to be astringent and to have a similar taste. [A. A. B.]

FILAR'S-COWL. *Arisarum vulgare*.

FRIESIA. The name formerly given to the Tasmanian species of *Aristolisia*.

FRIOLES. A Spanish name for various kinds of pulse.

FRINGED. The same as *Fimbriate*.

FRINGE-MYRTLES. A name given by Lindley to the *Chamelauciacæ*.

FRINGE-TREE. *Chionanthus*.

FRITILLARIA. A genus of *Illiceæ* plants of ornamental character, found in

the south of Europe and in Asia. They are perennials, furnished with bulbs, and have erect annual stems with alternate or somewhat whorled often glaucous leaves, nodding bell-shaped flowers, sometimes solitary and terminating the stem, sometimes disposed in the form of a raceme in the axils of the upper leaves, or sometimes collected into a whorl beneath a terminal leafy tuft, this last being the arrangement in the Crown Imperial, *F. imperialis*, one of the most stately of the species. The perianth is six-parted, and each of its segments has a honey-pore near its base; within this are six stamens, and a three-celled ovary crowned by a three-parted style. In several of the species, especially in the native one, *F. Meleagris*, the colours of the flower are chequered, whence it is said the name is derived, from *fratillus*, assumed to mean a chess-board. [T. M.]

FRITZSCHIA. A genus of *Melastomaceæ*, composed of a few dwarf perennial Brazilian herbs, having much the aspect of the common thyme. Their minute leaves are smooth and marked with glandular dots, which is unusual in this family, and the slender twigs are terminated by solitary small purple flowers, which have a tubular calyx, four elliptical petals, eight straight stamens, with ovoid anthers united to their filaments by a short connective which has on its inner face two tubercles or short spurs. The tetramerous structure distinguishes them from some, and the nature of the stamens from others, of their allies. [A. A. B.]

FRÖBELIA. *Acrotiche*.

FRÖLICHIA. A genus of *Amaranthaceæ* nearly allied to *Gomphrena*, from which it differs in having a tubular perianth five cleft at the apex, and stamens with the filaments united into a long tube. They are natives of tropical America, one species reaching as far north as Illinois; and consist of hairy or woolly herbs, with opposite sessile leaves and spiked flowers, each with three scarious bracts. [J. T. S.]

FROG-BIT. *Hydrocharis morsus ranae*. — **AMERICAN.** *Lunobium*.

FROG-CHEESE. A name applied to the larger puff-balls when young.

FROLE. (Fr.) *Arbutus Unedo*.

FROMAGEON. (Fr.) *Malva rotundifolia*.

FROMAGER. (Fr.) *Bombax*. — **ÉPI-NEUX.** *Bombax Ceiba*.

FROMENTAL. (Fr.) *Avena clatior*.

FROMENT. (Fr.) *Triticum*. — **CULTIVÉ.** *Triticum vulgare*. — **DES HAIES.** *Triticum continuum*. — **LOCULAR.** *Triticum monococcum*.

FROND, FRONS. A combination of leaf and stem, as in many algae and liverworts; also improperly applied to a leaf which bears reproductive bodies, as that of dorsiferous ferns. Linneus applied it

to palm leaves, and so destroyed its meaning.

FRONDOSE. Covered with leaves; bearing a great number of leaves.

FRONDIPAROUS. A monstrosity, consisting in the production of leaves instead of fruit.

FRONTERA. A small tree from the Mauritius with alternate evergreen entire leaves and small flowers in axillary clusters or short racemes, forming a very distinct genus, whose immediate affinities have not been ascertained. The dotted leaves and most points of structure are those of *Myrtaceæ*, but the ovary is entirely superior, and the stamens definite.

FROSTED. A term applied to surfaces in which a dewy appearance is opaque, as if the drops were congealed.

FROST-WEED. *Helianthemum canadense*.

FRUCTIFICATION. The parts of the flower; or more properly the fruit and its parts.

FRUCTIPAROUS. A monstrosity, consisting in the production of several fruits, instead of the one which is metamorphosed.

FRUIT. That part of a plant which consists of the ripened carpels, and the parts adhering to them. — **SPURIOUS.** Any kind of inflorescence which grows up with the fruit, and forms one body with it, as a pine cone.

FRULLANIA. A large genus of *Jungermanniaceæ*, distinguished by its numerous archegones and complicated leaves. The species occur in all parts of the world, but are far more common in tropical or sub-tropical countries than in Europe. *F. tamarisci* is almost universally distributed, and is found abundantly in rather mountainous healthy districts, where it is conspicuous for its purple hue. The leaves in this genus are remarkable for the inflated lobes on their under side. [M. J. B.]

FRUSTULES. The joints into which the brittleworts separate.

FRUSTULOSE. Consisting of small fragments.

FRUTA DE BURRO. of Carthagenæ. A poisonous plant supposed to be a species of *Capparis*. —, of Humboldt. The fruit of *Xylopia grandiflora*. — **DE PARAÔ.** The fruit of *Schmidelia edulis*.

FRUTEX (adj.) **FRUTICOSE, FRUTESCENT.** A shrub; a woody plant, which does not form a trunk, but divides into branches nearly down to the ground.

FRUTICULUS. A small shrub.

FUCACEÆ. A natural order of dark-spored *Algae*, consisting of olive-coloured inarticulate seaweeds whose spores are contained in spherical cavities in the frond. Most of them are large species of

a tough leathery substance, and assume a dark colour when dried. Many of them have distinct leafy and even two-ranked appendages, while others are destitute of any distinction whatever between stem and receptacle. In *Humanthalia* the frond is a small cup-shaped body, the receptacle being repeatedly forked and many feet long. In many cases the receptacles form little pod-like solitary or fasciculate bodies projecting from the stem, while in others they are merely slight swellings. Another cause of variety of aspect arises from the different nature of the air-bladders by which they are sustained in the water. These are sometimes entirely wanting, sometimes simple, and sometimes compound or arranged in necklace-like rows. In all alike, whatever the habit may be, the spores are contained in cavities resembling the cells of *Dothidea*.

Fucaceae exist in all parts of the world calculated for the growth of seaweeds, and, though much more abundant as regards species in warm than in temperate regions, have numerous representatives in the latter. All are probably occasionally attached, but they may exist for centuries as floating masses, as in the instance of the Gulf weed, *Durvillea utilis*, which is remarkable for its having the habit of a *Laminaria*, though belonging truly to this order, and distinguished by the large cells like those of a honeycomb contained in its frond, is used in Chili and elsewhere for thickening soup. The greater part of these plants contain a great quantity of carbonate of soda, which was once procured from them in considerable quantities in the form of kelp, and they in common with some other melanosporns are a fertile source of iodine, one of the most important medicines in the Pharmacopœia. The larger species are collected on many parts of the coast for manure. The fine quality of the wheat in the Isle of Thanet is attributed to the large use which is made of it. [M. J. E.]

FUCHSIA. A genus of *Onagraceae* characterised by having a funnel-shaped coloured deciduous four-parted calyx, sometimes with a very long tube; four petals set in the mouth of the calyx-tube, and alternating with its segments; eight exerted stamens; and a long style with a capitate stigma. The flowers are succeeded by oblong bluntly four-cornered berries.

The introduction of the *Fuchsia* into England, about the close of the last century, is due to a sailor, whose wife was induced to sell it to Mr. Leo, nurseryman, of Hammer-smith. It was, however, a hundred years before this time that a monk named Father Plumier discovered the first specimen of the family, which he afterwards dedicated to the memory of Leonard Fuchs. This first species was named *Fuchsia triphylla flore coccinea*, and a description of it is to be found in the works of Plumier, published in 1703. With the exception of *F. accorticata* and *F. procumbens*, which are natives of New Zealand, all the species

belong to the central and southern regions of America, in shady moist places, in forests, or on the lofty mountains of Mexico, Peru, and Chili. The number of distinct species at present known is more than fifty, which have been introduced from time to time since the beginning of the present century; but the varieties most prized by florists date only from the year 1837, when *F. fulgens* was introduced. The introduction of this species, and soon afterwards of *F. corymbiflora*, *cordifolia*, and *serratifolia*, gave to horticulturists the opportunity of hybridising these long-flowered species with the globose kinds, and the result has been the annual appearance of varieties which, from a garden point of view, have surpassed their predecessors, to be themselves eclipsed in their turn. [C. A. J.]

FUCHSIA, AUSTRALIAN OR NATIVE.
A colonial name for *Correa*.

FUCUS. A name formerly applied indiscriminately to almost all the more solid *Alga*, though now confined to a single genus of *Fucaceae*. Attempts have been made to subdivide even this from slight differences in the spores or in the disposition of the male organs. *Fucus*, as now generally restricted, comprises those social seaweeds which have a flat or compressed forked frond, the air-vessels when present formed by the occasional swelling of the branches, or in their substance, and also have receptacles filled with mucus, traversed by a network of jointed filaments. *Fucus*, in fact, contains such species as *serratus* and *nodosus*, which are as common on our coasts as grass in the fields. The antherids are produced either on the same or on different plants, and their spermatozooids have been proved to have active functions from their effects on the spores, which, without their access, are not capable of reproducing the species, though they commence an imperfect germination.

Many of the species are more or less exposed at low water. *F. canaliculatus*, however, which is referred by some to a distinct genus, *Pelvetia*, is remarkable for its amphibious habit, growing as it does, frequently on large boulders, where it is dried up by the sun into a hard brown mass. This, however, recovers its usual appearance entirely with the first return of the tide, and is so little incommoded by the change, that it even brings fruit to perfection in such situations. As, however, there is a point beyond which endurance is impossible, it is not known on the coasts of the United States, where the hot burning sun would completely destroy vitality before the return of the tide. The peculiar leathery texture of the frond seems to enable it to bear considerable change without inconvenience.

These plants afford a considerable proportion of the seaweed thrown up upon our shores and collected for manure, as it was formerly for making kelp. Cattle also occasionally browse upon them, or they are boiled and given with coarse meal as food

The gelatinous receptacles are sometimes used as applications to scrofulous swellings. Any benefit which results must depend on the small quantity of iodine which they contain.

Most of the species are confined to the Northern seas. *F. vesiculosus*, though so common under a variety of forms both in the North Atlantic and Pacific, does not exist in the Mediterranean except in floating masses carried in through the Straits of Gibraltar. *F. nodosus* occasionally exists in similar floating masses, and then assumes curious forms which have been registered as distinct species distinguished by their mode of branching and other characters. *F. vesiculosus* is the badge of the M'Nells. [M. J. B.]

FUGACIOUS, FUGAX. Falling off, or perishing very rapidly.

FUGOSIA. A genus of *Malvaceæ*, consisting of shrubs, natives of tropical America, Africa, and Australia. Their flowers are surrounded by an outer calyx or involucre of six or more leaves, within which is a five-cleft calyx dotted over with black spots, and five oblique petals. The capsule is three to four-celled, opening through the backs of the carpels. [M. T. M.]

FUIRENA. A genus of cyperaceous plants belonging to the tribe *Scirpeæ*, having the inflorescence in solitary spikes, in spikes of three, or in crowded heads of spikes, many-flowered; scales imbricated, the outer frequently empty; stamens three; styles three-cleft; achenes triangular, with the bases of the styles adhering. There are about forty species, mostly natives of the warmer parts of the globe, chiefly in the southern hemisphere. [D. M.]

FULCIENS. Supporting or propping up anything; said of one organ which is placed beneath another.

FULCRA (adj. **FULCRATE**). Additional organs, such as pitchers, stipules, tendrils, spines, prickles, hairs, &c.

FULCRACEOUS. Of or belonging to the fulcra.

FULIGINOUS, FULIGINOSE. Dirty brown, verging upon black.

FULVOUS. Dull yellow, with a mixture of grey and brown.

FULWA. A solid buttery oil obtained from *Bassia butyrosa*.

FUMARIACEÆ. (*Fumeworts*.) A natural order of thalamifloral dicotyledons, belonging to Lindley's berberal alliance of hypogynous Exogens. Herbs with brittle stems, watery juice, alternate cut exstipulate leaves, and irregular unsymmetrical flowers. Sepals two, deciduous; petals four, eruciate, irregular, one or two of them often saccate or spurred, and the two inner frequently cohering at the apex so as to include the anthers and stigma; stamens either four and free, or six and diadelphous, each bundle being opposite the outer petals, the central anther two-celled, and

the two outer one-celled. Fruit a round and indehiscent achene, or a one-celled and two-valved pod; seeds crested with a minute embryo. Natives chiefly of the temperate regions of the northern hemisphere; a few occur at the Cape of Good Hope. They possess slight bitterness and acidity. *Dielytra spectabilis* has very showy flowers. There are about 160 species, distributed in eighteen genera, of which *Hypecoum*, *Fumaria*, *Corydalis*, *Dielytra*, and *Platycapnos* are examples. [J. H. B.]

FUMARIA. The Fumitory, a genus of herbaceous plants giving name to the order *Fumariaceæ*, among which they are distinguished by having one of the petals swollen or spurred at the base, and a one-seeded capsule which does not open. The species vary but little in habit, being small slender herbs with weak climbing or straggling stems, decomposed leaves, and clusters or spikes of small tubular irregular flowers of a pinkish hue tipped with purple, or rarely white. Several kinds of Fumitory are common weeds in cornfields and other cultivated ground, varying in luxuriance according to the richness of the soil. *F. officinalis* is said to be a common weed throughout the world, and has been long esteemed for its medicinal virtues, the juice having been recommended as a purifier of the blood, and an infusion of the leaves as a cosmetic. Though now not valued in England, it occurs in lists of French medicinal plants as a depurative. French, *Fumeterre*; German, *Erdrauch*. [C. A. J.]

The Fumitory is essentially an agrarian plant, tracking both garden and field culture over a great part of Asia as well as Europe. It is probably from this cause that the species are so variable, or perhaps we should say, that so many varieties occur; and being sown with different kinds of seeds, such as clover, flax, and other crops, which may be obtained from different parts of the world, we need not wonder if a variable mode of growth should be the consequence of the varying conditions which plants so circumstanced must encounter. The typical species is *F. officinalis*, which was formerly in repute for a variety of diseases. Its generic name, indeed, is said to be derived from the Latin *fumus*, smoke, which, Pliny tells us, was given because the juice of the plant brought on such a flow of tears that the sight became dim as in smoke, and hence its reputed use in affections of the eye. It is now no longer employed medically, although a volume might be written of what has been said of its virtues and the many diseases in which it was held as a remedy by a host of physicians from Dioscorides to Cullen. [J. B.]

FUMETERRE. (Fr.) *Fumaria*. — **BULBEUSE.** *Corydalis bulbosa*.

FUMOUS, FUMOSE. Grey, changing to brown; smoke-coloured.

FUMEWORTS. The plants of the order *Fumariaceæ*.

FUMITORY. *Fumaria*. —, **BULBOUS** *Corydalis bulbosa*, also *Adoxa Moschatellina*.

FUNALIS. Formed of coarse fibres resembling cords.

FUNARIE, FUNARIA. A small natural order and genus of acrocarpous mosses with a pear-shaped capsule, and the calyptra much inflated and vesicular below, and subulate above. The peristome is either double, single, or altogether wanting, the vesicular calyptra being the point of greatest importance. *Funaria hygrometrica* grows in all parts of the world, and is extremely common in this country, especially on charred or burnt soil, and is conspicuous from its large calyptra and curious heads. [M. J. B.]

FUNDAMENTAL. Constituting the essential part of anything, in a plant, the axis and its appendages.

FUNDI or FUNDUNGL. The Hungry Rice, *Paspalum ezile*.

FUNDUS PLANTÆ. The collar, or place of junction of root and stem.

FUNGALIS, FUNGALS. A name intended to include under one head *Fungi* and *Lichens*, the latter of which are so closely allied that it is often difficult to tell to which division some given species may belong. [M. J. B.]

FUNGI. A large class of cryptogams distinguished from *Algae* more by habit than by any general character. They agree with them in their cellular structure, which is void of anything like vascular tissue except in a very few cases, while they differ in their scarcely ever being aquatic, in deriving nutriment from the substance on which they grow, and in the far lower degree of development of the organs of impregnation—the impregnating cells, where they really possess a sexual function, being extremely simple, void of cilia, and therefore possessed of nothing more than molecular motion, the only exception being that of *Leptomitia* and its allies, which seem to be almost intermediate. The myxogastrous *Fungi*, whose spores produce a body resembling certain infusoria, are wholly exceptional, and the indications of animal life which they exhibit point in another direction.

Minute and abstruse as are these differences, it is almost impossible to distinguish certain *Fungi* and *Algae* without them. Take, for instance, a *Peronospora* and a *Chroolepus*. Both exhibit erect branched threads, from the upper part of which cells are produced containing a thick grumous matter. At first sight no one would think they could belong to very different sections of the vegetable kingdom. When, however, we look more closely, we find first, that the one is a true parasite, the other growing indifferently on bark or stone, and deriving its nourishment from the surrounding air; and then when we turn from the habit to intimate structure,

we find that the spores of the *Peronospora* fall off and germinate at once, while the analogous bodies in the *Chroolepus* burst and send out a multitude of minute reproductive bodies moving about for a time by means of long lash-shaped cilia. Zoospores, however, have lately been discovered in *Peronospora*, so that the resemblance is still closer. A second form of fruit which occurs in *Peronospora* shows a greater difference between the two as genera, but not as regards important sectional characters.

Popularly speaking, *Fungi* may be recognised either as the creatures of corruption—springing, that is, from various bodies, whether animal or vegetable, in a more or less advanced stage of decomposition—or as parasites on living bodies, producing an injurious change. The ephemeral tool-stools of the hothed, the mushrooms of our rich pastures, the sap-halls on decaying trees, the moulds which infest our food and even the tissues of living animals, the mildew bunt and smut of our corn-crops, with many other more or less familiar objects, are so many *Fungi*, all agreeing in the main particulars which we have indicated, and so differing from the green scum of our brooks, and the weeds of the sea, though distinguished from each other by essential differences of structure. In some, no indications of sexual differences have been found, while in others bodies occur, which in all probability have an especial sexual function, though at present we are without actual proof of the fact.

Fungi are divided into two great sections, characterised by the mode in which the reproductive bodies are formed. In the one, they are simply the terminal joint or joints of the component threads or cells, altered in form from those which precede them, and at length falling off and reproducing the plant, in which case they are called spores. In the other they are formed from the contents of certain sacs or asci, and are usually definite in number, and multiples of four, where they are not reduced below that number; in this case they are called sporidia. Both spores and sporidia may be multicellular, and in germination give rise to as many threads of spawn as there are cells. In many species of the latter division, a second form of fruit occurs, which is naked as in the first; and in every division two or more kinds of fruit are frequently produced by the same species, a fact which takes from the mathematical precision of the two great divisions, though it does not interfere with their natural affinities.

Fungi may be divided into six principal classes, the first four of which bear naked spores, the two latter sporidia:—

1. **HYMENOMYCETES**, in which the fructifying surface is at length exposed, if not so in its first origin. Mushrooms and sap-balls are well-known examples.

2. **GASTEROMYCETES**, in which the fructifying surface is always enclosed at first, and is never completely exposed, except in old age or decay, in consequence of its sinuous intricate character, even

when the peridium bursts. Puff-balls are a familiar example.

3. **CONIOMYCETES**, in which the spawn or vegetative part is reduced to a minimum, and the abundant spores at length form a dusty or more rarely a gelatinous mass. The rust and bunt of corn afford ready instances.

4. **HYPHOMYCETES**, in which the vegetative part consists mostly of threads which are not woven into a solid mass except in a few cases which border on *Hymenomycetes*. The naked-seeded moulds belong to this division.

5. **ASCOMYCETES**, in which the sacs or asci which contain the sporidia are either jammed into an exposed hymenium, or line the interior of the fruit-bearing cysts. Moulds afford an example of the first, and the insect *Sphaeria* of the second.

6. **PHYCOMYCETES**, in which the component threads are more or less free as in *Hyphomycetes*. The common bread mould is an excellent example.

Each of these divisions is again divided. In a few instances the bodies which at first sight seem to be the spores or ultimate fruit, are in reality a sort of prothallus. Sometimes a third evolution takes place before the ultimate spore is formed. The truly parasitic fungi of the third division give us examples.

The uses of *Fungi* are various. To enumerate them here would be merely to go over ground which must be again travelled under individual orders and species. It is sufficient to say that they afford excellent and abundant food, valuable medicines, besides less important assistance in domestic economy. Their office in the organised world is to check exuberant growth, to facilitate decomposition, to regulate the balance of the component elements of the atmosphere, to promote fertility, and to nourish myriads of the smaller members of the animal kingdom. They occur in every part of the world where the cold is not too intense to destroy their spawn, or where there is sufficient moisture, though they abound the most in moist temperate regions where the summer is warm. There are but few certain traces of them in antediluvian strata, and those only in the more recent. Most of them, however, are too soft and fugitive to make it likely that they should have been preserved. [M. J. B.]

FUNGIFORM, FUNGILLIFORM. Cylindrical, having a rounded convex overhanging extremity.

FUNGINOUS. Of or belonging to a fungus.

FUNICULUS, FUNICLE. The cord or thread which sometimes connects the ovule or seed to the placenta.

FUNILIFORM. Formed of cord-like fibres.

FUNKIA. A genus of *Liliaceæ* found in China and Japan, having fasciculate roots, the leaves usually all radical, stalked, ovate or cordate, acuminate and plaited, the cau-

line ones, when present, sessile. The flowers grow in racemes and are blue or white, with a tubular six-parted perianth, and the style and stamens bent down. The seeds have a black membranous coat, produced into a wing at the apex. A few species are known, and they are mostly introduced to our gardens. [J. T. S.]

FUNNEL-SHAPED. A calyx or corolla, or other organ, in which the tube is obconical, gradually enlarging upwards into the limb, so that the whole resembles a funnel, as in the *Convolvulus*.

FURBIURNE. An Arab name for *Euphorbia officinarum*.

FURCATE. Having long terminal lobes, like the prongs of a fork, as *Ophioglossum pendulum*.

FURCELLARIA. A genus of rose-spored *Algae* belonging to the natural order of *Cryptophyceæ*, with a forked cylindrical fastigiate frond, having the capsules lodged in the pod-like branches. *F. fastigata*, the only known species, which is widely distributed in the Northern Atlantic, is one of the commonest sea-weeds on our coast. It is so like *Polydora rotunda* that it is very difficult to distinguish them except when in fruit; the sponge-like masses in which the capsules of *Polydora* are humered, afford, however, a marked distinction. [M. J. B.]

FURFURACEOUS. Scurfy; covered with soft scales, which are easily displaced.

FURROWED. Marked by longitudinal channels, as the stem of the parsnip.

FURZE. The gorse or whin, *Ulex europæus*.

FUSAIN. (Fr.) *Euonymus europæus*.

FUSANUS. A genus of sandalworts, having flowers of mixed character, some being perfect, having stamens and pistils; others with stamens or with pistils only. The border of the calyx is deeply divided into four pieces, which spread horizontally like the spokes of a wheel, but ultimately fall off; the stamens are four in number. The species are small trees or shrubs, natives of the Cape of Good Hope, and of the southern parts of New Holland. Dr. Lindley states that 'the fruit of the Quandang nut (*F. acuminatus*) is as sweet and useful to the New-Hollanders as almonds are to us.' [G. D.]

FUSARIUM. A genus of moulds closely resembling *Fusisporium*, but consisting of *Fungi* which burst forth from beneath the cuticle of the plants on which they grow, in little gelatinous spots. *F. heterosporium* has affected rye in the south of England during hot seasons, and *F. Mori*, a species first described by Léveillé, is the pest of the white mulberry crops cultivated for silkworms, forming on the leaves brown gelatinous specks which exhaust their nutritive qualities. The other species are of

little importance from an economical point of view. [M. J. B.]

FUSETTE. The Spanish name for *Rhus Cotinus*.

FUSISPORIUM. A genus of moulds with septate spindle-shaped spores springing from free mucedinous threads, and at length forming a gelatinous mass. It is distinguished from *Fusarium* by its not bursting forth from beneath the cuticle as in that genus. Several of the species are destructive to vegetables, such as turnips, beet-root, gourds, &c. *F. Solani* is extremely injurious to potatoes, and in company with *Peronospora infestans* hastens the decomposition which is due to that parasite, or converts the tubers into a hard dry innutritious mass. The flocci are, however, too much developed to make this a typical *Fusisporium*. [M. J. B.]

FUSCOUS. Brown, with greyish or blackish tinge.

FUSIFORM. Thick, tapering to each end; as the root of the longradish. Sometimes conical roots are called fusiform.

FUSTET. (Fr.) *Rhus Cotinus*.

FUSTIC. A dye-stuff, consisting of the wood of *Machura tinctoria*. —, YOUNG. The wood of *Rhus Cotinus*.

GÆRTDIA. A genus of *Begoniaceæ* having the staminate and pistillate flowers on the same plant, arranged in dichotomous cymes. The staminate flowers have a white four-leaved perianth, and twenty to thirty stamens; and the pistillate ones, which also have a white four-leaved perianth, have a three-winged ovary with three central bifid placentas. They are Brazilian shrubby plants with smooth shining jointed stems and branches, semicordate leaves, and large shining deciduous stipules. The four known species are included by most authors under *Begonia*. [J. H. B.]

GÆRTNERA. A genus of opposite-leaved bushes or small trees of the *Logania* family, differing from most of the genera in the fruits being two-celled berries with one or rarely two instead of numerous seeds in each cell. The erect and not lateral attachment of the seeds serves to distinguish them from their nearest allies. The greater number of the thirty known species are found in Mauritius and Madagascar, the remainder in W. Africa and the Malayan peninsula and islands. The smooth entire leaves are lance-shaped, ovate or elliptical, and the flowers are white, green, or rose-coloured: in some species not unlike those of the common privet and arranged in a similar manner, in others disposed in compact terminal heads, and in a goodly number in corymba. The calyx is usually very minute, but in *G. calycina*, a Mauritian species, it is enlarged, bell-shaped, and coloured. The corolla tube has a flat border of five narrow lobes, and bears on its inner face five stamens. The ovary becomes, when ripe, a

white, black, or blue berry about the size of a pea, with two seeds. [A. A. B.]

GAGEA. An extensive genus of *Liliaceæ* formerly included in *Ornithogalum*, from which it is easily distinguished by the seeds having a yellowish (not black) seed-coat, and the stamens adhering more distinctly to the segments of the perianth. The species are natives of Europe, temperate Asia, and northern Africa, and resemble each other closely in having linear root-leaves, and a scape with a terminal bracted umbel or corymb of greenish-yellow flowers rather large for the size of the plants. The perianth is persistent, of six patent nearly equal divisions; the stamens six; the style terminated by a three-lobed stigma; the capsule three-celled and three-valved. *G. lutea* is a British species, though rather rare; it is distinguished from allied European species by having no accessory bulb included in the common envelope. [J. T. S.]

GAGLEE. *Arum maculatum*.

GAIAO. A name applied in French Guiana to the wood of *Diptyrys odorata*.

GAILLARDIA. A genus of handsome annual or perennial North American herbs of the composite family, chiefly found in the Southern States, some extending to Oregon, and *G. aristata* reaching across the Rocky Mountains to the Winnipeg Valley. The chief features of the genus are the slender bristles instead of chaffy scales of the receptacle, the long and filiform styles, the neuter ray florets, and the villous achenes crowned with a pappus of six to ten membranaceous one-nerved scales, which are prolonged into an awn. The leaves are sometimes pinnatifid, but more generally entire or obscurely toothed, lance-shaped and rough, the cauline ones sessile. The flower-heads, about two inches across, are single and supported on naked stalks, the strap-shaped ray florets three to five-toothed, sometimes brick-red or purple below, sometimes altogether yellow. The slender hairs of the stems and leaves are seen to be curiously jointed when looked at through a lens. Six species are known, all of them pretty border plants. [A. A. B.]

GAILLET. (Fr.) *Gallium*.

GAIMARDIA. A genus of *Desmanaceæ*, differing from the rest of the order by having two instead of only one stamen. It contains a small tufted herb from the Maclovian Islands, with erect stems branched at the apex and densely leafy; the branches with scattered leaves; the leaves imbricated, bayonet-shaped, with sheathing bases; the flower-spike solitary terminal, with one-flowered spikelets. [J. T. S.]

GAINIER COMMUN. (Fr.) *Cercis Siliquastrum*.

GAIROUTTE. (Fr.) *Lathyrus Cicera*.

GAITER BERRIES. The fruits of *Cornus sanguinea* and *Euonymus europæus*.

GALA, GALAGTO. In Greek compounds = milk or white as milk.

GALACTITES. A genus of *Compositæ* peculiar to the Mediterranean region and the Canary Islands. The three known species have much the aspect of, and are nearly allied to, *Onitcus*, differing chiefly in the outer florets of the flower-head being sterile and larger than the others, as in *Centaurea*. The stems seldom exceed two feet high; the leaves are pinnatifid with spiny-pointed segments, spotted with white above, and covered with cottony down below, the bases of the upper ones decurrent, and forming a wing to the stems. The flower-heads, which contain numerous white or pink florets, are either clustered and sessile on the ends of the branches, or grow simply on long stalks. *G. tomentosa* is remarkable among the thistles for having a milky juice like that so common in the cichory group. [A. A. B.]

GALACTODENDRON. A generic name given by some authors to the celebrated Cow-tree or 'Palo de Vaca' of South America, now more generally referred to *Brosimum*: which see. [A. S.]

GALAM BUTTER. A reddish-white solid oil obtained from *Basia butyracea*.

GALANE. (Fr.) *Chelone*.

GALANGAL or GALANGALE. The aromatic *Alpinia Galanga*; also *A. racemosa*, *Alliophus*, and *pyramidalis*; in Sweden it is called *Galgant*. Also a common name for *Kempferia*.

GALANT DE JOUR. (Fr.) *Cestrum diurnum*. — **DE SOIR.** *Cestrum vespertinum*. — **DE NUIT.** *Cestrum nocturnum*.

GALARDIENNE. (Fr.) *Gaillardia*.

GALANTHUS. A genus of *Amaryllidaceæ* characterized by having a six-leaved bell-shaped perianth, the exterior segments concave and spreading, the interior shorter, erect, and emarginate; six stamens inserted on an epigynous disk, with very short filaments and erect convergent anthers; a straight filiform style with simple acute stigma; and a three-celled ovary with numerous ovules. *G. nivale* is the common Snowdrop, a dwarf bulbous plant found in some parts of England, and having a pair of narrow linear glaucous leaves, and drooping white flowers dotted with green on the inner segments, and generally solitary at the top of the short scape. *G. plicata*, the Crimean Snowdrop, is similar, but larger and handsomer, with the leaves broad linear and plicate. Our English Snowdrop is welcomed as one of the earliest floral harbingers of spring, the 'first pale blossom of the unripened year,' and a double-flowered variety is much cultivated. [T. M.]

GALATELLA. A genus of perennial herbs of the composite family, numbering about twenty species, found in the temperate parts of Asia, one species only occurring in the United States. They have much

the appearance of *Aster*, and only differ in the ray florets being neuter; while from *Linosyris* they differ in the ray florets being white or purple, never yellow. The stems are simple below, branching above, and furnished with narrow entire leaves, and numerous flower-heads arranged in terminal corymba. The ray florets are white or blue, those of the disk yellow; and the achenes are hairy or villous and crowned with a pappus consisting of numerous rigid and filiform rough bristles. [A. A. B.]

GALAX. A genus of doubtful affinity which has been recently taken by Aaa Gray as the type of *Gulacineæ*, a sub-order of *Diapensiaceæ*, of which *Shortia* is the only other genus. 'Its somewhat gamopetalous corolla is deeply-parted, and the stamens with the interposed squamules or sterile series of stamens, are connate into a tube, which not a little resembles the corolla of *Diapensia*, the fertile stamens occupying the sinuses of its petaloid divisions, instead of those of the corolla. The style also is short, and there is no persistent columella in the axis of the capsule. Galax has been referred to the *Pyrolaceæ*, but the points of resemblance are few, and the differences many and great in corolla, androecium, style, seeds, etc.' The only species, *G. aphylla*, a smooth perennial stemless herb with a scaly creeping rhizome, roundish evergreen all radical leaves, and a long spiked raceme of small white flowers, is a native of open woods in Virginia and N. Carolina. [J. Br.]

GALAXIA. A genus of Cape *Iridaceæ*, forming dwarf plants with bulb-tuberous rhizomes, short stems bearing a terminal cluster of narrow leaves and handsome flowers, consisting of a funnel-shaped perianth, with a slender terete tube, and six-parted equal limb of oblong wedge-shaped spreading segments, the outer of which have a nectariferous cavity at the base. They have three stamens, with the filaments connate into a short tube, and the arrow-shaped anthers affixed by their base; a filiform triquetrous club-shaped style with three fringed convolute stigmas; and a three-celled ovary containing many ovules. There are some five or six species. [T. M.]

GALBA. A durable Indian wood produced by *Calophyllum Calaba*.

GALBANUM. A Persian umbelliferous plant, the fruit only of which is known, has been described under this name, from the supposition that it was the source of the drug galbanum; it seems, from the imperfect material known, to belong to the genus *Polyophtum*. The fruits of *G. officinale* are elliptical and flattened from back to front; each half-fruit has seven elevated bluntly keeled ridges; the intervening channels are broad, and have no vittæ or reservoirs for oil, but on the commissure or surface by which the two halves of the fruit are in contact, there are two vittæ. [M. T. M.]

The name Galbanum is also applied to a balsamic gum-resin, of which that obtained from Persia is ascertained to be produced by *Ferula galbaniflua*; its properties are similar but inferior to those of asafetida. It is supposed to be also yielded by other umbellifers.

GALBULUS. A strobilus, whose scales

are fleshy, and combined into a uniform mass; as the fruit of the juniper.

GALE, SWEET. *Myrica Gale*.

GALEA. The helmet or arched part of a flower, always placed at the back, that is, next to the axis.

GALEANDRA. This was formerly recognised as a distinct genus of orchids, but is now referred to *Eulophia* by Dr. Blume. The Mexican *G. Baueri*, frequently cultivated by orchid growers, is epiphytal, with cylindrical stems bearing several lance-shaped nerved leaves, and beautiful drooping racemes of yellow flowers, the lip having parallel purple lines near the apex, which has wavy margins. *G. Devoniana* is another handsome species, with large chocolate-coloured flowers, having a funnel-shaped white lip marked with pink lines. [A. A. B.]

GALEARIA. A genus of handsome laurel-leaved bushes found in the Malay Peninsula and Archipelago, referred by recent authors to the *Euphorbiaceae*. It produces solitary and terminal, often drooping flower-spikes, which are sometimes more than a foot long. The leaves are accompanied by minute stipules, and the minute green flowers are dioecious, the males with a five-parted calyx, five concave petals, and ten free stamens; the females with similar calyx and corolla, and an ovary crowned with three or five minute stigmas. The fruits are rounded, fleshy, about the size of a pea when only one cell is perfected, larger and two or three-lobed when two or three are perfected; each cell containing one seed. [The name *Dennettia*, which, including *Crematoschys*, represents a genus of about a dozen species, is now adopted for these plants.] [A. A. B.]

GALEGA. A genus of smooth erect perennial herbs of the leguminous family, having pinnate leaves, arrow-headed stipules, and long axillary racemes of pretty lilac or white pea-flowers. The few known species are found in the Mediterranean region, and extend eastward to Persia. They are nearly related to *Glycyrrhiza*, but the pods are narrow and smooth, and contain numerous seeds, while those of the liquorice are broad, usually rough externally, and one to four-seeded. The roots have a sweetish taste. The stems are furnished with unequally pinnate leaves made up of eight to ten pairs of ovate lance-shaped or linear leaflets. *G. officinalis*, the Goat's Rue, was at one time in repute as a cordial in fevers and convulsions, but it has long fallen into disuse. The generic name, derived from the Greek signifying milk, refers to its supposed property of increasing the milk of animals which feed upon the plants. [A. A. B.]

GALENIA. A genus of *Tetragoniaceae* consisting of herbs or shrubs from the Cape of Good Hope, usually much branched, hairy or papillose, with alternate or opposite

entire fleshy leaves and sessile flowers, generally cymose or paniculate. Calyx deeply four or five-cleft, coloured within; corolla absent; stamens eight or ten; ovary two to five-celled; capsule woody or corky, varying in shape according to the number of cells in the ovary. [J. T. S.]

GALEOBDOLO. The name of a section of *Lamium* distinguished by having the corolla tube obliquely annulate within, contracted below, and dilated and subventricose above the annulus, where it is also somewhat recurved and lengthened out; and by the helix being elongated and narrowed at the base. The principal species, *Lamium Galeobdolon*, our native Archangel, is sometimes separated under the name of *G. huteum*. [T. M.]

GALEOGLOSSA. The name of certain Ferns, otherwise referred to *Nipholobolus*.

GALEOPSIS. A genus of labiates, called Hemp-nettles, distinguished by their equally five-toothed calyx, by the two lower stamens being longer than the other pair, by the two-lipped corolla, of which the upper lip is arched, the lower three-lobed, and by the diverging anther-cells, which open longitudinally. The commonest species is *G. Tetrahit*, an annual weed frequently met with in cultivated ground. It grows to the height of a foot or more, and is well marked by its hispid stem, which is singularly swollen beneath the joints, by the very long rigid calyx teeth, and by the purple, sometimes white, flowers. *G. Ladanum* has the stems less hairy than the last, and the stem is not swollen beneath the joints; it grows principally on a limestone or chalk soil. *G. versicolor* approaches in habit to *G. Tetrahit*, from which it may be distinguished by its more showy yellow flowers having a blotch of purple on the lower lip; this is found in several parts of England, but is most abundant in Scotland, especially in cultivated fields among the Highlands. *G. ochroleuca*, with large pale yellow flowers without spots, grows in sandy cornfields, but is rare. French, *Galeope*; German, *Tauhe Nessel*. [O. A. J.]

GALEOTTIA. This name has been given to an obscure Mexican orchid supposed to be closely allied to *Batemannia*, but to differ in having a large ovate gland and short caudicle, *Batemannia* having no caudicle. It has besides been applied to a genus of *Acanthaceae*, which has also been called *Glockeria*, and is related to *Stenostaphanus*, from which it differs in its dilabiate corolla. This latter is a Mexican shrub, with mutant crimson flowers in terminal panicles. [T. M.]

GALEWORTS. Lindley's name for the *Myricaceae*.

GALIACEÆ. (*Stellates*, *Madderworts*.) A natural order of calycifloral dicotyledons belonging to Lindley's cinchonal alliance of epigynous Exogens. The order has been sometimes called *Stellatæ* from the star-like arrangement of the leaves; and by many it is reckoned as a suborder of Ru-

biacea, which is thus made to include both *Cinchonaceae* and *Galiaceae*. Herbs with whorled exstipulate leaves, and angular stems. Calyx superior, the limb obsolete, four to five or six-lobed; corolla gamopetalous, rotate or tubular, regular, divided like the calyx; stamens equal in number to the corolline lobes and alternate with them. Ovary two-celled, with solitary erect ovules; styles two; stigma undivided. Fruit two-celled, with two seeds; embryo in the axis of horny albumen. Natives of the northern parts of the northern hemisphere, and of high mountains in South America and Australia. The order contains some plants used for dyeing and some having tonic qualities. The horny albumen of goose-grass or cleavers (*Galium Aparine*) has been used as a substitute for coffee. The root of madder (*Rubia tinctorum*) is employed as a dye, and supplies the Turkey-red; that of *Rubia cordifolia* furnishes the dye called murex in India. The leaves of woodruff (*Asperula odorata*) are fragrant when dried. There are ten known genera and about 380 species. Examples: *Galium*, *Rubia*, *Asperula*. [J. H. B.]

GALIMETA WOOD. The timber of *Bumelia salicifolia*.

GALINGALE. *Cyperus*, especially *C. longus*.

GALININGUE. (Fr.) A kind of olive.

GALINSOGA. A genus of annual South American weeds of the composite family, furnished with opposite ovate three-nerved nettle-like leaves, and small axillary or terminal stalked flower-heads having an involucre of three to five ovate scales, enclosing four or five white or purple ray florets with pistil only, and numerous yellow tubular perfect disk florets; the angled achenes are crowned with a pappus of lacerated chaffy scales, and seated on a conical chaffy receptacle. *G. parviflora*, a species with smooth leaves, white ray florets, and a habit like that of the annual mercury, is naturalised in many countries, and has become a pest in the market gardens about Kew and Richmond. [A. A. B.]

GALIOTE. (Fr.) *Geum urbanum*.

GALIPEA. A genus of rutaceous shrubs or small trees, natives of tropical America, the flowers of which have a salver-shaped corolla with spreading acute lobes; four to seven stamens, somewhat adherent to the petals, sometimes all fertile, but usually only two of them antheriferous; a cup-shaped disk; five styles, becoming ultimately fused into one, with a four to five-grooved stigma; and five or fewer carpels. The bark of one or more of the species, such as *G. officinalis* and *G. Cusparia*, is used in medicine as an aromatic or stimulant tonic. Dr. Hancock, who had large experience of its use in tropical South America, even preferred it to cinchona in the treatment of fever. In this country it is but little used, being deemed inferior to other remedies, and possibly from the fact that a false Angostura bark was at one

time, through inadvertence or cupidity, substituted for the genuine bark. This false bark occasioned several dangerous accidents, which led some of the continental governments to prohibit the use of Angostura or Cusparia bark. The spurious bark proved to have been really derived from the deadly nux-vomica tree. This nux-vomica bark, it appears, was also sold in Calcutta for the harmless bark of *Boymida febrifuga*; and a preparation of the former, to be used instead of quinine by the Indian army, was made under the impression that it was a valuable and harmless remedy. Dr. O'Shaughnessy fortunately discovered the error in time to prevent the dreadful consequences which might have ensued from the employment of this preparation. The reader is referred to *Pereira's Materia Medica* (II. part II. p. 1915) for full details as to the means, chemical and otherwise, of distinguishing the true from the false Angostura barks, the most readily recognisable features of the true bark being, that it occurs in pieces which are not so much twisted or bent as the nux-vomica bark, that it has a disagreeable odour which is not noticed in the false bark, and from being lighter is more readily broken or cut. It is stated that the natives employ the true Angostura bark to stupefy fishes, in the same way that cinchona bark is said to be used by the Peruvians. [M. T. M.]

GALIUM. The typical genus of *Galiaceae*, consisting of numerous herbaceous plants, distinguished by having a minute almost obsolete calyx, a four-lobed wheel-shaped almost tubeless corolla, and a fructification consisting of two seed-vessels, each containing a single dry seed. Upwards of 160 species are described, of which fourteen are British. They all agree in having square stems and whorled leaves; and the roots of most afford a purple dye. Some are perennials, others annual. The predominant colour of the flowers is white; and the number of leaves in a whorl varies from four to ten. Of the British species, *G. verum*, Bedstraw, and *G. cruciatum*, Cross-wort, are perennial, and bear yellow flowers. *G. Aparine*, Goose-grass, derives its English name from the avidity with which the young stems and leaves are eaten by geese; it is called Cleavers on account of the tenacity with which the fruit adheres to any rough and soft substance. It is a long straggling annual plant, abundant in hedges and among bushes, through which it climbs, supporting itself by the hooked prickles with which it is copiously invested. The globular seeds covered with hooked prickles, found on the dress of persons who walk through bushy places in autumn, are derived from this plant. *G. saxatile* is the pretty little species, only a few inches high, which is so frequently seen in heathy places, associated with wild thyme, bird's-foot trefoil, and tormentil; its flowers are of a brilliant white, and are succeeded by reddish fruit which is conspicuous by its abundance. French, *Gallet*; German, *Labkraut*. [O. A. J.]

GALL OF THE EARTH. *Mulgedium floridanum*, or, according to Dr. Asa Gray, *Nabulus Fraseri*.

GALLIESIA. A genus of *Phytolaccaceæ*, a large Brazilian tree, with alternate stalked ovate or oval entire pellucid-dotted, smooth leaves, small tubercular stipules, and a many-flowered terminal panicle of sessile flowers, each with three bracteoles, and having a four-parted calyx and numerous stamens in two rows. The fruit is a samaroid achene, with a large scimeter-shaped wing at the apex. [J. T. S.]

GALLINHA CHOCA. *Erythroxylon suberosum*.

GALLS. Excrescences of various kinds and forms produced in plants by the presence of the larvæ of different insects. The forms which they assume are multitudinous, and the changes produced in the tissues various. They occur on all parts of the plant, and sometimes in great quantities, but they appear in general to do little harm if they do not attack the parts of fructification. It is probable that the change of growth depends in the first place upon some acrid fluid discharged together with the egg. The process of caprification, in which figs are stimulated to generate juicy instead of dry tissues, is strictly analogous, though there is no external alteration of form. The rootlike galls in grasses are produced by larvæ between the sheath and the stem, and not penetrating the substance. [M. J. B.]

GALPHIMIA. An anagram of *Malpighia*, applied to a genus of Mexican malpighiacean shrubs, some of which are cultivated as evergreens in our stoves. They have a five-parted calyx whose segments are mostly destitute of glands; five stalked petals generally ribbed on their outer surface; ten stamens slightly adherent at the base; and a three-lobed, three-celled ovary with a solitary pendulous ovule in each compartment. The fruit consists of three two-valved carpels. [M. T. M.]

GALUNCHA. An Indian febrifuge prepared from the stems of *Tinospora verrucosa* and *cordifolia*.

GAMASS. The Squamash or Biscuit-root, *Camaessia esculenta*.

GAMBIR. A powerful astringent obtained from *Uncaria gambir*, and employed as a substitute for catechu.

GAMBOGE, AMERICAN. The juice of *Flemia guianensis*. —, **CEYLON.** A gum-resin obtained from *Garadnia Morella*, also called *Hebradendron gambogioides*. —, **MYSOKE.** The gum-resin of *Garadnia pictoris*, otherwise *Hebradendron pictorium*. —, **SIAM.** A gum-resin produced by *Garadnia Morella* var. *pedunculata*, of which an account and figure are given by Mr. D. Hanbury, in *Lia. Franc.* xxiv. 487, t. 50.

GAMO. In Greek compounds = united by the edges; thus *gamophyllus* signifies leaves united by their edges, while *gamo-*

sepalous means monosepalous, and *gamopetalous*, monopetalous.

GAMOLEPIS. A small genus of South African *Compositæ*, having smooth entire three-lobed or pinnatifid leaves, and terminal solitary or corymbose, long-stalked flower-heads containing numerous florets. They are nearly related to *Leucanthemum*, but differ in the scales of the involucre being in one series, and more or less united by their margins so as to form a cup. The ray florets are strap-shaped, and contain only a pistil, the disk florets being tubular and perfect; while the achenes are smooth wingless and destitute of pappus. [A. A. B.]

GAMOPLEXIS orobanchoides is the name of a tuberous-rooted North-west Indian orchid which is destitute of leaves, and has the aspect of an *Orobanche*. It is notable for its parasitism, which is rare amongst endogenous plants. Dr. Falconer states that the tuberous rhizome emits no root-fibres by which to fix itself on other plants, but is itself matted over by their slender rootlets, giving rise to the appearance of the plant being the subject of a parasitical growth rather than a parasite itself. The stem is one to two feet high, pale straw colour, terminating in a long raceme of flowers. The lip is combined with the sepals and petals to form a tubular perianth, whence the name of the genus; and the pollen is not waxy or powdery, but granular as in *Gastrodia*, which differs in the lip being free, instead of connate with the tube of the perianth. [A. A. B.]

GANDASULI. (Fr.) *Hedychium*. — **À BOUQUETS.** *Hedychium coronarium*.

GANGLIA. The mycelium of certain fungi.

GANGRENE. A disease ending in putrid decay.

GANITRE. (Fr.) *Elaeocarpus*.

GANNE. (Fr.) *Motinia cœrulea*.

GANTS DE NOTRE DAME. (Fr.) *Campanula Trachelium*; also *Aquilegia vulgaris*, and *Digitalis purpurea*.

GANTELEÈ. (Fr.) *Campanula Trachelium*; also *Digitalis purpurea*.

GANTIÈRE. (Fr.) *Digitalis purpurea*.

GANYMEDES. A name proposed for a few species of *Narcissus*, e.g. *N. triandrus*, *puchellus*, *nastans*, &c. They are called Rush Daffodils from the rush-like leaves. The perianth has a slender drooping tube and reflexed limb, the cup or coronet is equal to or shorter than the limb, the sepaline stamens are prolonged, and the style is straight and slender. [T. M.]

GABANCE. (Fr.) *Eubia tinctorum*.

GARB. *Salix babylonica*.

GARBANZOS. The Spanish name of the Gram, *Cicer arictinum*.

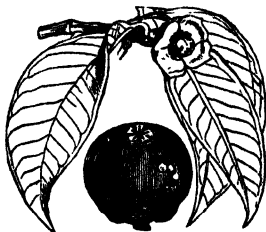
GARCINIA. A genus of *Olusaceæ*, consisting of several opposite-leaved trees

whose stems yield, in greater or less quantity, a yellow resinous juice which in *G. Morilla* is known as Ceylon Gamboge. The chief features of the genus are: unisexual or rarely perfect flowers, having a calyx of four rounded leaves, and four petals of similar form; in the males numerous stamens which are free or united into one or four parcels; and in the females a few barren stamens surrounding a globose ovary which is from two to ten-celled with one ovule in each cell, and is crowned by a shield-like entire or lobed stigma.

The greater portion of the species are found in India and the Malay Archipelago. All have glossy laurel-like leathery leaves. The flowers are either white tinged with pink, or yellow, and arranged in clusters in the axils of the leaves or in panicles at the ends of the twigs. The species from which the Gamboge or Camboge of commerce is obtained in largest quantity are frequently known under the name CAMBOGIA: which see, *G. pictoria*, which is found in the Coorg district of Malabar, yields a gamboge said by Dr Christison and others to have properties similar to those of the Ceylon and Siam gamboge, being 'excellent as a pigment, efficient as a purgative, and equal to the gamboge in common use.' It does not, however, appear to be imported in any quantity, by far the greater portion brought to this country being sent from Siam to Singapore and shipped from that port. This plant is a tall tree with elliptical leaves, small yellow axillary solitary flowers, and berries about the size of a cherry, with four one-seeded cells.

The Mangostan or Mangosteen (*G. Mangostana*), so well known for its luscious fruit, is found in the Malay islands, where it grows to a tree of middling stature with a conical head, the branches furnished with glossy leathery elliptical-oblong pointed leaves, and the flowers single and nearly sessile at the ends of the twigs, of a dull red colour, and as large as dog-roses. Dr. Abel, writing of the fruits of Batavia, says: 'First in beauty and flavour was the celebrated Mangostan. This, so often eulogised by travellers, certainly deserves much of the praise bestowed upon it. It is of a spherical form, of the size of a small orange, when ripe reddish-brown, and when old of a chestnut-brown colour. Its succulent rind is nearly the fourth of an inch in thickness. It contains a very powerful astringent juice, and in wet weather exudes a yellow gum which is a variety of gamboge. On removing the rind, its esculent substance appears in the form of a juicy pulp having the whiteness and solubility of snow, and of a refreshing, delicate, delicious flavour. We were all anxious to carry away with us some precise expression of its qualities; but after satisfying ourselves that it partook of the compound taste of the pine-apple and peach, we were obliged to confess it had many other equally good but utterly inexpressible qualities.' Any amount of the fruit may be eaten without injury, and it is said to be given to those

afflicted with fever along with the sweet orange. The Chinese use the bark as a basis for a black dye, and it is also used in dysentery. In 1855 it first produced its blossom and fruit in this country in the gardens of the Duke of Northumberland at Syon, from whence it was figured by Sir W. J. Hooker in the *Botanical Magazine* (t. 4847). It has been cultivated in the south-



Garcinia Mangostana.

ern and eastern parts of India, but does not there attain the same perfection as it does in the Malay Archipelago. A few small-flowered species, with the stamens in four parcels, and the two-celled ovary crowned with a shield-like stigma, are by some authors kept as a separate genus under the name *Discostigma*. [A. A. B.]

GARDENER'S GARTERS. *Phalaris arundinacea variegata*.

GARDENIA. A genus of *Cinchonaceae*, and a favourite with cultivators on account of the fragrance and beauty of its flowers. It consists of trees or shrubs, frequently spiny, and indigenous in tropical Asia and Africa, as well as at the Cape of Good Hope. The calyx tube is ovate, the limb variously divided; corolla white or yellowish, more or less funnel-shaped, with its limb divided into from five to nine somewhat twisted segments, and its tube considerably longer than the calyx; anthers five to nine, sessile on the throat of the corolla, from which they project to a short distance; ovary partially five-celled, with numerous ovules; fruit berry-like, crowned by the limb of the calyx. *G. guianensis* and *G. lucida*, East Indian species, yield a fragrant resin something like Elemi, which might be turned to some account. The fruit of *G. campanulata* is stated by Roxburgh to be used by the natives as a cathartic, and also to wash out stuns in silk. Several kinds of this beautiful genus are in cultivation. The Cape Jasmine, *G. florida* and *G. radicans*, both found with double flowers of exquisite fragrance, and *G. Stanleyana*, with long trumpet-shaped blossoms, are among the most beautiful species. [M. T. M.]

GARDENIOLA. The name of a Brazilian shrub of the *Cinchona* family, having numerous flattened branches, with polygamous flowers: the males in groups of three

or five, sessile on the ends of the branches; and the females in similar groups, but stalked. The corolla is salver-shaped, with a short and slightly inflated tube, hairy throat, and four-lobed limb. The fruit is berry-like, black, and two-celled. [M. T. M.]

GARDE-ROBE. (Fr.) *Artemisia Abrotanum*.

GARDNERIA. A genus of *Loganiaceae* composed of two scandent opposite-leaved bushes found in India and Japan. They differ from most in the family in having little berried two-celled fruits, with one or two instead of many seeds in each cell; and the lateral attachment of these in a shield-like manner, not erect from the base, serves to distinguish the plants from their nearest allies. The narrow or broadly lance-shaped leaves are smooth and entire, and the small yellow blossoms are disposed in loose panicles which arise from the axils of the leaves, and in size and form are not unlike those of the privet. The ripe fruits are scarlet berries, about the size of a large red currant, with two seeds. [A. A. B.]

GARDOQUIA. The name of a genus of labiate, having the teeth of the calyx short, straight, and nearly of the same size; the corolla with a long almost straight tube, its upper lip notched, the lower in three lobes, the middle one of which is broadest; style bifid at the end, the divisions small and equal in length. The name was given in honour of Gardoqui, a Spanish financier who promoted the publication of a Flora of Peru. The species are low shrubs or undershrubs chiefly natives of Peru and Chili, rare in North America, and having showy usually pink flowers. [G. D.]

GARGET. An American name for *Phytolacca decandra*.

GARIDELLA. A genus of *Ranunculaceae* consisting of a few herbs from the Mediterranean region and temperate Asia, resembling *Nigella*, but more slender in habit, the ovary containing two or three, not five or more carpels, and the styles very short. They are erect annuals with dissected leaves, and small solitary whitish flowers at the extremity of long peduncles. *G. nigellastrum*, which is found in the south of France, Spain, and Crete, is the most frequent. [J. T. S.]

GARLAND FLOWER. A common name for *Hedychium*; also applied to *Daphne Cneorum*, *Pleurandra Cneorum*, and *Erica persulcata*.

GARLIC, or GARLICK. *Allium sativum*. — **HEDGE.** *Sisymbrium Alliaria*. — **HONEY.** *Nectaroscordum*.

GARLIC SHRUB. *Bignonia alliacea*; also *Petiveria alliacea*.

GARLICKWORT. *Sisymbrium Alliaria*.

GARO DE MALACA. (Fr.) *Aquilaria indica*.

GAROU. (Fr.) *Daphne Mesereum*.

GAROUPE. (Fr.) *Cneorum tricoccum*.

GAROUSSE. (Fr.) *Lathyrus Cicera*.

GARNETBERRY. *Ribes rubrum*.

GARRYACEÆ. (*Garryads*.) A natural order of monochlamydeous dicotyledons belonging to Lindley's garryal alliance of diclinous Exogens. Shrubs with opposite exstipulate leaves and catkin-bearing imperfect flowers surrounded by united bracts. The staminate flowers have a four-leaved perianth, alternating with four stamens. The pistillate flowers have an adherent two-toothed perianth. Ovary one-celled; styles two; ovules two, pendulous with long cords. Fruit a two-seeded berry; embryo minute in the base of fleshy albumen. The wood is not arranged in circles, and there is an absence of dotted vessels. They are natives chiefly of the temperate parts of America. The few species known belong to the genus *Garrya*. By Deunham and Hooker, this monogeneric group is included in *Cornaceae*. [J. H. B.]

GARRYA. The only genus of *Garryaceae* (see above), composed of opposite-leaved evergreen bushes, found in California, Mexico, Cuba, and Jamaica. *G. elliptica* is one of the most desirable evergreens we have in our gardens, especially as it produces its pale greenish-yellow blossoms in the spring months when little else is in bloom. It was sent from California by the lamented Douglas in 1818. This bush, with much the aspect of an evergreen oak, may be seen sometimes eight to ten feet high, its branches clad with dark green elliptical leaves. The flowers are male and female on different plants, arranged in elegant drooping necklace-like catkins which proceed from near the apex of the shoots, and are often from four to seven inches long. In the male plant (which alone is in cultivation) they are clothed with silky hairs, and a plant covered with these tassels of pale yellow flowers waving in the wind, has a singularly graceful appearance. Each link of the necklace (if we may so speak) is composed of a cup-shaped bract enclosing three flowers, each having a calyx of four divisions and four stamens. In the female the disposition of the flowers is the same. The fruit is a two-seeded berry somewhat like that of the hawthorn in size and shape. The calyx of some species is destitute of the two teeth which are seen in *G. elliptica*, and the tips of the calyx-leaves in the male flowers remain united to each other; these are separated by some authors, who give to them the name of *Fadyenia*, but such differences are not distinctive. The flowers of some species are in compound instead of simple racemes, but none can be compared to *G. elliptica* for beauty. [A. A. B.]

GARUGA. A name applied to a genus of *Amrigidaceae* (*Burseraceae*) consisting of trees whose flowers have a five-cleft bell-shaped calyx; five petals inserted between the notched and glandular lobes of a fleshy disk; and a pulpy fruit with five or fewer bony one-seeded stones. *G. pinnata*, an

Indian species, and *G. madagascariensis* are occasionally met with as stove shrubs, with fine pinnated foliage and panicles of yellow flowers. [M. T. M.]

GARVANCE. (Fr.) *Cicer arletinum*.

GASTERIA. The name of certain species of *Aloe*, which are regarded by some as being distinct from that genus. They are mostly dwarf stemless plants with the thick succulent spotted or warted tongue-shaped leaves often rigidly two-ranked, and the long arching spikes of green-tipped red flowers freely produced. The curvature and bellying of the flower-tubes has suggested the name; the distinguishing character of the group is indeed furnished by the curved tube of the perianth swollen at the base, by the stamens being adglutinated to the perianth at the base, and by the capsule being subcylindrical. They are mostly ornamental plants, and, like the other aloes, natives of the Cape of Good Hope. [T. M.]

GASTEROMYCETES. One of the six great divisions of *Fungi*, containing those genera with naked spores in which the fruit-bearing surface is either permanently concealed in a surrounding peridium, or in which, when the peridium bursts, the hymenium is complicated like the crumb of a loaf, so that a small portion only is exposed. In *Montagnites*, however, the hymenium consists of true gills. The genera are divisible into six natural groups as follows:—*Podasmiæ*: mostly clavate; hymenium sinuous, enclosed at first in a volvalike peridium, and exposed partially by its rupture, withering or entirely drying up so as to form a dusty mass. *Hypogæi*: subterranean; peridium seldom distinct. *Phalloidei*: hymenium at first enclosed in a gelatinous volva, at length diffuent. *Nidulariæ*: peridium mostly cup-shaped, enclosing several sporangia. *Trichogastres*: subglobose, not having a distinct volva; hymenium at first cellular, at length leaving a dusty mass of threads and spores. *Myzogastres*: hymenium and mycelium at first gelatinous. [M. J. B.]

GASTONIA. The name of a genus of ivy-worts, distinguished by having the corolla with five or six petals; the stamens ten to twelve, attached to the petals, and apparently in pairs opposite to them; the fruit a dry berry with eighteen cells, each of which contains one seed. The name was given by Commerson in honour of Gaston de Bourbon, son of Henry IV. The only species, *G. palmata*, is a native of Mauritius. [G. D.]

GASTRANTHUS. A genus of *Geraneæ* containing two species from South America. They are undershrubs with opposite oblong crenate leaves, and few umbellate flowers. The divisions of the calyx are lanceolate; the corolla oblique and shortly spurred, with the limb cut into five unequal small roundish lobes: the four didynamous stamens included; the disk very small, but swelled on

one side into a large gland half covering the ovary; and the apex of the style cup-shaped, and slightly bilobed. [W. C.]

GASTRIDUM. A genus of grasses of the tribe *Agrostideæ*, consisting of a single species, *G. lendigerum*, or, as it is sometimes called, *G. australe*, one of our rarer British species, and very common in the Mediterranean region. It is an elegant erect-growing annual plant, six or eight inches high, with the panicle contracted into a loose tapering spike two to three inches long, of a pale green, and shining with a satiny lustre. It has been separated from *Agrostis* on account of the polished enlarged base of the outer glumes. [T. M.]

GASTROCHILUS. A genus of *Zingiberaceæ*, whose flowers have a tubular calyx, and a corolla with a long tube, the outer segments of the limb equal, the inner ones unequal, the two lateral wide, united at the base with the filament to form a kind of tube, the middle segment or lip large and distended, whence the name. *G. pulcherrima*, a native of Rangoon, and one or two other Indian species, are occasionally met with in cultivation, and are very ornamental. [M. T. M.]

GASTRODIA. This is the genus which gives its name to a small tribe (*Gastrodieæ*) of the orchid family characterised by the granular instead of waxy or powdery pollen-masses. There are two known species, *G. Cunninghamii* from New Zealand, and *G. seamoides* from Tasmania and Australia, both leafless parasites with the aspect of *Orobanche*, and like that found growing on the roots of other plants. The whole plant is of a uniform pale brown colour, the stems one to three feet high, furnished with a few obtuse bracts, and terminating in a long raceme of flowers, the sepals and petals united so as to form a tubular perianth, but the lip free and not connate with the perianth as in *Gamoplectis*. The root of the New Zealand species is eaten by the natives, who call it Peri; it is about eighteen inches long, as thick as the finger, and full of starch. [A. A. B.]

GASTROLOBIUM. An extensive genus of the pea family, peculiar to the south-western portions of Australia. It is known by the two-lipped and five-toothed calyx without bracts; the pea-flower corolla with petals nearly equal in length; and the stalked two-seeded ventricose or inflated pods, seldom larger than a pea. *Pullenaea* differs in having sessile pods, as well as heath-like foliage. Most of the *Gastrolobes* are bushes of two to four feet high, with twiggy stems furnished with opposite often whorled leaves varying much in form, and pretty yellow blossoms, sometimes in twos in the axils of the leaves, but more usually in short racemes arising from near the apex of the twigs. A number of the species of this and of allied genera are known in Western Australia as Poison-plants; and farmers lose annually a large number of cattle through their eating the foliage. Mr. James Drummond, in *Hooker's*

Journal of Botany (li. p. 353), says: 'The finest and strongest animals are the first victims: a difficulty of breathing is perceptible for a few minutes, when they stagger, drop down, and it is all over with them. After the death of the animal, the stomach assumes a brown colour, and is tenderer than it ought to be; but it appears to me the poison enters into the circulation and altogether stops the action of the lungs and heart. The raw flesh poisons cats, and the blood, which is darker than usual, dogs; but the roasted or boiled flesh is eaten by the natives and some of the settlers without their appearing to suffer any inconvenience.' The poisonous effects were attributed by Mr. Drummond, at the time he wrote this, to a species of *Lobelia*, but he afterwards found out that they were due to the plants of this and allied genera. Dr. Harvey says the worst of the Poison-plants is *G. bilobum*. This plant has oblong nearly smooth slightly two-lobed leaves, placed four in a whorl round the stem, and terminal umbels of pretty yellow flowers, the keel and wing petals marked with purple. *G. spinosum* has similar properties. Altogether there are about a dozen species in cultivation in greenhouses. The generic name has reference to the bellied form of the pods. [A. A. B.]

GASTRONEMA. A small genus of South African *Anaryllidaceae*, closely allied to *Cyrtanthus*, and not unfrequently united therewith. The perianth tube is slender below, curved and widely campanulate above, the limb short and reflexed; of the six stamens, which have decurrent conniving filaments and short anthers, the three upper are longer and incurved, the petaline ones inserted at the top, and the sepaline ones near the tube; the style is declinate. *G. clavatum*, the original species, is a pretty little bulb, with slender deciduous leaves and one or two white flowers striped with red. [T. M.]

GATEN, GATTEN, GATTER, GAITRE, or GATTERIDGE TREE. *Cornus sanguinea*; also *Euonymus europæus*, and *Viburnum Opulus*.

GATILIER. (Fr.) *Vitex Agnus castus*.

GATTIE. An Indian gum obtained from the Babool, *Acacia arabica*.

GAUB. An Indian name for the astringent medicinal fruit of *Diospyros Embryopteris*.

GAUDE or VAUDE. (Fr.) *Roseda Lucida*.

GAUDICHAUDIA. A genus of Mexican climbing shrubs, belonging to the *Malpighiaceae*, and remarkable for producing constantly two kinds of flowers, the most numerous and perfect of which have a five-cleft glandular calyx; five stalked toothed petals; five stamens, two of which are usually sterile; three ovaries united at their inner edge; and a fruit winged at the sides and back. The more imperfect flowers

have a calyx without glands; no petals, or only rudimentary ones; and two ovaries with imperfect styles. The flowers are yellow. [M. T. M.]

GAUDINIA. A genus of grasses of the tribe *Aveneæ*, now generally regarded as forming a section of *Avena*. [D. M.]

GAULTHERIA. A large genus of stiff branching ericaceous shrubs or small trees with evergreen leaves, principally inhabiting the American continent, extending from Magalhaens' Strait in the south as far north as Canada and Vancouver's Island. A few are found in Asia, principally in the Himalayas and the mountainous parts of Java; and five or six occur in Tasmania and New Zealand. The leaves are leathery, smooth and shining, and in many species the young branches are covered with bristly hairs. The flowers are small, ovate, with a contracted mouth, and enclose ten stamens; they are white, scarlet, or rose-coloured, and produced singly or in racemes at the ends or from the sides of the branches. The five-lobed calyx frequently increases in size after the flowering period, and sometimes becomes fleshy. The anthers open by pores at the top, and terminate by two bristles. The fruit is small and nearly globose, and when ripe splits open through the middle of each of the five cells.

G. procumbens, a little creeping plant, of the Northern United States and Canada, grows about five or six inches high. The erect stiff branches bear tufts of shining, evergreen oval leaves at their summits; and the drooping white flowers, produced singly from the bases of the leaves, are succeeded by fleshy bright red berries, formed by the enlargement of the calyx which encloses the true fruit. All parts of this plant, which is commonly called Wintergreen in the United States, possess a rather pleasant peculiar aromatic odour and flavour, due to the presence of a volatile oil, which, when separated by distillation, is known as Wintergreen oil. It is of a pale green colour, having the same composition as birch-bark oil, and is employed medicinally as a cordial stimulant. The leaves also possess a considerable degree of astringency, and their tincture is useful in diarrhoea. The berries are known by various names, such as Partridge-berry, Chequer-berry, Deer-berry, Tea-berry, Box-berry, &c., and afford winter food to partridges, deer, and other animals. The plant is likewise called Mountain Tea, its leaves being used as a substitute for tea or for flavouring genuine tea.

The Shallon or Salal of the north-west coast of America, *G. Shallon*, is a small shrubby plant, growing about a foot and a half high, flourishing in shady pine forests where few other plants will live. Its dark purple fleshy berries, which are produced in great abundance, have a very agreeable flavour and make excellent tarts; they are much eaten by the natives, who prepare a kind of bread by mashing them together and drying them in the sun. [A. & J.]

GAULTHERIE DU CANADA. (Fr.) *Gaultheria procumbens*.

GAURA. A genus of onagraceae, in which the tube of the calyx is long and three or four-angled below; the corolla of four, rarely three petals, turned to the upper side; the stamens eight, rarely six, those opposite the petals shortest; the fruit a hard woody nut, with three or four prominent angles, and usually four-celled. The name, from the Greek signifying superb, is not generally applicable to the species. The plants are natives of North America, and have alternate leaves varying in outline, and the flowers in spikes, white or rose-coloured, rarely yellow, turning to reddish when fading. [G. D.]

GAYA. Tropical American herbs, belonging to the mallow family, having solitary yellow flowers, whose structure is that of the closely allied *Sida*, from which, however, the present genus is distinguished by the capsule, which consists of several one-seeded carpels, opening along the back by two valves, and thus allowing of the protrusion of an inner strap-shaped valve-like appendage. [M. T. M.]

GAYAC OFFICINAL. (Fr.) *Guaiacum officinale*.

GAYAL. An Indian name for *Agave vivipara*.

GAYBINE. *Pharbitis*.

GAYLUSSACIA. A genus of tropical American shrubs, belonging to the *Vacciniaceae*, and named in honour of the celebrated French chemist M. Gay-Lussac. The leaves are terminated by a hard spine; the corolla is tubular, distended at the base; and the stamens are inserted into the calyx, the anthers being without horns. The ovary is inferior, and the fruit succulent, crowned by the limb of the calyx, with ten one-seeded stones. *G. Pseudovaccinium* is a greenhouse shrub with pretty red flowers. [M. T. M.]

GAZANIA. A genus of low-growing herbs of the composite family, peculiar to Southern Africa. The greater proportion are stemless, with a rosette of pinnatifid leaves having linear segments, generally white with close-pressed silky down beneath. In the caulescent species, the leaves are mostly narrow oblong or lance-shaped, glossy green above, white beneath. The flower-heads are large and handsome, with yellow strap-shaped ray florets, and tubular disk florets usually of a darker colour. The principal characters of the genus are: an involucre of many scales, whose margins are united nearly to the summit, so as to form a sort of cup; neuter ray florets; perfect disk florets; and wingless achenes clothed with silky hairs, which nearly hide the double pappus of thin and delicate hairs. The double pappus serves to distinguish this from *Gorteria*, a South African genus of very similar appearance. One of the most handsome and best known of the pinnatifid-leaved species is *G. Pa-*

vonla, which has long been in cultivation as a greenhouse plant, and is a beautiful object when its large dark-centred orange-coloured flower-heads, nearly three inches across, are expanded. The plant is said to be one of the greatest ornaments of the waysides in its native country, opening its blossoms only in sunshine. Upwards of forty species are enumerated. [A. A. B.]

GAZLES. *Ribes rubrum*.

GAZON D'ESPAGNE, or D'OLYMPE. (Fr.) *Armeria maritima*. — TURK. *Sazifraga hypnoides*.

GEAN. The wild Cherry, *Cerasus Avium*.

GEASTER. A genus of puffballs distinguished by the outer coat or peridium being perfectly distinct from the inner, which contains the spores, and splitting ultimately into several divisions, so as to have the appearance of a star, whence the name of Earth-star. Sometimes the outer peridium consists of two separable coats, of which the inner becomes at length inverted, so that it is lifted up and supported by the tips of its lobes upon those of the outer coat, which gave rise to the Man Fungus of the older herbalists. The inner peridium is either sessile or stipitate, and sometimes without any trace of an aperture for the dispersion of the spores, while in several species there is a distinct orifice which is variously fringed, folded, &c. In *G. coliformis* there are numerous orifices, and many confluent stems. In a young state the hymenium, as in *Lycopodium*, looks like the crumb of bread, and in that condition it has the same structure as the gills of an agaric, though afterwards it dries up, leaving behind a mass of threads and spores. In general each peridium springs from its own mass of spawn, but in a fine species which occurs in Cuba, Ceylon, and Japan, there is a common expanded mycelium. Some of the species, as *G. hygrometricus*, are extremely sensitive of moisture, and are driven about by the wind as shapeless masses, till the first shower expands them like the fruit of the *Meesebryanthemum*. Others, on the contrary, expand when dry, and contract when moist.

The Earth-stars are amongst our rarer, or at least more local fungi, and are found on leaves in shady places, or on exposed banks and sands. They are more common in the south-eastern and southern parts of England than in other parts of Great Britain. Species occur in all warmer latitudes, but do not ascend very high northwards, or if they occur at all it is only in small quantities. [M. J. B.]

GEBLERA. The name given by Fischer and Meyer to a Chinese herb of the spurge-wort family, now referred to *Flügelia*: which see. [A. A. B.]

GEIJERA. An Australian genus of *Rutaceae*, differing from *Xanthoxylon* chiefly in the simple leaves and hermaphrodite flowers. Three species are enumerated: *G. Maculosa*,

with compact panicles, broad leaves, and imbricate aestivation; and *G. salicifolia* and *pariflora*, having loose panicles and valvate aestivation, the former having ovate or lanceolate, and the latter linear leaves.

GEISSOIS. A genus of *Cunoniaceae*, native of New Caledonia, distinguished by having a calyx of four leathery ovate sepals with shaggy hairs on the inside, no corolla, eight to ten stamens with rich crimson filaments an inch long, and a style bearing two stigmas. The seed-vessel is two-celled and two-valved, containing many compressed winged seeds. It consists of a small tree, bearing closely packed flowers in long racemes on the old wood, and opposite leaves with five slightly serrated leaflets. A plant of this genus has been lately introduced which is possibly distinct from the original species, *G. racemosa*, described by Labillardière. [R. H.]

GEISSOLOMA. The name applied to a South African shrub, referred to the *Penaceae*, and distinguished from *Penca* by the imbricated arrangement of the lobes of the perianth; by the presence of eight stamens, the anthers of which have not a fleshy connective; and by the pendulous ovules: thus affording a singular illustration of the great difference existing between some plants in certain cases, where nevertheless it is not considered advisable to place them in different groups, because, in spite of their numerous points of diversity, they are yet more closely allied one to the other than to anything else. *G. marginata*, a greenhouse shrub, has red flowers, surrounded by a number of scale-like bracts. [M. T. M.]

GEISSOMERIA. A genus of *Acanthaceae*, containing nine species from Brazil. They are undershrubs, with a tetragonous stem, oval or oblong leaves, and long red, often velvety flowers, in many-flowered spikes. These have a five-parted calyx, a tubular corolla dilated upwards, four stamens inserted near the base of the corolla tube, the filaments hairy at the base, and the one-celled anthers acute at both ends. The fruit is oval, and four-seeded. [W. C.]

GEISSORHIZA. A genus of South African *Iridaceae*, one species of which has been found in Abyssinia. The plants have bulb-tuberous rhizomes, narrow setaceous or sword-shaped leaves, and a simple or branched stem bearing the large showy flowers in one-sided spikes. The perianth is funnel-shaped, with a short tube, and an ample six-parted nearly equal limb, the segments of which bear a nectariferous pore at the base; the three stamens are included; the style is filiform and declinate, with three linear wedge-shaped conduplicate stigmas; and the ovary is three-celled, with numerous ovules arranged in two rows in the central angles of the cells. The rhizomes are covered by the crustaceous or scarious remains of the bases of the leaves, which lie over each other like the tiles of a roof, and hence the name of Tile-root has been given to the plants. The ixia-like

flowers are very showy, and various in colour. [T. M.]

GELA. *Entada Purpurtha*.

GELASINE. A genus of *Iridaceae* closely allied to *Trichonema*, with which it is united by many botanists. *G. aurea*, a dwarf bulbous plant from the Rio Grande in South America, is the type. [T. M.]

GELIDIACEÆ. A natural order of rose-spored *Alga* belonging to the group which bears necklaces of spores (*Desmiospermeæ*), and amongst these distinguished by the placenta being axial or suspended by filaments in the cavity of the external or half-immersed capsules. It contains many very beautiful *Alga*, especially in warmer latitudes, amongst which the *Hypnea* are conspicuous, on almost every tropical coast, for the hooked tips of the fronds. *Gelidium corneum*, one of our commonest and most variable seaweeds, with its rigid compressed more or less repeatedly pinnate frond, occurs almost everywhere in some form or other. [M. J. B.]

GELINEÆ. Cells in algae secreting vegetable jelly.

GELL, or GILL. *Glechoma hederacea*.

GELSEMIUM. A genus of *Loganiaceae*, consisting of an evergreen lactescent climbing shrub, found in the vicinity of rivers in the southern states of America. It has opposite lance-shaped shining leaves with small axillary glands, and few-flowered axillary fascicles of sweet-scented yellow flowers, which have a small five-lobed calyx, and a large funnel-shaped corolla, with a five-cleft almost equal limb. The fruit is composed of two separable jointed follicles containing numerous flat seeds. *G. nudum* is called the Carolina Jasmine. [R. M.]

GEMINATE. United or collected in pairs.

GEMINI. Two together.

GEMINIFLOROUS. When two flowers grow together.

GEMMA. A leaf-bud; leaf-buds are sometimes also called *foliifera gemmae*, and flower-buds (*alabastr*), *florifera gemmae*. The term Gemma is also applied to certain small reproductive bodies found in some liverworts, which are regarded as analogous to leaf-buds.

GEMMATIO. The act of budding; the manner in which young leaves are folded up in the bud prior to its unfolding.

GEMMULE. The plumule; also the ovule.

GEN. Persian manna, an exudation caused by insects on the stems of *Tamarix*, according to some authorities; but according to others it is produced by *Alhagi Maurorum*.

GENDARUSSA. A genus of *Acanthaceae*, containing a single species, growing everywhere in India. It is a shrub with narrow

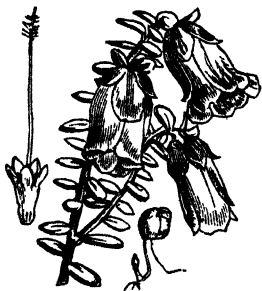
leaves, and spicate flowers on axillary pedicels furnished with small bracts and bracteoles. The calyx is regularly five-parted; the corolla tube is short, and its limb two-lipped, with the upper lip arching; there are two stamens, with two-celled anthers; and a slender rigid four-seeded capsule. The leaves and stalk of *G. vulgaris* have, when rubbed, a strong and not unpleasant smell, and are, after being roasted, prescribed in India in cases of chronic rheumatism attended with swelling of the joints. [W. C.]

GENESTROLLE. *Genista tinctoria*.

GENET. *Genista*. — **BLANC.** *Cytisus albus*. — **D'ESPAGNE.** *Genista juncea*. — **ÉPINEUX.** *Ulex europæus*.

GENETTE. (Fr.) *Narcissus Pseudo-Narcissus*.

GENETYLLIS. A small genus of *Chamaelaucacea*, now united with *Darwinia*, having sessile flowers with two small bracts, five short obtuse entire calyx lobes, five ovate slightly acute petals, twenty short stamens, the alternate ones sterile, a filiform bearded style, and a one celled seed-vessel with four or five seeds. The flower-heads in one section of the genus are enclosed in large coloured ovate or oblong involucre about an inch in length, generally of a reddish hue, or white striped with red, and on this account they are exceedingly handsome plants, particularly *G. tulipifera*, *G. macrostegia*, *G. speciosa*,



Genetyllis tulipifera.

and *G. Hookerianna*. The leaves are either lanceolate, spatulate, or linear and three-angled, full of glandular dots, the upper ones generally membranaceous. The name of *Hedaroma* was given by Dr. Lindley to certain of the involucre species from South-West Australia. The species are remarkable for the exquisite sweetness of their foliage, which with the half-ripe fruit retain their fragrance for such a length of time that they possibly might be considered worth collecting for the perfumer. They are mostly heath-like shrubs,

and are natives of the south and south-west parts of Australia. [R. H.]

GENEVRETTE. A wine made from juniper berries.

GENÉVRIER. *Juniperus communis*. — **A L'ENCENS.** *Juniperus thurifera*. — **CADE.** *Juniperus Oxycedrus*. — **FEMELLE.** *Juniperus tamariscifolia*. — **MÂLE.** *Juniperus cressifolia*.

GENICULATE. Bent abruptly like a knee; as the stems of many grasses.

GENICULUM. The node of a stem.

GENIPA. A genus of tropical American trees of the cinchona family, nearly allied to *Gardenia*, but differing in the tube of the corolla, which is much shorter than in that genus, so that the five to six ovate segments of the limb are longer than the tube. The fruit is succulent, with a rather thick rind, crowned by the calyx, and tapering at each end. Some of the species furnish edible fruits. Thus *G. americana* produces the Genipap fruit, as large as an orange, and with an agreeable flavour. In Surinam the same fruit is called the Marinalade Box. The fruit of *G. brasiliensis* furnishes a violet dye. A few of the species are in cultivation as evergreen stove plants. [M. T. M.]

GENIPAP. The fruit of *Genipa americana*.

GENIPI BLANC. *Artemisia Mutellina*. — **NOIR.** *Artemisia spirata*.

GENIP TREE. *Genipa*; also an old West Indian name for *Melicocca bijuga*.

GENISTA. An extensive genus of leguminous plants, including the *Planta Genista* or *Plante genêt* of the French, from which a celebrated race of English kings, the Plantagenets, took their name, in consequence of their wearing a sprig of the plant as a distinctive badge. The genus contains more than a hundred species, chiefly abounding in the countries bordering on the Mediterranean, in Western Asia, and in the Canary Islands, three being indigenous to Britain. They are all small branching shrubs, sometimes armed with spines, seldom growing higher than five or six feet, and often not more than a foot, bearing simple or trifoliate leaves, and abundant yellow flowers, which are produced either singly or in racemes or clusters from the angles of the leaves or at the ends of the branches. They have a five-toothed calyx; a papilionaceous corolla, of which the keel becomes curved backwards after flowering; ten stamens united into an entire sheath, bearing long and short anthers alternately; and a flattened or sometimes roundish pod contracted between the seeds.

The Petty Whin, *G. anglica*, is a small prickly straggling English shrub, with numerous decumbent stems, bearing small lance-shaped leaves and yellow flowers, and armed with sharp spines, whence the plant is frequently called Needle Green,

weed. *G. tinctoria*, a native of Central and Southern Europe, common in England, is a low bushy tufted shrub, producing numerous woody unarmed stems, which send forth stiff erect angular green branches, clothed with leaves varying from narrow lance-shaped to broadly-elliptical, and bearing short racemes of yellow flowers at the ends of the branches. This was formerly of some importance as a dye plant, but it has long been superseded by dyes of foreign origin. It is commonly known under the name of Woadwaxen or Dyer's Greenweed, but the colour derived from it was a bright yellow, and it was only by afterwards dipping the yellow yarn or cloth into a blue solution of woad (*Isatis*) that the green tint was obtained. This was the process by which was obtained the once celebrated Kendal green, so called from the town of Kendal in Westmoreland, in the vicinity of which the plant was abundant, and where also the process was first introduced by Flemish emigrants in the reign of Edward III. The plant thrives upon very poor soil, and is regarded by agriculturists of the present day as an indication of the poverty of the land where it abounds. [A. S.]

GENISTELLA. *Genista anglica*, and others; also *Aspalathus spinosa*.

GENTIAN. *Gentiana*. The gentian root of the druggists is furnished by *G. lutea*. —, **BASTARD.** *Hypericum Sarothra*, or *Sarothra gentianoides*. —, **HORSE.** *Triosteum*. —, **SPURRED.** *Halenia*.

GENTIANACEÆ. (*Gentianvoorts*.) A natural order of corollifloral dicotyledons belonging to Lindley's gentianial alliance of perigenous Exogens. Herbs, rarely shrubs, with opposite entire exstipulate, usually ribbed leaves, and showy flowers. Calyx divided, persistent; corolla persistent, imbricate or induplicate, and often twisted in maturation; stamens alternate with the corolline segments; ovary of two carpels, placed to the right and left of the axis, one-celled with two parietal often introflexed placentas; style one; stigmas two. Fruit a capsule or berry; seeds numerous, with fleshy albumen and a minute embryo. They are found in almost all parts of the world, some at high elevations, and others in hot tropical plains. Bitterness prevails generally in the order. Some of the plants have emetic and narcotic qualities. The root of the yellow gentian of the Alps (*Gentiana lutea*) is used medicinally as a tonic. In the Himalaya, *chirata* (*Agathotes Chirayita*) is employed as a bitter tonic. *Exacum bicolor* and *Ophelia elegans* are similarly used. There are about 70 known genera, and upwards of 500 species. Examples: *Gentiana*, *Suertia*, *Chironia*, *Erythraea*, *Chloria*, *Lisianthus*, *Menyanthes*, *Villosaria*, *Limonanthemum*. [J. H. B.]

GENTIANA. A large genus of herbaceous plants, giving their name to the order *Gentianaceæ*. The Gentians are perennial plants, with opposite ribbed leaves; a calyx of four or five valvate segments;

a four to five or occasionally ten-parted corolla; four to five stamens; and a one-celled ovary with two stigmas either separate and rolled back, or contiguous and funnel-shaped. The fruit is a two-valved, one-celled, many-seeded capsule. While blue is the most frequent colour, yet white, yellow, and even red flowers are met with. The red-flowered species are almost confined to the Andes; while blue-flowered species ascend the Himalayas to the height of 16,000 feet. The great majority are found in hilly or mountainous districts, in the northern hemisphere both in the old and new world, extending also to the tropics. Most of the genera which inhabit the elevated regions of the temperate or tropical zones are likewise found in the arctic or antarctic regions in great abundance, but this does not appear to be the case with *Gentiana*.

The abundance and beauty of the Gentians on the European Alps never fail to arrest the attention and demand the admiration of the traveller, who knows not whether most to admire the noble appearance presented by some of the taller more stately-looking species, such as *G. lutea*, or the intensely brilliant blue colour of some of the more lowly-growing species, such as *G. verna* or *acaulis*, and which may be found growing in profusion on little swards environed on all sides by ice-clad rocks and mighty glaciers. A few species are native in the British Islands: the most frequently met with being *G. Amarella*, an erect branching annual, sometimes attaining to the height of ten or twelve inches, the flowers paniced, of a pale purple colour, the calyx with five segments, and the corolla with a fringe of hairs at the throat. *G. campestris* much resembles this, but has the parts of the flower in fours, not in fives, and has two of the lobes of its calyx larger than the other two, which they overlap. *G. Pneumonanthe*, a rare English perennial species, has a stem nearly a foot in height, the upper leaves linear, and the corolla an inch and a half long, bright blue without hairs in its throat, but with five greenish lines on the exterior. *G. verna* is a low-growing perennial, growing in dense tufts with very short flower-stalks, terminated by a single bright blue flower. It is a rare plant in this country, but abundant in mountainous meadows in Central and Southern Europe. *G. nivalis* is only found in Britain on some of the Scotch mountains: it is a slender branching annual, each branch being terminated by a blue flower about half an inch in length. Several of the species are in cultivation, such as *G. lutea*, *G. purpurea*, *G. acaulis* the Gentianella of gardeners, and *G. crinita*, a North American kind, with the four lobes of the corolla fringed at the margin.

It is not only for their beauty that these plants are prized, but for their medicinal properties. All the species are, to a greater or less extent, pervaded by a pure bitter principle, which confers valuable tonic virtues on them, not always unaccompanied by some slight degree of narcotic or acrid

effect. The roots of *G. lutea* are principally used in this country; they are collected in Switzerland and the Tyrol. The roots of *G. purpurea*, *G. punctata*, and *G. pannonica* are used for like purposes; indeed, almost any species might be employed that could be obtained in sufficient quantity. *G. cruciata* has been invested with imaginary virtues, because its leaves grow in the form of a cross; it has been recommended in hydrophobia. The Swiss make a liqueur from some of the species. Some of the Himalayan and North American kinds are used, like the European ones, as tonics. [M. T. M.]

GENTIANE. (Fr.) *Gentiana lutea*.

GENTIANELLA. A common name for *Gentiana acutis*; also *Orythacanthus barbadensis*.

GENTIANELLE. (Fr.) *Exacum*.

GENTIANWORTS. Lindley's name for the order *Gentianaceae*.

GEOCARYUM. The name of a genus of *Umbellifera*, better united with *Bunium*, but distinguished from it by the styles being more erect, and by the structure of the fruits, which have five ridges, with as many wide oil-channels in the interspaces. In *Bunium*, on the contrary, there are two or three such channels in each interspace. *G. capitifolium* is a native of the south of Europe, Barbary, &c., and has a bulb-like stock, whence the name of the genus, which signifies earth-nut. [M. T. M.]

GEOCOCBUS. A diminutive cruciferous annual stemless herb of Western Australia, throwing out from the neck a series of pinnatifid leaves, from whose axils emerge the minute flowers. After flowering, the peduncles become deflexed, and bury the small seed-vessels about an inch beneath the surface of the ground. [T. M.]

GEODORUM. The generic name of a few terrestrial East Indian orchids of the tribe *Vandee*. They have tuberous roots, radical lance-shaped or elliptical leaves six to eighteen inches long, and lateral flower-scapes terminating in a nodding spike of flowers, which in some are of a pale green colour, the lip white and veined with yellow or purple lines, and in others are bluish with a yellow spot on the lip. The sepals and petals are free and connivent; the lip hooded, sessile, and not jointed with the very short column; there are two bilobed pollen-masses with a short caudicle and a transverse gland. *G. dilatatum* and *G. citrinum* are in cultivation. [A. A. B.]

GEOFFROYA. A genus of pinnate-leaved South American *Leguminosae* of the tribe *Dalbergiæ*, and differing from most in that group in having drupaceous fruits instead of thin dry pods. From *Andira*, to which it is most nearly allied, it differs in the flowers being in simple racemes instead of panicles, and usually yellow with a fetid smell, instead of purple and smelling sweetly; the calyx, also, is distinctly

or deeply instead of obscurely toothed. There are five species enumerated.

G. superba is a tree of eighteen to twenty-five feet, with the habit of a tamarind, and is found in Brazil and Venezuela. Its pinnate leaves are four to six inches long; and the yellow fetid pea-flowers are in simple racemes the length of the leaves. The fruits, about the size and form of a walnut, have a greenish-yellow downy rind, a fleshy pulp, and a hard nut or stone enclosing a single seed. Humboldt, in his *Plantes Equinoxiales*, says this is a truly magnificent tree, from the disposition of its branches clothed with beautiful green leaves, as well as from the great abundance of its yellow flowers. According to the same authority, the wood is hard, susceptible of a fine polish, and useful for building purposes, while the fruits are not agreeable, but are eaten by children and much sought after by various animals. Mr. Gardner says the fruits are called *Mari* in various parts of Brazil. He found them to be the principal food of the inhabitants of the Ilha de St. Pedro, who boil them, eating the fleshy portion first, and then the kernel. Almondora, or Almond, is a name given to the tree on the Amazon. [A. A. B.]

GEOGLOSSUM. A genus of ascomycetous *Fungi* which in outward aspect has the appearance of *Clavaria*, and in consequence has been wrongly associated with the clavate *Fungi*. The whole plant is club-shaped, with the hymenium covering the entire surface of the club except at the base, the distinction between head and stem being generally only slightly marked. There are two distinct groups, those which are black or brown, and those which are green, purple, &c. In the former the sporidia are septate and much elongated, in the latter minute and simple. The species occur in closely-shaven lawns, in grassy pastures, and amongst *Sphagnum* or rottenwood, &c. Occasionally the stem is either viscid and scaly, or densely velvety. No species appears to be esculent. Earth-tongues occur in most temperate parts of the world, but they are more frequent in Europe than elsewhere. [M. J. R.]

GEONOMA. A genus of palms closely resembling *Chamedorea* in general appearance, and like these confined to the tropics of the western hemisphere, where they form part of the underwood of dense forests. There are about forty known species, a few of which are stemless, but the generality have slender reed-like polished stems, marked with rings or scars of fallen leaves, and bearing at their summit a tuft of large leaves, which are usually quite entire when young, but afterwards split so as to become irregularly pinnate. The male and female flowers are borne on the same plant, but are sometimes, though not always, on distinct spikes; each spike is enclosed in a double spathe, and is either unbranched or variously branched, the small yellow or purple flowers being seated in little hollows, the males in clusters of two or three, and the females solitary. The

fruits are very small, and contain a single horny seed. None of the species possess any particular features of interest; the only useful purposes to which they are applied being that of supplying leaves for thatching huts, and flexible stems for walking-sticks. [A. S.]

GEOPHILA. A genus of *Cinchonaceæ*, called 'earth-loving' from the creeping habit of the plants. The species are natives of tropical America and the East Indies, and somewhat resemble violets in their mode of growth. They are nearly allied to *Psychotria*, from which they are distinguished by their flowers being in heads surrounded by a few bracts, and by the calyx being more deeply divided into five linear spreading segments. [M. T. M.]

GEORCHIS. A small genus of orchids found growing among moss, &c., in the damp woods of India and Java. The species have all the habit of *Goodyera*, and, according to Dr. Lindley, differ from that genus in the very sharp-pointed anthers and stigma, the latter of which splits into two long bristle-like arms. The slender stems throw out roots at intervals, and bear a number of ovate or heart-shaped leaves one to three inches in length, while the small white or pink flowers are disposed in terminal spikes. [A. A. B.]

GEORGINA. A name given by Willdenow to the genus *Dahlia*, but not generally adopted.

GEOTHERMOMETER. A thermometer constructed especially for determining the temperature of the earth.

GERANIACEÆ. (*Cranebills*.) A natural order of thalamifloral dicotyledons, characteristic of Lindley's geranial alliance of hypogynous Exogens. Herbs or shrubs with swollen joints, and opposite or alternate leaves, which are usually palmately veined and lobed, often stipulate. Sepals five imbricate, one of them sometimes spurred; petals five, with claws, contorted in bud; stamens usually ten, united by their filaments, some occasionally sterile; ovary of five bi-ovular carpels placed round an elongated axis, to which the styles adhere. Fruit formed of five one-seeded carpels, which finally separate from the base of the central axis or beak, and curve upwards by means of the attached styles; seed exalbuminous; embryo curved and doubled up, with plaited cotyledons. The plants are distributed over various parts of the world. The species of *Pelargonium* abound at the Cape of Good Hope; those of *Geranium* and *Erodium* are chiefly natives of Europe, North America, and Northern Asia. They have astringent and aromatic qualities, many of them are fragrant, and some have a musky odour. They are sometimes tuberous, and the tubers are eaten. There are numerous hybrids among the plants of this order, and it is not easy to determine the exact number of species, but about 540 are recorded. *Erodium*, *Gera-*

nium, *Pelargonium*, and *Moneosia*, are examples. [J. H. B.]

GERANIUM. The Cranebills, whose name is derived from the long central beak of the fruit, form a large genus of the *Geraniaceæ*, distinguished by having regular flowers, ten stamens with the filaments united at the base, and five carpels each tipped by a long glabrous awn (the persistent style), which becomes recurved when it separates from the central axis, not spirally twisted as in *Erodium*. They are herbs, very rarely undershrubs, growing in all temperate climates, having stems with enlarged joints and palmately lobed cleft or divided leaves, the lower ones stalked, the upper sessile. The one or two-flowered peduncles have small bracts at the base of the pedicels, and the flowers are often large and brightly coloured. Most of the species are astringent, particularly the North American *G. maculatum* or Alum-root, the rhizome of which is used in its native country instead of kino. The Tasmanian *G. purviflorum* is there called the Native Carrot, and its tubers used as food. There are about a dozen British species. The genus *Pelargonium*, to which belong the popular Geraniums of our gardens, is distinguished from the Cranebills, by its irregular flowers, and adherent calycine spur. [J. T. S.]

GERANIUM, INDIAN. A term used by perfumers for *Andropogon Nardus*. — **NETTLE.** A popular name for *Coleus fruticosus*.

GERANION. (Fr.) *Geranium*, including *Pelargonium* and *Erodium*.

GERARDIA. A genus of *Scrophulariaceæ*, consisting of annual or perennial herbs, rarely shrubby at the base, and most if not all the species probably more or less parasitical on the roots of other plants. The leaves are opposite, or the upper ones alternate, all entire or very rarely cut. The flowers, sessile or pedicellate in the upper axils, or forming short terminal racemes, are usually purple or pink, and downy outside. The calyx is campanulate and five-toothed; the corolla obliquely tubular or campanulate, with five broad more or less spreading lobes; the stamens four, didynamous, not longer than the corolla, with two-celled anthers. The capsule opens loculicidally in two valves, and contains numerous small seeds. There are about two dozen species known, natives of North or South America, and most of them very handsome. All attempts to cultivate them have, however, failed. The dried specimens usually turn quite black.

GERBE-D'OR. (Fr.) *Solidago canadensis*.

GERBERA. A genus of that group of the *Compositæ* called *Mutistaceæ*, in which all the florets are two-lipped. The genus is almost entirely African, and is represented in greatest numbers at the Cape. Upwards of a dozen species are known, all stemless perennial herbs, with their leaves

usually clothed beneath with white cottony down; some, as *G. asplenifolia*, have pinnatifid leaves, calling to mind the fronds of *Asplenium Trichomanes*, but the larger proportion have the leaves oval or oblong and entire. The flower-stalk which rises from the crown bears on its apex a single large flower-head one to two inches across, the ray florets in which are yellow, purple, or blood colour, disposed in a single or double row, and containing a pistil only, while the disk florets are usually yellow and perfect. The achenes are cylindrical or flattened, smooth, beaked, and crowned with a pappus of two or more series of rough hairs. The name *Lastopus* is by some authors given to those species which have a double row of ray florets. [A. A. B.]

GERMANDER. *Teucrium Chamædrys*; also a common name for the genus *Teucrium*. —, WATER. *Teucrium Scordium*. —, WOOD. *Teucrium Scorodonia*.

GERMANDRÉE. (Fr.) *Teucrium*. — AQUATIQUE. *Teucrium Scordium*. — FEMELLE. *Teucrium Botrys*. — MARITIME. *Teucrium Marum*. — OFFICINALE. *Teucrium Chamædrys*. — SAUVAGE. *Teucrium Scorodonia*.

GERMAN TINDER. The Soft Amadou, *Polyporus fomentarius*.

GERMEN. The ovary.

GERMINATION. The first act of growth by an embryo plant, connected with the absorption of oxygen and the extrication of carbonic acid. Germination ceases when the latter begins to be decomposed.

GERNOTTE. (Fr.) *Buntium Bulbocastanum*.

GÉROFLE, or GÉROFLIER. (Fr.) *Caryophyllus aromaticus*.

GERONTOGENOUS. Of or belonging to the Old World.

GEROPOGON. A genus of the composite family nearly related to *Tragopogon*, and consisting of an annual glabrous herb of the south of Europe, having simple stems, subamplexicaul entire elongated leaves, and capitules of purplish flowers solitary at the thickened apex of the stem. It differs from *Tragopogon* in having hair-like scales on the receptacle, and in the nature of the pappus. [T. M.]

GERVAO. A Brazilian name for *Stachytarpha jamaicensis*.

GESNERACEÆ. (Cyrtnandraceæ, Didymocarpeæ, Gesneriports). A natural order of corollifloral dicotyledons belonging to Lindley's bignonioid alliance of perigynous Exogens. Herbs or shrubs often growing from scaly tubers, with wrinkled usually opposite leaves and showy flowers; calyx half-adherent five-parted; corolla more or less irregular, five-lobed; stamens two, or four and didynamous with the rudiment of a fifth, the anthers often combined. Ovary one-celled, surrounded at the base by glands or a ring. Fruit capsular or

succulent, one-celled, with parietal placentas to the right and left of the axis. Natives of various parts of the world, chiefly the warmer regions of America. The succulent fruits are occasionally edible, and some of the species yield a dye. The leaves of some of them produce buds when laid on the soil. There are upwards of 80 genera, and nearly 300 species. *Gesnera*, *Glazinia*, *Achimenes*, *Streptocarpus*, and *Cyrtandra* furnish examples. [J. H. B.]

GESNERA. The typical genus of *Gesneraceæ*, consisting of numerous tropical South American species, some of which are amongst the most beautiful of the herbaceous plants cultivated in our stoves. It has, like some other genera of the order, been much broken up by modern botanists. Some of the species are referred to a division called *Brachylomateæ*, in which there are squamose catkin-like stamens, as in *Achimenes*; others to the *Eugenerææ*, which have tuberous rhizomes; and others to the *Rhytidophylleæ*, which are shrubby or subshrubby in habit. In the modern restricted form, *Gesnera* itself consists of plants with depressed tubers, a racemose corymbose or panicle inflorescence, and somewhat two-lipped corollas, much longer than the calyx, and with a short galea or upper lip, differing in the latter particular from *Durcæa*, another of the *Eugenerææ*, in which the upper lip is very much elongated and fornicate. The flowers have also from two to five conspicuous glands. Of the five groups into which the restricted genus is divided, the following species are examples: *G. discolor*, *macrostachya*, *tuberosa*, *Scutellaria*, and *punctata*. The most familiar of the separated genera in the several tribes are the following, the first three of which belong to the *Brachylomateæ*, the next two to the *Eugenerææ*, and the remainder to the *Rhytidophylleæ* :—

Nagelia: with a campanulate-cylindrical corolla tube, inflated beneath, and short subbilabiate limb, a five-crenate perigynous glandular ring, and a stomatomorphous stigma: ex. *G. zebrina*.

Kuhleria: with an oblique corolla having a cylindrical or tumid deflexed tube, and ringent limb, five subequal glands, and a bifid stigma: ex. *G. Seemannii*.

Cryptologia: with a straight corolla tube, and very short limb, five subequal glands, and a bifid stigma: ex. *G. hondensis*.

Reichsteineria: with a subbilabiate tubular corolla, two large dorsal glands and three smaller ventral ones, and a stomatomorphous stigma: ex. *G. allagophylla*.

Durcæa: with a gaping tubular corolla, the upper lip elongate-fornicate, the lower truncate, two connate dorsal glands, and a stomatomorphous stigma: ex. *G. bulbosa*.

Houttea: with a long corolla tube, and short spreading limb, and five glands, of which the dorsal are larger and connate: ex. *G. pardina*.

Moussonia: with a shorter subinflated corolla tube, and scarcely spreading limb, and five subequal glands: ex. *G. elongata*.

Hortensia: with a very long slightly curved corolla tube, and straight limb, and a five-lobed toothed ring: ex. *G. libanensis*. [T. M.]

GESNÉRIE BIZARRE. (Fr.) *Tydas picta*.

GESNERWORTS. A name proposed by Lindley for the *Gesneraceae*.

GESSE. (Fr.) *Lathyrus*. — CHIOCHE. *Lathyrus Cicera*. — DE PRÉS. *Lathyrus pratensis*. — GRANDE. *Lathyrus latifolia*. — SAUVAGE. *Lathyrus sylvestris*. — VELUE. *Lathyrus hirsutus*.

GESSETTE. (Fr.) *Lathyrus Cicera*.

GETHYLLIS. A small genus of Cape *Amaryllidaceae*, allied to *Sternbergia* and *Oporanthus*, and consisting of dwarf bulbous plants, with linear leaves, and short one-flowered flower-scapes. The perianth tube is long cylindrical, the limb of six segments regular and spreading; the stamens inserted in the mouth of the tube, and sometimes by superfluity doubled or trebled or multiplied numerous, with erect anthers; and the style connate with the perianth tube, free and exserted at top, with a capitate trigonous stigma. The capsule is berry-like and succulent, and is said to be caeculent. *G. undulata* has the leaves remarkably waved at the edge, and ciliated with strong bristles. [T. M.]

GEUM. A genus of perennial *Rosaceae*, deriving its generic name from the Greek word *geuo*, which signifies to have an agreeable taste, on account of the slightly aromatic flavour of the roots of some of the species. The main characters of the genus reside in the calyx, whose limb is five-cleft, with five little bracts on the exterior, and in the carpels which are dry with hardened hooked styles forming collectively a kind of burr. Two species are natives of Britain, *G. urbanum* and *rivale*. The former, known as Avena or Herb Bennet, has an erect slightly branched stem; the lower leaves deeply divided in a pinnate manner, with a large terminal lobe, the side lobes in pairs, some of them much smaller than the rest; the flowers yellow, with small spreading petals. The root of this plant, called by the old herbalists Clove-root, *radix caryophyllata*, has an aromatic clove-like odour, and, as it possesses astringent properties, it has been used in diarrhoea, dysentery, intermittent fevers, &c. It was formerly put into ale to give it a clove-like flavour and prevent it turning sour, and has been recommended to be chewed when the breath is foul. The Water-avens, *G. rivale*, has the leaves more hairy, the flowers much larger, drooping, and of a dull purple colour, and the head of fruits separated from the calyx by a short stalk. This plant is frequently found in a prolied state, that is, with a branch or a second flower in the centre of the original one. Other species of this genus are widely diffused over the temperate regions of the northern hemisphere. *G. canadense* is found in Canada and the United States,

where it is known by the name of Chocolate or Blood root, and is used as a mild tonic. Several species are cultivated in this country: among the handsomest is *G. coccineum*, with scarlet flowers. [M. T. M.]

GEVIN. (Fr.) *Quadrifida*.

GHEKOOL, or GHET-KOL. An Indian name for the acrid tubers of *Typhonium trilobatum*.

GHETCHOO. An Indian name for *Aponogeton monostachyon*, the tubers of which are used like potatoes.

GIBBER. A pouch-like enlargement of the base of a calyx, corolla, &c.

GIBBEROSE, GIBBOUS, or GIBBOSE. More convex or tumid in one place than another.

GIESEKIA. A genus of *Phytolaccaceae*, containing tropical or subtropical annual herbs from Asia and Africa, with prostrate dichotomous stems, linear-oblong or spatulate entire fleshy leaves, rough with subcutaneous glands, and small greenish flowers, often becoming purple, in small umbellate or contracted cymes opposite the leaves. The fruit consists of three to five rough utricles. The name is sometimes written *Gieskia*. [J. T. S.]

GIESLERIA. A gesneraceous plant of herbaceous habit, now included in *Tydas*.

GIGARTINA. A genus of the large natural order of rose-spored *Algae*, called *Cryptonemiacae*. The capsules, which are globose and external, contain several roundish masses of spores; the frond is flat or cylindrical and mostly branched, composed of innumerable longitudinal and horizontal threads in a firm pellucid jelly; and the tetraspores are collected in little heaps or sori. The genus is very nearly allied to *Fridea* and *Chondrus*. Many of the species are covered with projecting tubercular or spine-shaped processes, so as to make the frond rough like a rasp. *G. mamillata* is often found amongst carageen. *G. speciosa*, the Jelly-plant of the Australian colonists, is now referred to *Eucheuma*. [M. J. B.]

GIGOT. (Fr.) *Iris fastidiosa*.

GILIA. A genus of American *Polémoniacae* containing about sixty-five species. The corolla is infundibuliform and hypocrateriform, sometimes almost campanulate or rotate; the five stamens are equally inserted in the throat or tube of the corolla; the ovules few or many in each cell. Dr. Asa Gray divides the genus roughly into three groups, characterised mainly by their foliage: — 1. *Gilia*, with alternate pinnately cut or divided leaves; 2. *Lepodactylon*, frutescent plants with nearly the corolla of *Phlox*, and alternate pinnately parted leaves; 3. *Lepodactylon*, annuals with opposite palmately divided (or entire) leaves. To this division the seeds in some sort answer; but the characters do not hold good throughout. Those of the first group are mostly mucilaginous and spirilliferous, as in *Collomia*, *Spermopala*, *Hemilia*, and *Novarettiella* are united with *Gilia* by Dr. Gray. Many pretty species are cultivated in our gardens, as *G. (Spermopala)*

coronopifolia, *G. tricolor*, and *G. capitata*, the last an annual with dense heads of small blue flowers, at first sight resembling those of *Jacqsonia*. A very beautiful variety of *G. micrantha* has lately been introduced to cultivation under the name of *Leptosiphon roseus*. [J. Br.]

GILBERTIA. A genus of ivywoods, characterised by having the corolla with five to ten petals; stamens five to ten, attached to the petals and alternate with them; style short, ending in five to ten stigmas, which are at first erect, and then spreading. The genus was named in honour of J. E. Gilbert, a French botanist. There are two or three species, natives of Tropical America, having alternate oblong acute leaves, slightly toothed; and flowers in terminal compound umbels. [G. D.]

GILL, or GELL. *Nepeta Glechoma*.

GILLENIA. A genus of perennial herbaceous plants belonging to the *Rosaceae* and allied to *Spiraea*, from which, however, it is well distinguished by its funnel-shaped calyx, very short stamens, and five carpels combined into a five-celled capsule, with two seeds in each cell. The leaves are ternate, with stalked serrated leaflets; the flowers whitish or red, axillary and terminal, on long flower-stalks. The roots are medicinal, possessing in a mild degree the properties of *Ipæacuanha*. Two species only are described by botanists, both natives of North America: *G. trifoliata*, distinguished by its very narrow pointed stipules; and *G. stipulacea*, the stipules of which are large, ovate and deeply cut. [C. A. J.]

GILLIESIACEÆ. (*Gilliesiads*.) A natural order of hypogynous monocotyledons belonging to Lindley's liliac alliance of Endogens. Bulbous plants, with grass-like leaves, and umbellate flowers enclosed in a spathe. Perianth of two portions, the outer petaloid and herbaceous, six-leaved, the inner minute often five-toothed; stamens six, three sometimes sterile. Capsule three-celled, three-valved, many-seeded, opening in a loculicidal manner; covering of seed black and brittle; embryo curved; albumen fleshy. Natives of Chili. The genera are *Gilliesia* and *Miersia*, comprising about half a dozen species. [J. H. B.]

GILLIESIA. A genus of Chilean bulbous herbs, belonging to *Gilliesiaceæ*. They have linear flaccid root-leaves, and sub-decumbent scapes, the flowers numerous, greenish, inconspicuous, in an umbel with two leaf-like bracts at the base. The exterior involucre is five-leaved, with the two lateral interior ones much smaller than the others; the interior involucre many-leaved, surrounding a slipper-like perianth lobe; the stamens are united into a cup, the three posterior ones sterile. [J. T. S.]

GILLIFLOWER. A name corrupted from the French *Giroflée*; also written *Gilloflower* and *Gillyflower*, and further corrupted into *July-flower*; that of the old writers was *Dianthus Caryophyllus*, of the moderns, *Matthiola*. — **CLOVE.** *Dianthus Caryophyllus*. — **MARSH.** *Lychnis Flos cuculi*. — **QUEEN'S.** *Hesperis matronalis*.

— **ROGUE'S.** *Hesperis matronalis*. — **SEA.** *Armeria vulgaris*. — **STOCK.** *Matthiola incana*, *annua*, &c. — **WALL.** *Cheiranthus Cheiri*. — **WATEL.** *Nottonia palustris*. — **WINTER.** *Hesperis matronalis*.

GILLS. The lamellæ or plates growing perpendicularly from the cap or pileus of an agaric.

GILVUS. Dull yellow, with a mixture of grey and red.

GINGELLY OIL. The oil of *Sesamum orientale*.

GINGEMBRE. (Fr.) *Zingiber*.

GINGER-GRASS OIL. An essential oil obtained from *Andropogon Nardus*.

GINGER. *Zingiber officinale*. The ginger of the shops is the dried rhizomes of this plant; black or East Indian ginger is the unscraped rhizome prepared by scalding; white or Jamaica is the scraped rhizome dried in the sun. — **AMADA.** *Curcuma Amada*. — **EGYPTIAN.** *Colocasia esculenta*. — **INDIAN.** *Asarum canadense*. — **MANGO.** *Curcuma Amada*. — **RED.** The same as East Indian ginger. — **WILD.** *Asarum canadense*. — **WOOD.** An old name for *Anemone ranunculoides*.

GINGERBREAD-TREE. The *Donm Palm*, *Hyphane thebaica*; also *Purmarium macrophyllum*.

GINGERWORDS. A popular name for the *Zingiberaceæ*.

GINGILIE OIL. The oil of *Sesamum orientale*.

GINGO, or GINKGO. The aboriginal Japanese name of *Salisburia adiantifolia*.

GINSEN. (Fr.) *Panax*.

GINSENG. The root of one or more species of *Panax*. It is also called *Ginschen*. Pereira gives *P. quinquefolium* as American Ginseng, and *P. Schumacheri* as Asiatic Ginseng.

GIPSWORT. *Lycopus europæus*.

GIRANOLEIE. (Fr.) *Coburgia*.

GIRARDINIA. A genus belonging to a small group of the nettle family, characterised by its stinging properties. From *Urtica* itself it differs in having alternate instead of opposite leaves, and from other allies in the calyx of the fertile flowers being two-parted, one of the segments being much the larger and three-toothed, the other small, linear, or sometimes abortive. The species, three of which are East African and three East Indian, are tall annual or perennial herbs, having all their parts clothed with long and sharp white stinging hairs. The stalked leaves, which are accompanied by large stipules, are sometimes nearly a foot in length, variously lobed and coarsely toothed, some like those of the hemp, others like those of the maple in form. The small green flowers, like those of a nettle, are unisexual; the males in racemes and the females in compact

cymes, densely clothed with stinging hairs. *G. heterophylla*, one of the commonest Himalayan species, has three to seven-lobed leaves, five inches to a foot long. Dr. Hooker, in his *Himalayan Journals*, alluding to this plant, says: 'The quantity of gigantic nettles growing on the border of maize fields was quite wonderful; their long white stings look most formidable, but, though they sting powerfully, the pain only lasts half an hour or so.' According to the same authority, a sort of cloth, and also a sort of cordage, are made from fibre furnished by the stems of this plant in Sikkim. In Southern India, the stems of *G. Leschenaultiana*, which is closely allied to the preceding, yield a good silken fibre which is made into thread. The process of separation, in some places, is performed by boiling the stems; in others, by steeping them in water for twelve days or so, when the outer or fibrous portion is readily removed, and afterwards spun into a beautiful soft thread. The fibre exists in large proportions, and the tow bears great resemblance to sheep's wool. [A. A. B.]

GIRAUMONT. (Fr.) *Cucurbita Pepo*. The seeds of some cucurbitaceous plant, bearing the name of Giraumont seeds, are used to destroy tape-worm.

GIROUDIA. A genus of *Begoniaceæ*, named after M. Giroud, a Berlin horticulturist. Flowers monocious: the staminate ones with two obovate petals, numerous stamens of nearly equal length, and oblong anthers opening laterally; the pistillate ones with two petals, a trigonal inferior three-celled ovary which is unequally winged, and crescentic stigmas surrounded at the margin by a papillose band. The capsule is triquetrous and top-shaped, opening by curved chinks at the origin of the wings. They are fleshy undershrubs, erect or creeping, found in Central America and in Mexico, and have usually entire lobed leaves with long petioles and large stipules. The flowers are in axillary dichotomous cymes. There are about thirty species, all of which were formerly included in *Begonia*. [J. H. B.]

GIROFLÉE. (Fr.) *Cheiranthus*. — **DES JARDINS.** *Matthiola incana*. — **DE MAHON.** *Malcolmia maritima*. — **DE MURAJLE.** *Cheiranthus Cheiri*. — **JAUNATRE.** *Cheiranthus ochroleuca*. — **JAUNE.** *Cheiranthus Cheiri*. — **QUARANTAIN.** *Matthiola annua*. — **VIOLETTE.** *Cheiranthus Cheiri*.

GIROFLIER, or *G. AROMATIQUE.* (Fr.) *Caryophyllus aromaticus*.

GIROLLES. (Fr.) *Sium Sisarum*.

GIROSELLE. (Fr.) *Dodecatheon*.

GITH. The Corn Cockle, *Agrostemma Githago*.

GITHAGINEUS. Greenish-red.

GITHAGO. The name of one of the groups included in *Lychnis*, and represented by the *Agrostemma Githago* of Lin-

næus. The lamina of the petals is entire and without appendages. [T. M.]

GITHOPSIS. A genus of *Campanulaceæ*, nearly allied to *Specularia*, but differing in the narrow-campanulate, not rotate, corolla, in the filaments without hairs, and in the capsule opening in terminal pores. It comprises two Californian annuals, with small blue flowers, scarcely showing between the long segments of the calyx.

GLABER, GLABRATE, GLABROUS. Smooth; having no hairs.

GLACIALE. (Fr.) *Mesembryanthemum crystallinum*.

GLADDON, GLADEN, or GLADER. *Iris fastidissima*.

GLADIATE. Sword shaped; the same as Ensiform.

GLADIOLE, WATER. *Butomus umbellatus*.

GLADIOLUS. An extensive and very beautiful genus of *Iridaceæ*, found sparingly in the warmer parts of Europe and in the Mediterranean region, and much more abundantly in South Africa. They form fleshy corms, from which grow the erect stems, terminating in a spike of flowers of greater or less length, the leaves being distichous and equitant, and either narrow and grass-like or rush-like, or broader and sword-shaped. The flowers consist of an irregular perianth, with a terete tube, and six parted bilabiate limb; three stamens inserted in the tube; and an obtusely three-cornered three-celled ovary, containing numerous ovules in several rows in the central angle of the cells. The ovary is crowned by a filiform style, with three petaloid stigmas. There is great variety amongst the species, not only in aspect, but also in size, and in the form of the flowers. Certain of them, chiefly *G. natalensis*, *floribundus*, and *cardinalis*, have, by cross-breeding and continued seeding, yielded a race of half-hardy so-called bulbs, which rank amongst the most ornamental of our popular garden flowers, and of which new varieties are raised annually in large quantities. These are all stately plants, growing from three to six feet in height, and producing long spikes of large blossoms of the most varied and striking colours. The European species are hardy garden flowers in favourable situations. [T. M.]

GLADWYN. *Iris fastidissima*.

GLAIVANE. (Fr.) *Xiphidium*.

GLAND DE TERRE. (Fr.) *Lathyrus tuberosus*.

GLANDACEUS. Yellowish-brown, the colour of an acorn.

GLANDS, GLANDULES. Wart-like swellings found on the surface of plants, or at one end of their hairs. They are extremely various in form.

GLANDULOSE, GLANDULIFEROUS. Bearing glands.

GLANDULOSO-SERRATE. Having serratures tipped by glands.

GLANDULAR. Covered with hairs bearing glands upon their tips; as the fruit of roses, the pods of *Adenocarpus*, &c.

GLANS. An inferior fruit, one-celled by abortion, not dehiscing, containing one or two seeds, and seated in a cupule; as in the acorn.

GLAPHYRIA. A genus of myrtaceous shrubs, natives of the Malayan Islands, &c. The limb of the calyx is five-lobed; petals five, fruit succulent, with five many-seeded compartments. *G. nitida* is called by the Malays the Tree of Long Life, probably because it is enabled to grow at greater elevations than other forest trees. The leaves are used as a substitute for tea. [M. T. M.]

GLAREOSE. Growing in gravelly places.

GLASSWORT. *Salicornia*. —, **PRICKLY.** *Salsola Kali*. —, **WHITE.** *Suaeda maritima*.

GLAUDESCENT. Dull green, passing into greyish-blue.

GLAUCIUM. A genus of herbaceous plants belonging to the *Papaveraceae*, well marked by their very long pod-like two-valved and two-celled capsule. The Yellow Horn Poppy, *G. luteum*, is a common plant on the sandy sea-shore of Europe and some parts of North America, where it may be detected even in winter by its large, rough, deeply-cut leaves of a decided glaucous hue. In summer it attains the height of about two feet, and is made conspicuous not only by the white hue of its foliage, but by its large flowers of four delicate pale-yellow petals, which last only for a day, and are succeeded by very long curved pods, which are rough with tubercles. *G. pharuceum*, a smaller species, with scarlet flowers, and a black spot at the base of each petal, is said to have been found in England, but is not considered a native. Several other species, with yellow or scarlet flowers, are cultivated, and are considered ornamental plants; they are either annual or biennial, and abound in a copper-coloured acid juice, which is said to be poisonous and to occasion madness. German, *Gehornute schelkraut*. [C. A. J.]

GLAUOUS. Covered with a fine bloom, like that of the plum or the cabbage-leaf.

GLAUX. A pretty little herbaceous perennial, belonging to the *Primulaceae*. The flower is destitute of a corolla, but the bell-shaped calyx is coloured and five-lobed; the capsule is globose, five-valved, and contains about five seeds. *G. maritima*, the only species, grows abundantly on most parts of the sea-coast, just above high-water mark, and in salt marshes. The roots, which creep extensively, are composed of long zigzag fibres, and send up numerous matted stems, four to five inches high, and densely clothed with oblong fleshy smooth

entire leaves, which are pale underneath and salt to the taste. The flesh-coloured flowers are solitary, nearly sessile, and axillary. The glaucous hue of the leaves sufficiently accounts for the systematic name; but whence it derived one of its English names, Sea Milkwort, is not so plain. Another name, which is appropriate enough, is Black Saltwort. French, *Glauce*; German, *Milchkraut*. [C. A. J.]

GLAYEUL. (Fr.) *Gladiolus communis*. — **PUANT.** *Iris fetidissima*.

GLEBA, GLEBULA. The peridium or the fleshy part of certain fungi.

GLEBULÆ (adj. **GLEBULOSE**). Little roundish elevations of the thallus of lichens; also the spores of certain fungi.

GLECHOMA. The Linnæan generic name of *Nepeta Glechoma* and other allied species of *Nepeta*. *G. hederacea*, Ground Ivy, is a well-known trailing herbaceous plant, with kidney-shaped crenate leaves and violet-purple flowers; formerly much esteemed for its supposed medicinal virtues. Its leaves are slightly bitter and aromatic, on which account it was used to give a flavour to ale; hence its old names Ale-hoof and Tun-hoof. The juice was recommended to be dropped into the ears to cure ringing in that organ; mixed with wine, and dropped into the eyes, it was supposed to cure inflammation; taken as snuff, it was a specific for a head-ache; and an extract or decoction, mixed with honey or sugar-candy, was a favourite remedy in complaints of the chest. Village herbalists still hold it in repute, and use it, when dried, as a substitute for tea. Gerard enumerates among its other virtues, that, 'boiled in mutton-broth, it helpeth weak and aking backs;' a prescription which many modern physicians would no doubt endorse, if administered with the same accompaniment. French, *Terrete*; German, *Gundelreben*. [C. A. J.]

GLECHON. A genus of plants of the labiate order, distinguished by the tube of the corolla being as long as the calyx; the two lower stamens only present and fertile; and the style bifid at the apex, the upper lobe very short, the lower long and compressed. The species are Brazilian shrubs of humble growth, having the leaves usually small, the flowers in groups varying from two to six, and red, blue, or yellowish in colour. [G. D.]

GLEDITSCHIA. A small genus of thorny leguminous trees, inhabiting various parts of North America and China. They have once or twice pinnated leaves, and small dense spikes of inconspicuous greenish flowers, some of which are perfect, while others are of one sex only. The pod is flat, and contains either one or several flat seeds, surrounded by a sweet pulpy substance, and separated from each other by transverse divisions. The three-thorned Acacia, or Honey-locust tree, *G. triacanthos*, is a native of the United States, and is commonly cultivated, both there and in

this country, as an ornamental tree. It grows from fifty to eighty feet high, sending forth large spreading branches, and while young both stem and branches are fearfully armed with stout, usually triple, thorns, tapering to very sharp points; but as the tree increases in size these thorns are principally confined to the smaller branches. In the autumn the trees bear numerous long thin and flat pendulous pods, which are usually curved and often twisted, and have been compared to 'large apple-parings, pendent from the branches.' They are sometimes as much as a foot and a half long, and contain numerous seeds, enveloped in a sweet pulpy substance, from which a kind of sugar is said to have been extracted. The wood is said to be coarse-grained, very hard, and splits easily, but is not much employed except for fences and similar purposes. *G. monosperma*, the Water-locust of the Southern United States, is a very large tree, closely resembling the last in general appearance, but its flat pods are small and nearly oval, and contain only one seed. [A. S.]

GLEICHENIACEÆ. A group or sub-order of Ferns, remarkably distinct in aspect from other ferns. They belong to the long series which is distinguished by the spore-cases having a jointed ring, and bursting irregularly instead of being valvate; but the spore-cases are sessile, and the ring is more or less strictly horizontal, and consequently the fissure made by their bursting takes a vertical instead of the more usual horizontal direction. The additional features of rigid opaque fronds and oligocarpous dorsal sori complete the distinctive marks of the group, of which *Gleichenia* is the principal genus. [T. M.]

GLEICHENIA. A genus of polypodiaceous Ferns, typical of the tribe *Gleicheniæ*. They are furnished with creeping rhizomes, rigid usually often repeatedly dichotomously forked fronds, with the ultimate branches pinnatifid, and either bearing small rounded or ovate segments, or larger linear ones resembling the teeth of a comb. The sori are naked, sometimes placed in a hollow space, oligocarpous, that is, consisting of but few spore-cases, the number varying from two to four in one group, and from eight to twelve in another. The latter series, which agrees with that having the linear segments, forms the group *Mertensia*, which some pteridologists regard as a distinct genus. There are many species scattered widely in the tropics both of the Old and New World, and extending to Chili and the Australasian region. [T. M.]

GLI. An intoxicating liquor prepared by the Hottentots from *Lichensteinia pyrethrifolia*.

GLIDEWORT. *Galeopsis Tetrahit*.

GLINUS. A genus usually referred to *Mesembryaceæ*, but considered by A. Richard, as belonging to the tribe *Molluginæ*. They are

annual prostrate branched herbs, rarely undershrubs, growing in tropical and sub-tropical regions, a single species occurring in the south of Europe. Leaves alternate or falsely verticillate; flowers inconspicuous, with a five-cleft calyx; the corolla absent, or with numerous very narrow strap-shaped petals, and three to twenty stamens. [J. T. S.]

GLOBBA. A genus of tropical Asiatic herbaceous plants belonging to the *Zingiberaceæ*, and having a terminal loosely-clustered inflorescence, the flowers of which have a three-cleft tubular calyx; a corolla with a slender tube and a six-parted limb, the three outer divisions equal, and two of the inner ones narrow or very small, while the remaining one, or lip, is large, undivided, and partly united with the filament in a tubular manner. The ovary is one-celled. They are handsome plants, with singular-looking yellow or pinkish flowers; some of them grown in this country as stove plants. The fruit of *G. uniformis* is said to be edible. [M. T. M.]

GLOBE-FLOWER. *Trollius*; also *Gomphrena globosa*.

GLOBOSE. Forming nearly a true sphere.

GLOBULAIRE. (Fr.) *Globularia vulgaris*.

GLOBULARIACEÆ. A natural order of corollifloral dicotyledons, belonging to Lindley's cehal alliance of perigynous Exogens. Lindley unites *Selaginaceæ* with this order, but De Candolle separates them. A small group of herbaceous or shrubby plants with alternate exstipulate smooth leaves, and capitate flowers surrounded by an involucre. Calyx five-divided with quin-cuncial activation; corolla tubular, lipped, five-lobed; stamens four, inserted into the upper part of the tube of the corolla, the anther becoming one-celled, and opening by a single longitudinal slit. Ovary free, one-celled; ovule one, pendulous anatropal. Fruit an achene, enclosed by the calyx; seed with fleshy albumen; embryo with a superior radicle. Natives of Europe, and of the parts of Asia and Africa nearest Europe. There are but few species, distributed in the genera *Curculardaria* and *Globularia*. [J. H. B.]

GLOBULARIA. A genus containing a few species of herbs, shrubs, or undershrubs, natives of the countries bordering on the Mediterranean Sea. They have alternate entire spatulate leaves, and flowers collected upon a common receptacle, and surrounded by a many-leaved involucre. The calyx is unequally five-cleft; the corolla tubular, with the limb two-lipped, the upper lip bipartite and smaller than the lower, which is trifid; and there are four stamens, inserted at the top of the corolla tube. The ovary is composed of a single carpel, and contains a single pendulous anatropal ovule. This genus differs from the *Selaginaceæ*, in having the ovary formed of a single carpel, as well as in its habit, in both of which respects it agrees

with *Dipsacaceæ*, but the plants of this order have an inferior ovary. [V. C.]

GLOBULEA. Succulent plants, natives of the Cape, with flat or sickle-shaped leaves, arranged in a rosette. The flowers are small, arranged in dense clusters, and have five petals bent inwards, each of them tipped with a little globule of waxy matter, whence the name of the genus, which differs little from *Crassula*, save in the direction of the petals. Several kinds are in cultivation. [M. T. M.]

GLOBULINE. Elementary cells; starch grains.

GLOBULUS. A kind of peritheciium occurring among fungals; the antheridium of *Chara*; also, a round deciduous shield, found in such lichens as *Isidium*, formed of the thallus, and leaving a hole where it falls off.

GLOCHIDION. A genus of the spurge-wort family, comprising upwards of fifty species of shrubs or small trees, for the most part found in India, a few extending eastward to Japan; others occurring in tropical Australia and the adjacent islands, and three being natives of West Africa. From *Phyllanthus*, to which they are closely allied, they differ in the flowers being destitute of a glandular disk, and generally in the more numerous cells of the ovary. Their alternate leaves are often arranged in a distichous manner; the blades of some of them have a metallic lustre, while others are clothed with soft short down. Their inconspicuous yellow or green flowers are male and female on the same plant, disposed in axillary clusters, the males usually occupying the circumference and the females the centre, both having a five or six-parted calyx. The fruits are globular or depressed capsules, sometimes covered with a thin and fleshy red coat, but more often quite dry; when ripe they split into three to ten portions. The bark of *G. nitida* is said by Roxburgh to be astringent. *Bradleya* and *Gynoon* are now referred to this genus. [A. A. B.]

GLOCHIS (adj. **GLOCHIDATE**). Hooked back at the point, like a fish-hook.

GLOTOCARP. The quadruple spore or tetrachocarp of some algae.

GLOMERATE. Collected into close heads or parcels.

GLOMERULI. The same as Soredia.

GLOMERULUS. A cluster of capitules enclosed in a common involucre, as in *Echinops*.

GLORIOSA. The name of a group of remarkably handsome hothouse herbaceous-stemmed climbers, more correctly called **METHONICA**: which see. [T. M.]

GLORY-TREE. *Clerodendron*.

GLOSSAPSIS tentaculata is a tuberous-rooted orchid, peculiar to the island of Hong-kong and the adjacent mainland. According to Mr. Benthams, it has the habit

and characters of the small-flowered *Hebenarias*, except that the terminal glands of the caudicles of the pollen-masses are received into distinct cells of the stigma. The root is an ovoid tuber; the stem, including the slender erect spike of small green flowers, eight to twelve inches high; the leaves three to four, oblong or lance-shaped, and one to three inches in length; the lip is deeply three-lobed, the lobes long and thread-like, somewhat resembling the antennæ of an insect. [A. A. B.]

GLOSSOCOMIA. A genus of bellworts distinguished by having the calyx five-lobed, reflexed; the corolla bell-shaped, five-lobed; the stigmas three, ovate; and the fruit three-celled. *G. ovata* is a hardy downy perennial, a native of Northern India, with ovate heart-shaped leaves and showy bell-like flowers. [G. D.]

GLOSSODIA. A small genus of Australian orchids, belonging to the tribe *Arctheuses*, and most nearly related to *Caladista*, of which, according to Dr. Hooker, they may be considered a mere section, with no glands on the disk of the lip, and a solitary bifid long appendage at the base of that organ, somewhat resembling a serpent's tongue, whence the generic name. They have tuberous roots; a solitary lance-shaped or oblong leaf, about three inches long; and a slender, erect, nearly naked stem, six inches to a foot high, bearing at its apex from one to three extremely pretty blue flowers, sometimes beautifully speckled with white, and about an inch in diameter. The flowers are nearly regular, the lip undivided, the column winged, and the anthers terminal, with four powdery compressed pollen-masses. [A. A. B.]

GLOSSOLOGY. That part of Botany which teaches the meaning of technical terms.

GLOSSONEMA. A genus of *Asclepiadaceæ*, containing three species natives of Arabia and North-Eastern Africa. They are hoary perennial branching herbs, with opposite linear leaves, and small flowers on short interpetiolar peduncles. The calyx is five-parted; the corolla campanulate and five-cleft, with a tubercle on the inner surface of each lobe towards the apex; and the staminal crown is made up of five lobes alternating with those of the corolla, and having a dilated emarginate apex, with a contorted filament rising from the indentation. The stigma is slightly two-lobed; the follicles smooth, or covered with spines; and the seeds comose. [W. O.]

GLOSSOPETALUM. A small Mexican bush referred to the *Celastraceæ*, from the other genera in which, it is easily recognised by having ten stamens instead of five, and a simple instead of a compound pistil. *G. spinosum* is much branched, two to four feet high, having stiff rounded twigs, which end in spiny points, and are furnished with little alternate entire leaves, those on the flowering twigs being reduced to scale-like processes. The small

white flowers are axillary and stalked, and are succeeded by a little ovoid seed-vessel containing one seed, which is furnished with a minute aril.

[A. A. B.]

GLOSSOSTEMON. A genus of *Strochilaceae* nearly related to *Abroma*, and like it having pretty purple blossoms, but differing in the greater number of stamens and the form of the barren filaments. The stamens are thirty-five in number, disposed in five parcels, each parcel consisting of six anther-bearing stamens and a central barren one, which is much broader, longer, and tongue-like, whence the name of the genus. *G. Bruguieri*, the only species, is found in various parts of Persia. It is a low-growing plant, with a perennial rootstock, from which arise a few unbranched stems furnished with large soft leaves somewhat like those of a hollyhock. The stems and leaves, which are of a pale straw colour, are covered with starry hairs. Each stem terminates in a corymb of elegant dark purple flowers.

[A. A. B.]

GLOSSOSTIGMA. A genus of *Scrophulariaceae*, consisting of minute tufted moss-like plants, which are much smaller than those

of the capsule bear the dissepiments in their centre, instead of being parallel to the dissepiment. There are two species, one a native of India, the other of New Zealand and Australia. The flowers in both are very minute.

GLUTERON. (Fr.) *Lappa communis*; also *Xanthium Strumarium*.

GLOXINIA. A genus of gesnerworts, distinguished by its corolla approaching to bell-shaped, with the border oblique, the upper lip shortest and two-lobed, the lower three-lobed with the middle lobe largest; and also by the summit of the style being rounded and hollowed. The name was given in honour of Gloxin, a botanical author of the last century. The species are natives of tropical America, and have opposite stalked leaves of rather thick texture, and axillary flowers, usually single or a few together, large, nodding, and of various colours (white violet red or greenish yellow), sometimes variegated with spots. The species are among the greatest ornaments of our hothouses, their richly-coloured leaves, and their ample, graceful, and delicately-tinted flowers, having gained for them a prominent place among introduced plants. Here, as in many other instances, the process of hybridising has been resorted to with the best results; the older kinds with drooping flowers, have of late been giving place to forms with the corolla almost regular and nearly erect—the latter peculiarity having this recommendation, that the border and throat of the corolla, to which parts much of the beauty of the flower is owing, are presented to the eye. *Gloxinias* may be propagated by their leaves.

[G. D.]

GLUMALES. An alliance of Endogens,

comprising the grasses, sedges, and a few minor groups.

GLUMA, GLUME. The exterior series of the scales which constitute the flower of a grass.

GLUMELLA. That part of the flower of a grass now called the Palea or Pale. Also, in the language of Richard, one of the hypogynous scales in such a plant.

GLUMELLULA. The hypogynous scale in the flower of a grass.

GLUTA. Javanese trees with the appearance of the mango, and flowers in panicles resembling those of *Clematis Flammula*. The calyx is tubular and deciduous; petals four five or six, spreading, longer than the calyx, attached, as also are the stamens, to a stalk supporting the ovary; style lateral; fruit succulent, one-seeded. The genus belongs to the order *Anacardiaceae*.

[M. T. M.]

GLUTINIUM. The flesh of certain fungi.

GLUTINOSE. Covered with a sticky exudation.

GLUTTIER. (Fr.) *Sapium*. — DES OISELEURS. *Sapium aucuparium*.

GLYCE. A genus of *Cruciferae*, generally called *Kuniga*, and now reunited to *Alysum* by many authors. It has the pouch nearly ovate, with flattish valves, the cells one or few-seeded, the funiculus of the seed adhering to the back of the septum, and the seeds wing-margined. The calyx is spreading, the petals entire, white or yellow, the hypogynous glands eight, and the filaments without basal appendages. *G. maritima*, the Sweet Alyssum of gardens, is found in some places in Britain, but only imperfectly naturalised where escaped from gardens.

[J. T. S.]

GLYCERIA. A genus of grasses belonging to the tribe *Festuceae*, distinguished principally from Poa by having the florets in more linear subcylindrical spikelets. The outer glumes and pales are membranaceous, with sharply prominent nerves, and a scarious margin. Steudel describes thirty-seven species, which are chiefly natives of the colder and more temperate parts of the world. The best known species is *G. fluitans*, or Manna-grass, which grows in most watery places in Britain. The long floating stems spread over pools of water and ditches, where cattle may frequently be seen wading to considerable depths to eat them. The seeds of some of the species are greedily fed on by ducks and other aquatic birds.

[D. M.]

GLYCIENE. A small genus of *Leguminosae*, all, excepting one, being slender decumbent or twining herbs, with alternate stalked leaves made up of three to seven leaflets varying much in form, and bearing axillary racemes or fascicles of small yellow or violet pea-flowers. The genus belongs to the tribe *Phaseoleae*, and is most nearly allied to *Tetramesa*, from which it is dis-

tingulated by its pods being destitute of the hardened hooked style seen in the latter, and by the ten stamens, which are united into a tube, being all, instead of the alternate ones only, anther-bearing. The species are pretty equally distributed through tropical Asia, Africa, and Australia, where a few inhabit extratropical regions. The Sooja of the Japanese, *G. Soja*, the only erect species of the genus, a dwarf annual hairy plant, a good deal like the common dwarf kidney or French bean (*Phaseolus vulgaris*), has small violet or yellow flowers, borne in short axillary racemes, and succeeded by oblong two to five-seeded hairy pods. The seeds, like kidney beans in form but smaller, are called Miso by the Japanese, and are made into a sauce which they call Sooja or Soy. The manner of making it is said to be by boiling the beans with equal quantities of barley or wheat, and leaving it for three months to ferment, after which salt and water is added, and the liquid strained. The sauce is said to be used by them in many of their dishes, and they use the beans in soups. The Chinese cook the beans also in various ways, and the plant is cultivated for the sake of them in various parts of India and its Archipelago. Mr. Bentham groups the species in three sections, which some regard as genera: *Soja*, with flowers fasciated on the racemes, and falcate pods with depressions but not transverse lines between the seeds; *Johnia*, with flowers similarly arranged, and straight pods with transverse lines between the seeds; and *Leptocyanus*, with solitary flowers on the racemes, and straight pods. The *Glycine* or *Wistaria* of gardens is now referred to *Millettia*. [A. A. B.]

GLYCOSMIS. A name indicative of the sweet-smelling flowers in the genus to which it refers, which consists of tropical Asiatic trees or shrubs, belonging to the *Aurantiaceae*, and closely allied to *Limonia*, but differing in the absence of spines, in the eight stamens being alternately long and short, in the short thick conical style, &c. *G. pentaphylla* is a common under-shrub in the uncultivated districts of Coromandel. *G. citrifolia* is remarkable for the delicious flavour of its fruits. [M. T. M.]

GLYCYRRHIZA. The best known plant of this genus is that which reputedly furnishes Spanish Licquorice, *G. glabra*—though possibly other species may be employed for the same purpose. *G. glabra* is an herbaceous perennial, with pinnate leaves and bluish flowers, and is cultivated in this country for the sake of its root, which contains a peculiar sugar-like substance, giving to the extract its flavour and slight demulcent property. To make the extract the root is sliced and boiled in water; after a time the liquor is strained and allowed to evaporate till it becomes of a proper consistence. Large quantities of this extract are imported from Spain, whence the term Spanish Licquorice; much is also imported from Italy, where it is prepared from the root of *G. echinata*. It is imported in rolls

five or six inches long, about the thickness of a man's thumb, and is packed in the leaves of the sweet bay. What is called refined licquorice is common licquorice dissolved in water, and again evaporated. It is said that both kinds are adulterated to a considerable extent, and that copper is often to be detected in them—probably from the extract having been made in an unclean copper vessel. Licquorice extract is demulcent in colds and coughs, but it is most extensively employed by the large porter brewers. The genus belongs to the *Leguminosae*, and is characterised by the presence of a tubular five-cleft two-lipped calyx; an ovate straight standard, a keel of two straight pointed petals; stamens in two parcels; style thread-like; pod ovate, compressed, one to four-seeded. [M. T. M.]

GLYPHEA. A genus of *Tiliaceae*, of which *G. graveolens*, the best known species, is a West African bush, having smooth, alternate, papery, three-ribbed, toothed leaves, varying from lance-shaped to oblong, and bearing yellow flowers in axillary umbels. They have a calyx of five narrow sepals, five petals; numerous stamens; and an ovary tipped with a simple style. The fruits are many-furrowed, spindle-shaped, three to five-celled, many-seeded, the seeds one above another, and separated by a thin cellular partition. [A. A. B.]

GLYPHOSPERMUM. A name applied to a genus of *Gentianaceae*, on account of the seeds, which are pitted. They are Peruvian shrubs, with small purple polygamous flowers, having a five-cleft tubular corolla, a one-celled ovary, no style, and a button-shaped two-lobed stigma. [M. T. M.]

GLYPHOTENIUM. A name proposed by J. Smith for *Goniopteris crispata*.

GLYPTOSTROBUS, or Embossed Cypress, is a genus of coniferous plants, allied to *Taxodium*. The name is derived from the Greek words 'glyptos,' carved or engraved, and 'strobos,' a cone, from the embossing on the scales. The flowers are monœcious. The cones grow at the end of lateral branches, and are ovate or oblong, consisting of several unequal leathery scales, which rise from the same point at the base; each scale covers two seeds, which are erect, ovate, and compressed. They are trees or shrubs, found in China, with straight or pendulous branches, and scattered, linear awl-shaped, three-angled leaves. *G. heterophyllus*, a small tree eight to ten feet high, is the Chinese Water Pine, planted along the margins of rice-fields near Canton, and found also in other parts of China. [J. H. B.]

GMEIINA. A genus of *Verbenaceae*, consisting of a number of East Indian trees or shrubs, characterised by their cup-shaped minutely four to five-toothed calyx; tubular corollas, with the tube narrow below, somewhat bell-shaped above, and spreading and two-lipped at the border; and drupe-like two to four-celled fruits with one seed in each-cell. The leaves are simple,

entire, and generally oval and pointed; and the handsome yellow blossoms are disposed in raceme-like panicles, the branches of which are clothed with short yellow down. *G. arborea*, a large timber tree of the mountainous parts of India, affords a good wood useful for many purposes. According to Roxburgh, that of such trees as will square into logs from eighteen to twenty-four inches, bears much resemblance to teak, with the same colour, a closer grain, as light if not lighter, and easily worked. He found the wood to resist the effects of the sun and water better than teak, and remarks that the decks of pinnaces are made of this wood at Chittagong, &c., because it resists the weather better than any other, and does not shrink or warp. Of *G. Rheedii*, a Ceylon tree, producing large and numerous tawny-yellow flowers in the summer months, the bark and roots, as well as those of *G. asiatica*, are used medicinally by the Gingalese. [A. A. B.]

GNAPHALIUM. The Everlasting: a genus of plants belonging to the *Compositae*, distinguished from *Antennaria* by having the heads all alike and the receptacle naked, and from *Filago* by having the receptacle flat and not conical. The involucre or common calyx, in all the species, is of the peculiar character termed scarious or everlasting: hence the English name. Many of them, with white or straw-coloured flowers, are natives of the Cape of Good Hope. The foliage is usually thickly invested with white woolly down, and the flower-heads are remarkable for the permanence of their form and colour. *G. luteo-album* is the only British species which has any pretensions to beauty; it has only been found wild in one or two places in England, but is more frequent in Jersey. *G. uliginosum*, a minute tufted plant, with narrow cottony leaves, and numerous heads of small yellowish-brown flowers, is very common on damp heaths and in places where water has stood during winter. French, *Gnaphale*; German, *Ruhrpflanze*. [C. A. J.]

GNAPHALODES. Three little Australian weeds, belonging to the composite family, and in appearance much like our own cud-weeds (*Filago*), being clothed with cottony wool; they are, moreover, nearly allied to them, but differ in all the forets being perfect, instead of the outer ones being female and the inner perfect. The flower-heads have an involucre of numerous scales; and the achenes, seated on a cone-shaped naked receptacle, are smooth, and crowned with a pappus of five narrow and rigid filiform scales. [A. A. B.]

GNAVELLE. (Fr.) *Scleranthus*.

GNAWED. The same as EROSE.

GNETACEÆ. (*Joint Vire*.) A natural order of monochlamydeous dicotyledons, belonging to Lindley's class of Gymnogens. Small trees or creeping shrubs, not resinous, with jointed stems and branches, and opposite reticulated, sometimes scaly leaves. Flowers monoclous or dioecious, arranged in

catkins or heads, surrounded by opposite scales which unite more or less completely. The staminate flowers have a one-leaved perianth, and one-celled anthers, opening by pores; the pistillate ones either have no covering, or are enclosed by two scales. Ovules usually considered naked, one of their coats being protruded through the hole so as to form a long style-like process; seed with a succulent covering; embryo with a long twisted suspensor. Natives of temperate as well as warm regions in Europe, Asia, and South America. The seeds of some of them are eaten. There are two genera, *Ephedra* and *Gnetum*, and about thirty species. [J. H. B.]

GNETUM. A genus of plants typical of the order *Gnetaceæ*. The flowers are produced in cylindrical jointed catkins, the staminate ones having a membranaceous perianth, a single stamen, and an anther opening by a pore; and the pistillate ones being without any proper covering. The ovule is solitary and orthotropical; and the seed has an outer succulent coat. Trees or creeping shrubs found in tropical Asia and Guiana. They have jointed knotty branches, opposite, exstipulate, entire, smooth leaves, and axillary or terminal stalked catkins. There are some half-dozen species. The outer covering of the seeds of *G. urens* is lined with stinging hairs. The seeds of *G. Gneum* and other species are roasted and eaten. [J. H. B.]

GNIDIA. A genus of *Thymelacæ*, bearing complete tetramerous flowers, whose calyx is coloured, funnel-shaped, with a regular four-divided limb; scales four to eight, inserted into the upper part of the calycine tube and projecting beyond it; anthers eight, in two rows, attached to the tube of the calyx; ovary sessile; style lateral, equalling the tube of the calyx; stigma capitate and papillose. The fruit is a nut, enclosed by the persistent calyx. Shrubs or undershrubs found in the southern and eastern tropical parts of Africa. They are heath-like plants, with slender branches, scattered or opposite leaves, terminal usually capitate flowers, which are of a white, yellow, reddish, or lilac colour, and are mostly pubescent externally. There are fifty known species. The bark of *G. daphnoides* supplies ropes in Madagascar. See *Lantolophon*, [Surv.] [J. H. B.]

GNOMONICAL. Bent at right angles.

GOATBUSH. *Castela Nicolsoni*.

GOATROOT. *Ononis Natriz*.

GOATWEED. *Capraria biflora*.

GOAT'S-BANE. *Aconitum Tragacolonum*.

GOAT'S-BEARD. *Tragopogon*; also *Epi-riza Aruncus*.

GOAT'S-FOOT. *Oxalis caprina*.

GOAT'S-HORN. *Astragalus Egiceras*.

GOAT'S-THORN. *Astragalus Tragacantha*, and *A. Poterium*.

GOBBO. *Abelmoschus esculentus*.

GOBE-MOUCHE. (Fr.) *Silene mucipula*; also *Dracunculus crinitus*, *Apocynum androsaemifolium*, &c.

GOBET. (Fr.) *Cerasus vulgaris*.

GOBLET-SHAPED. The same as Crateriform.

GOGO. The Japanese name of *Arctium Lappa*.

GOCKROO. *Ruellia longifolia*, an Indian drug.

GODET. (Fr.) *Narcissus Pseudo-Narcissus*.

GODETIA. A genus of ornamental annuals, belonging to the *Onagraceae*, and closely allied to Evening Primroses (*Enothera*), from which they may be known by bearing flowers of a purple or pink hue, never yellow. The true Evening Primroses, as their name implies, do not open their flowers in the sunshine, but the *Godetias* are subject to no such rule. The majority of the species are natives of America, and are much grown in English gardens for the sake of their showy flowers. Some of them are remarkable for the brilliant colour of their anthers, and others for the deep purple spots on their petals. They are all very similar in habit, upright more or less branching herbs, with the broad four-petaled flowers in the upper leaf-axils. [G. A. J.]

GODOYA. A genus of tropical American trees, of doubtful position, but referred by Lindley to *Ochnaceae*. The leaves are shining, thick, marked with very numerous transverse striae or veins. The flowers are yellow, disposed in clusters, the calyx consisting of several series of overlapping coloured leaves; the five petals convolute; and the stamens numerous, the outermost of them sterile, free or united into five distinct bundles alternating with the petals, the inner ones free and fertile. The capsule woody, three to five-celled, bursting by five valves. *G. gemmiflora* is a stove plant of elegant appearance. [M. T. M.]

GOD'S FLOWER. *Helichrysum Stachas*.

GOD-TREE. *Eriodendron anfractuosum*.

GÖPPERTIA. A genus of Brazilian and West Indian trees, of the laurel family, having a six-parted wheel-shaped perianth, nine fertile stamens in three rows, the innermost row provided with glands, the anthers opening by two or four valves. Fruit placed within the hardened tube of the perianth. [M. T. M.]

GOGANE. (Fr.) *Fritillaria Meleagris*.

GOLDBACHIA. A genus of *Cruciferae*, consisting of annuals found in the Levant and in the Caspian Desert. They have alternate oblong leaves, and racemes of flowers, small, white or lilac, opposite the leaves. The pod is short, breaking transversely, when mature, into two one-seeded joints. [J. T. S.]

GOGO. *Entada Purpurea*.

GOKOKF. A collective Japanese name for bread-stuffs and pulse.

GOLD-CUPS. *Ranunculus bulbosus*, *acris*, &c.

GOLD-DUST. A popular name for *Alysum saxatile*.

GOLDE. *Calendula officinalis*.

GOLDEN-CHAIN. *Cytisus Laburnum*.

GOLDEN-CLUB. *Orontium*.

GOLDEN-CROWN. *Chrysosplenium*.

GOLDEN-FLOWER. *Chrysanthemum*.

GOLDEN-HAIR. *Chrysocoma Comarea*.

GOLDEN-PERT. *Gratiola aurea*.

GOLDEN-ROD. The common name for *Solidago*; also *Leontice Chrysogonum*. —, RAYLESS. An American name for *Bignonia*. — TREE. *Loxa Yucca*.

GOLD-FLOWER. *Helichrysum Stachas*.

GOLDFUSSIA. A considerable genus of *Acanthaceae*, containing twenty-four species, natives of India. They are shrubs with serrate penninerved leaves, having all the nerves directed upwards, but not reaching the apex. The flowers have two deciduous bracts, and are arranged in a head or spike, which after the fall of the bracts becomes very loose; there is an unequally five-parted calyx, a funnel-shaped corolla with an equally five-cleft limb, four didynamous included stamens with nodding anthers, and a subulate irritable stigma. [W. C.]

GOLDLOCKS, or GOLDBLOCKS. *Helichrysum Stachas*; also *Ranunculus auricomus*, *Hymenophyllum tumbridgensis*, and a common name for *Chrysocoma*.

GOLDING. *Chrysanthemum segetum*.

GOLD-KNOBS, or GOLD-KNOPPES. *Ranunculus acris*, *bulbosus*, &c.

GOLD OF PLEASURE. *Camelina sativa*.

GOLD-SHRUB. *Palicourea speciosa*.

GOLD-THREAD. *Coptis trifolia*.

GOL-KAKRA. *Momordica mixta*.

GOMART. (Fr.) *Bursera*.

GONBAUT, or GOMBO. *Abelmoschus esculentus*. Gombo is also used for the fibre-yielding *Hibiscus cannabinus*.

GOMMA DA BATATA. A purgative drug obtained from *Ipomoea operculata*.

GOMPHERIA. A genus of tropical ochnaceous trees or shrubs, most abundant in Brazil. They bear panicles of handsome yellow flowers, having the following structure: sepals five, coloured, imbricated; petals five, generally stalked; stamens ten, the anthers opening by pores; ovary five to six-lobed, placed on a thickened receptacle; stigma simple; drupes five, or fewer by abortion, placed on the enlarged receptacle. There are some eighty species, of which the majority are South American, a few African, and fewer still Asiatic. [M. T. M.]

GOMPHOCAMPUS. A rather considerable genus of *Asclepiadaceæ*, containing fifty species of shrubs or herbs, natives of Southern and North-Eastern Africa and Arabia, and with one species common throughout the warmer regions of the world. They have opposite rarely whorled leaves, and generally showy flowers on many-flowered interpetiolar peduncles; the calyx five-parted, the corolla rotate or reflexed and five-parted; the staminal crown inserted on the top of the gynostegium, and consisting of five conduplicate leaflets, the pollen-masses attenuated upwards; and the smooth or echinate ventricose follicles containing many comose seeds. The leaves of *G. fruticosus*, the Argel of Syria, are employed for adulterating senna: this plant is sometimes referred to *Solenostemma*. [W. C.]

GOMPHOGYNE. The name of a Himalayan climbing plant, belonging to the *Oncurbitaceæ*. Its flowers are unisexual: the males with five sepals, five fringed petals, and five stamens which are united at the base; and the females with a one-celled ovary containing three ovules. The fruit is capsular. [M. T. M.]

GOMPHOLOBIUM. A genus of elegant leguminous undershrubs belonging to the tribe *Podalyriæ*, in which the ten stamens are free. It comprises about thirty species, all of them found in South and West Australia. They are readily distinguished by their spherical or oblong many-seeded pods, and by their compound alternate leaves, made up of a varying number of leaflets, which are often heath-like. Many of them are cultivated in greenhouses, where they produce their blossoms in the spring and summer months. One of the most beautiful is *G. venustum*, a plant with slender flexuose branches furnished with smooth pinnate leaves of four to eight pairs of narrow linear leaflets, the stem terminating in a corymb of beautiful rose-purple pea-flowers. The largest-flowered species is *G. barbigerum*, so named because of the keel-petal being fringed; it is a smooth bush whose angular stems are furnished with trifoliate sessile leaves, of narrow fax-like leaflets, the pale yellow pea-flowers being solitary in the axils. Amongst a goodly proportion with heath-like leaves, *G. uncinatum* is noteworthy as being in South Australia very hurtful to sheep that may eat of it; the leaves are sessile and composed of three narrow leaflets hooked at the point; the flowers yellow, axillary, and solitary. [A. A. B.]

GOMPHONEMA. A genus of *Diatomaceæ*, distinguished by its forked permanent stems and wedge-shaped frustules, which are often contracted near the apex, and sometimes also towards the base when seen laterally. *G. Berkeleyi*, which is synonymous with the old *Meridion vernale*, occurs in every brook in spring, forming brown cushion-like gelatinous masses adhering to stones, leaves of aquatic plants, &c. *G. gemmatum* is less generally dif-

fused, but not uncommon, and is remarkable for its very large frustules, which form a magnificent microscopic object. The species were formerly confounded with *Vorticella*, a genus of undoubted animals, and well known to every student of freshwater *Algae* by the curious motions of the stem. [M. J. B.]

GOMPHOSIA. A genus of cinchonaceous shrubs, natives of Peru and New Granada, having flowers whose calyx is provided with minute glands like those on the stipules. The corolla is salver-shaped, with a long tube, and a four to five-lobed limb; the stamens of unequal length, but all projecting beyond the corolla, the lobes of the anthers bent back, and connected by a very broad connective. The capsule is few-seeded, and bursts from above downwards into two valves. The seeds are winged. [M. T. M.]

GOMPHOSTEMMA. The generic name of plants belonging to the labiate order, having the corolla with its tube dilated upwards, and its border with two nearly equal lips; and the style with a bifid stigma, the two halves equal and awl-shaped. The species are herbs, natives of India, with simple, usually erect, rarely procumbent stems, the leaves large and shaggy with hairs. [G. D.]

GOMPHRENA. A genus of *Amaranthaceæ*, in which the flowers are sometimes incomplete as regards stamens and pistils. There is a perianth of five leaves, very rarely five-cleft, five stamens united into a tube, the filaments dilated, with a trifid apex, the intermediate segment bearing a one-celled anther. The ovary is one-celled with a single ovule; the fruit one-seeded included within the perianth. They are undershrubs or herbs with opposite often semi-amplexicaul leaves, and flowers in lax spikes or panicles, or in globular heads. They abound in tropical America, and are rare in Asia and Australasia. There are ninety known species. [J. H. B.]

GOMUTI, or GOMUTO. An Eastern palm, *Saguerus saccharifer*, which yields a bristly fibre, called Gomuto or Gomuti fibre.

GONAKIE. An African name for *Acacia Adansoni*, which yields good building timber.

GONANTHUS. The name of an Indian herbaceous plant, of the *Arum* family, with a tuberous rootstock, peltate leaves, and a very long leathery spathe, rolled round at the base and prolonged into a long point at the other extremity. The spadix is short, bearing stamens above, ovaries in the middle, and rudimentary flowers at the lower part; anthers numerous, six-celled, the cells adhering in a whorl to the peltate thick connective, and opening by pores. Ovaries numerous, detached. [M. T. M.]

GONGONHA. *Flex Gongonha*, the leaves of which, like those of Mate, *I. paraguayensis*, are used for making tea.

GONGORA. A singular genus of orchids found growing on tree-stems in tropical America. They have oblong, grooved, two-leaved pseudobulbs, the leaves broadly lance-shaped, plaited and a foot or more in length; and, growing from the base of the pseudobulb, drooping flower-racemes which are sometimes two feet long. The lateral sepals are free and spreading, the upper one remote and connate with the back of the lengthened, arched, hammer-headed column; the petals small and adnate to the middle of the column; while the curious clawed lip is continuous with the base of the column, and contracted in the middle, the lower portion being furnished on each side with a bristle-like horn, and the terminal part vertical and pointed, with the opposite faces folded together. The anther is two-celled, with two linear pollen-masses on the end of a narrow caudicle fixed at the base to a small gland. Upwards of a dozen species are known, *G. atropurpurea*, from Trinidad, has long pendent racemes of curiously formed purple flowers, reminding one of some insect. In *G. maculata*, from Demerara, they are yellow marked with blood-red spots. The structure of the flowers of these curious plants is very singular, and well repays examination. Those of *G. galeata*, better known in gardens under the name of *Acropera Lodigesi*, and especially those of a closely related plant called *Acropera luteola*, have been subjected to a close examination by Mr. Darwin, the result of which is that he believes some orchids to be unisexual, although both male and female organs are present in each flower. See Darwin, *On Orchid Fertilisation*, p. 21. [A. A. B.]

GONGRONEMA. A genus of *Asclepiadaceæ*, nearly allied to *Gymnema*, containing a few species of twining shrubs, natives of India. They have opposite coriaceous and glabrous leaves, and small flowers in large lax compound corymbs, except in one species in which they are arranged in a simple umbel. The calyx is five-parted, and the rotate corolla five-cleft, with the throat and tube naked; there is no staminal corona, but the gynostegium has small fleshy glands at its base. The follicles are smooth. [W. C.]

GONGYLODES. Having an irregular roundish figure.

GONGYLOSPERMÆ. A division of rose-spored *Algae*, containing those genera in which the spores are collected without order in a mucous or membranaceous mother cell. The nucleus is sometimes compound. The filamentous *Ceramiceæ*, and the solid *Rhodymeniaceæ* and *Cryptonemiaceæ*, belong to this division. [M. J. B.]

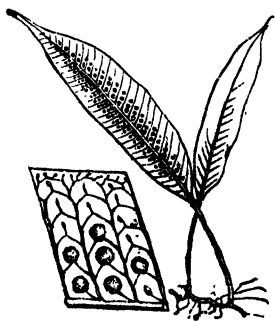
GONGYLUS. The spores of certain fungi. Also a round, hard, deciduous body connected with the reproduction of certain seaweeds.

GONIDIA. A name applied to the green spherical cells in the thallus of lichens which are the distinctive mark between

these plants and *Fungi*. They assume different types in different divisions. In most lichens they are of a pure green, and are developed from the tips of the constituent threads singly or in tufts; in *Collema* they are less highly coloured, and form moniliform threads resembling those of *Noctoe*; in *Pantia* they are large and gelatinous, increasing by cell-division as in some *Pulmonella*; while in *Ephra* they are quadruplicate, and resemble *Hematococcus* in their development. The gonidia of Lichens have lately been observed to produce zoospores, an observation the more important on account of the analogy of the connecting cells of *Asabeina* with those of the gonidia of *Collema*. [M. J. B.]

GONIOMA. A genus of dogbanes, having the tube of the corolla angular at the upper part, the interior being hairy, and the border five-cleft; and two seed-vessels rough on the outside, the seeds having a long wing. *G. Kamassi*, a native of the Cape, is a shrub with small yellow flowers. [G. D.]

GONIOPHLEBIUM. A genus of poly-podiaceous ferns, having the naked globose sori of *Polypodium*, and forming one of the genera of the polypodiaceous group with netted veins. The peculiar characteristic of *Goniophlebium* amongst these, is that the veins are forked or pinnate from a central costa, the lower anterior branches being usually free and fertile at the apex, and the rest angularly or arcuately anastomosing, and producing from their angles free excurrent veinlets, which



Goniophlebium glaucophyllum.

are often fertile, the marginal veinlets being free. There are often several series of anastomosing veinlets, but sometimes only one. The free (and in mature specimens usually fertile) veinlet produced within the basal areole distinguishes this group specially from its allies. There are a considerable number of species, found abundantly in South America and the West Indies, and in India and the Eastern and Pacific islands, more rarely in tropical Africa, the Mascaren islands, and Mada-

gascar. A few are simple-fronded species, with a creeping ivy-like habit, and contracted fertile fronds; but they have mostly stoutish slow-creeping rhizomes, and large pinnate or pinnatifid fronds, often of pendulous habit, and sometimes several feet in length, as in *G. subauriculatum*, a very handsome Javanese species, in which, as in a few other allied kinds, the sori are sunk in little hollows which form excrescence-like knobs on the upper surface. [T. M.]

GONIOPTERIS. A genus of polypodiaceous ferns, having round naked sori, and connitively anastomosing veins, in which latter peculiarity they differ from *Polypodium*. They have a short erect or decumbent caudex, and herbaceous or subcoriaceous pinnatifid, pinnate, or pinnatopinnatifid fronds, the latter having some resemblance in aspect to our common male fern. The species are not numerous, but widely dispersed, being found in the West Indies and South America, in tropical Africa and Madagascar, and in India, the Pacific islands, Australia, and New Zealand. [T. M.]

GONIOSTEMMA. A genus of *Asclepiadaceæ*, containing a single species, a native of India. It is a twining shrub, with opposite elliptical-oblong and glabrous leaves, and small flowers in lax many-flowered panicles like axillary cymes; they have rotate five cleft corollas, and the staminal crown is gamophyllous, tubular, five-angled and five-lobed, and adherent to the base of the gynostegium. This genus is separated from *Secamone* and *Toxocarpus*, its nearest allies, by the structure of the staminal crown, and by habit. [W. C.]

GONOCALYX. A very beautiful vacillaceous plant discovered by Schlim at an elevation of 7,000 feet in New Grenada, in the provinces of Pamplona and Ocúña. It forms a shrub of erect bushy habit, thickly clothed with small nearly orbicular leaves, and bearing fine bright red tubular flowers. The young leaves and shoots are of a purplish-rose colour. The only species has been called *G. pulcher*. [T. M.]

GONOGONO. *Myristica spuria*.

GONOLOBUS. A large genus of *Asclepiadaceæ*, natives of North America, consisting of twining herbaceous or shrubby plants, with opposite heart-shaped leaves, and greenish or dingy purple flowers in racemes or corymbs on interpetiolar peduncles. With a five-parted calyx, they have a rotate or reflexed and spreading corolla, the limb of which is five-parted, the staminal crown forming a small fleshy wavy-lobed ring in the throat. The folioles, which are turgid, more or less ribbed, and armed with soft warty processes, contain many annose seeds. Upwards of sixty species have been described. [W. C.]

GONOPHORUM. A short stalk which bears the stamens and carpels in such plants as anonads, &c.

GONOSTEMON. A section of *Stapelia*, characterised by having the outer of the two whorls of the staminal crown composed of five ligulate leaflets, and the interior of as many simple hooked spines. [W. C.]

GONYANTHES. A genus of *Burmanniaceæ*, consisting of two or three species from tropical Asia, differing from *Burmannia* chiefly in the capsule, which opens by transverse fissures opposite the cells. They are all slender leafless herbs, a few inches in height, with small terminal flowers, either solitary or few together in a little cyme.

GONYSTYLUS *Miquelianus* is the name given by Miquel to the tree that produces the fragrant wood called Kayu Gani by the Malays. It is very much like eaglewood, or *Aquilaria Agallochum*.

GONZALEA. A genus of South American shrubs belonging to the *Cinchonaceæ*. The tube of the calyx is somewhat globular, its limb four-parted; corolla funnel-shaped or salver-shaped, hairy externally, stamens four, included within the corolla; stigmas four; seeds minute. [M. T. M.]

GOODENIACEÆ. (*Goodenoria*, *Scavo-linceæ*, *Goodeniads*.) A natural order of eucalyptifloral dicotyledons, belonging to Lindler's campanal alliance of epikynous Exogens. Herbs, rarely shrubs, not milky, with scattered exstipulate leaves and distinct flowers. Calyx usually superior, three to five-divided; corolla more or less superior, usually irregular, with a split tube and a five-parted lipped limb; aestivation conduplicate; stamens five separate; ovary one to two-celled; placentas free central; stigma surrounded by an indusium. Fruit capsular or drupaceous; seeds albuminous. Natives chiefly of Australia and the islands of the Southern Ocean. Some of the plants are used as esculent vegetables, and their pith is employed for economical purposes. *Scavola Taccada* furnishes the rice-paper of the Malay Archipelago; the leaves of the plant are eaten as a pot-herb, and its fruit is succulent. There are about two dozen genera, and nearly two hundred species. Examples: *Scavola*, *Goodenia*, *Velleja*, *Leschenaultia*. [J. H. B.]

GOODENIA. A genus of *Goodeniaceæ*, distinguished by having a superior calyx with a five-parted limb, the corolla generally two-lipped, with the tube cleft at the back; five stamens, with distinct anthers cohering before expansion; and a simple style, the stigma with a cup-shaped indusium. The capsule is two rarely four-celled. Herbaceous plants, or a few of them small shrubs, with alternate entire or toothed leaves, sometimes covered with white silky down, and axillary or terminal flowers usually yellow, rarely blue or purplish. Natives of Australia, Tasmania, and New Zealand; one species, *G. repens*, has also found in South America. [H. H.]

GOODIA. A genus of *Leguminosæ*, consisting of two nearly allied species, one, *G. latifolia*, widely distributed throughout S. and W.

Australia and Tasmania; the other, *G. pubescens*, confined to Tasmania and Victoria. Both are handsome much-branched bushes, with alternate trifoliate leaves like those of the birdfoot-trefoil—whence the name *lotifolia* applied to one of the species. The branches bear towards their apex racemes of golden yellow flowers, like those of a laburnum, but smaller. The chief features of the genus are the trifoliate leaves; two-lipped calyx, the lips not deeply divided; stamens all united into a sheath; and thin and flat veined pods. Its nearest ally is *Bossia*, from which the compound leaves distinguish it. *G. lotifolia* and *G. pubescens* are both in cultivation in greenhouses. The genus commemorates the name of Peter Good, a collector for Kew Gardens, who died in Australia. [A. A. B.]

GOOD KING HARRY. *Chenopodium* (or *Bittum*) *Bonus Henricus*.

GOODYERA. A genus of terrestrial orchids with small flowers like those of *Spiranthes*, but the spike is not spiral, and the lip does not embrace the column, has no callosities at the base, and is contracted at the top into a recurved point. It consists of very few species, all from the northern hemisphere, and mostly from high latitudes or mountain ranges. *G. repens*, generally found in moist woods, is widely spread over Northern Europe, Asia, and America, but in Britain only occurs in the highlands of Scotland. It has a creeping rootstock and an erect flowering stem of six inches to a foot, with a few ovate leaves near the base. The flowers are of a greenish white, in a slender one-sided terminal spike.

GOOGUL. *Balsamodendron Mukul*.

GOOLS. Various Marigolds, as *Calendula officinalis*, *Caltha palustris*, and *Chrysanthemum segetum*.

GOOMALA. *Batatas edulis*.

GOOMPANY. The wood of *Odina Wodier*, used in India for railway sleepers.

GOONCH. A Hindoo name for the seeds of *Arhus precatorius*.

GOONSOORA. An Indian fibre-yielding *Hibiscus*.

GOORA NUTS. The seeds of *Cola acuminata*.

GOORGOORA. *Reptonia buxifolia*.

GOOSE and GOSLINGS. *Orchis Morio*.

GOOSEBERRY. *Ribes Cva crispia* (*Grossularia*). — **BARBADOS.** *Pereskia aculeata*. — **CAPE.** *Physalis pubescens*. — **COROMANDEL.** *Sonneratia Coriambola*. — **HILL.** of India. *Rhodomyrtus tomentosa*. — **TAHITI.** *Cleome disticha*.

GOOSEFOOT. A common name for *Chenopodium*; also *Aspalathus Chenopoda*.

GOOSETONGUE. *Achillea Ptarmica*.

GOOSESHARE. *Galium Aparine*.

GOOWA. The Betel nut, *Areca Catechu*.

GORDONIA. A genus of *Ternstroemia*, natives of North America and of the Alps of tropical and sub-tropical Asia, consisting of shrubs with alternate coriaceous entire leaves, and solitary one-flowered peduncles. The calyx is persistent, of five nearly equal concave sepals; the corolla of five petals alternate with the sepals, imbricate in maturation; the stamens numerous, hypogynous. The fruit is a four to five-celled capsule, with two to four pendulous seeds in each cell. There are ten known species. [J. H. B.]

GORSE. The Common Furze, *Ulex europæus*.

GORTERIA. A small genus of dwarf annual herbs of the composite family peculiar to South Africa, their stems and linear or oblong-lanceolate leaves more or less hispid, and the latter clothed underneath with a close-pressed white down; and the twigs terminated by solitary yellow flower-heads nearly an inch across, and somewhat like those of the common marigold. These have an involucre of many series of narrow scales with (eventually) hardened tips; when the flowers wither, these involucres contract at the top, so that the seeds cannot escape: the latter, therefore, when they germinate, push their stems upwards and their roots downwards through the spiny nut-like involucres, which remain attached at the collar of the root, and have the appearance of a spiny tuber of the size of a hazel-nut. The ray florets are strap-shaped neuter, those of the disk tubular and perfect; the achenes are villous at the summit only, and surmounted with a short crown-like pappus composed of a single series of scales, these characters of the fruit distinguishing the genus from *Gazania*, to which it is nearly allied. [A. A. B.]

GORY-DEW. *Palmella cruenta*.

GOSSYPIANTHUS. A genus of *Amaranthaceæ*, containing perennial North American herbs with woolly procumbent stems, elongate spatulate root-leaves, those of the stem much smaller, opposite, nearly sessile, ovate, and entire, more or less densely covered with silky wool. The flowers are axillary, densely aggregated, covered with wool, and have a five-leaved perianth, five stamens with free filaments, and one-celled anthers without intermediate teeth. [J. T. B.]

GOSSYPIUM. This small genus of *Mali-vaceæ* is one of the most important of the whole vegetable kingdom, for to it we are indebted for the valuable and well-known article Cotton, which occupies such a prominent place in the manufacturing industry of this and other countries, and which gives employment to so large a proportion of our mercantile marine. The number of species of *Gossypium* is extremely uncertain. Between twenty and thirty have been described and named by botanists, but the characters on which they are founded are so slight and variable,

that probably they may be reduced to five or six, three of which yield the Cotton of commerce. The genus is indigenous to both the Asiatic and American continents, but it has been so extensively spread by means of cultivation that it is now found throughout all parts of the world, within the limits of 36° north and south of the equator. All the species and varieties form herbaceous or shrubby perennial plants, varying in height according to the climate and soil in which they grow, some not exceeding two or three feet, while others reach a height of fifteen or twenty feet. Annual cotton plants are frequently spoken of, but, although generally treated as such, none of them are really annuals properly so called. Their leaves grow upon stalks placed alternately upon the branches, and are generally heart-shaped, and most commonly either three or five-lobed, with the lobes sharp or rounded; they generally have one or more glands upon the under side of the principal veins near the stalk. The flowers are usually large and showy, and grow singly upon stalks in the axils of the leaves. They have a cup-shaped shortly five-toothed calyx, surrounded by a larger outer calyx or involucre of three broad deeply cut segments, joined together and heart-shaped at the base; a corolla of five petals; many stamens united into a central column; and a three or five-celled ovary. The fruit is a three or five-celled capsule, which bursts open through the middle of each cell when ripe, exposing the numerous seeds covered with the beautiful cellular filaments known under the name of cotton. The seeds themselves contain a considerable quantity of bland oil, which has been brought greatly into use during the last few years; and the cake formed by pressing the decorticated seeds has proved a valuable food for cattle.

G. barbadense is the species cultivated



Gossypium barbadense.

in the United States, where two well-marked varieties are recognised. First, the Sea Island or long-staple cotton, which was introduced from the Bahamas in 1785,

and is only grown on the low islands and sea-coast of Georgia and South Carolina; it is the most valuable kind, having a fine, soft, silky staple from an inch and a half to an inch and three-quarters long, and is easily separated from the seed. Second, Upland, Georgian, Bowed, or short-staple cotton, which forms the bulk of American cotton, and is the produce of the upland or inland districts of the Southern States; the staple is only an inch or an inch and a quarter long, and it adheres firmly to the seed, which is also covered with short down. Egyptian cotton, and the kind called Bourbon, are likewise referable to this species.

G. herbaceum is the indigenous Indian species, and yields the bulk of the cotton of that country; it is also grown in the south of Europe and other countries bordering on the Mediterranean, Persia, &c. Its seeds are woolly and yield a very short-stapled cotton. *G. peruvianum* yields the cottons imported from Pernambuco, Bahia, and other parts of Brazil, from Peru, &c. It is sometimes called kidney cotton, on account of its seeds adhering firmly together in the form of a kidney.

The use of cotton dates from prehistoric ages, both in the Old World and the New. It is frequently mentioned in the *Institute of Manu*, a work written eight centuries before the Christian era. Upon the discovery of America it was found in common use among the inhabitants, and cotton cloth has since been found in the tombs of the Incas of Peru. From India the plant spread into Persia and Arabia; Pliny, early in the Christian era, mentions that it grew in 'Upper Egypt, on the side of Arabia,' where robes for the Egyptian priests were made of the cotton. It was brought to Spain by the Mahometan conquerors of that country, and from thence it spread through other parts of Southern Europe, but it has never formed an article of much importance in the agriculture of those countries. India supplied by far the largest part of the cotton fabrics used in Europe until the rise of the English manufactures in the latter half of last century. The introduction of this important manufacture into England took place about the close of the sixteenth century, when, in consequence of religious persecution, a number of Flemings fled to this country, and established it at Bolton and Manchester. But previously to the brilliant inventions of Hargreaves, Arkwright, Crompton, and others, it was merely a domestic manufacture, and the cotton was only used for the web of the cloth. At first our supply of raw cotton was obtained from Southern Europe and the Levant, and later from the West Indies and South America, and in smaller quantities from India and Bourbon. Towards the end of last century, however, the great and increasing demand caused the Americans to turn their attention to its production in the Southern States; and such has been their success that, till their fratricidal war broke out, they sup-

piled four-fifths of the enormous quantity annually consumed in this country. Some idea of the rapid increase of the English cotton manufactures may be gained from the fact that in the year 1781, previous to the introduction of spinning by machinery, our imports of raw cotton amounted to only 2,976,610 lbs., while in 1800 they had risen to 56,010,732 lbs.; and in 1860, the enormous quantity of 1,390,939,725 lbs. was imported, of which the United States supplied no less than 1,115,890,608 lbs.—a remarkable fact when we consider that the cotton plant is not indigenous to those States, and that its cultivation for exportation only commenced between seventy and eighty years ago.

The harvest in America commences in August and lasts till December. After being picked and dried, the cotton is separated from the seeds by means of machines called gins, and is then tightly compressed into bales averaging about 430 lbs. in weight. Two kinds of gins are used in America, the *saw-gin* and the *roller-gin*—the first, consisting of numerous circular saws revolving between iron grids, being used for the short-staple variety; and the latter, which is merely a pair of rollers, for the long-staple.

The value of English cotton manufactures in 1860 was estimated at 121,364,458*l.*, being the product of 33,000,000 spindles, giving employment, directly and indirectly, to one million men, women, and children, and requiring a capital of not less than 150,000,000*l.* sterling. [A. S.]

GO-TO-BED-AT-NOON. *Tragopogon pratensis*.

GOUANIA. A genus of *Rhamnaceæ*, consisting of large rambling climbing shrubs inhabiting the forests of tropical America and Asia, but principally the former. They have alternate leaves with veins running straight from the midrib to the margin; and some of their smaller branches are generally transformed into tendrils, which serve to support them. The flowers are usually produced in clusters along leafless branches, forming long slender spikes; the lower part or tube of their calyx adhering to the ovary, while the upper part is divided into five spreading segments alternating with five petals, each of which is partly rolled round a stamen, or has a stamen lying in a hollow formed by it. The fruit usually has three wings or sharp angles, but in some species it is nearly globular and without wings.

There are upwards of thirty species of this genus, the most interesting being *G. domingensis*, a common creeper in the West Indies and Brazil. In Jamaica it is called Chaw-stick, on account of its thin flexible stems being chewed as an agreeable stomachic; tooth-brushes are also made by cutting pieces of chaw-stick to a convenient length and fraying out the ends; and a tooth powder is prepared by pulverising the dried stems. It is said to possess febrifugal properties; and on account of its pleasant bitter taste is com-

monly used for flavouring different cooling beverages. [A. S.]

GOUDOTIA. A genus referred to *Juncaceæ*, founded on a curious little plant from the Andes, which has stems growing in dense tufts, with short distichous closely imbricated leaves, and stalked scarious flowers, diœcious by abortion. [J. T. S.]

GOUET. (Fr.) *Arum maculatum*. — A CAPUCHON. *Arisarum vulgare*. — CHEVELU, or GOBE-MOUCHE. *Dracunculus crinitus*. — EN CAPUCHON. *Arisæma ringens*. — SERPENTAIRES. *Dracunculus vulgaris*.

GOUL. *Adansonia digitata*.

GOURD. The common name for *Cucurbita*; the varieties of the common Gourd, *C. Pepo*, and of a few other species, are very numerous. — BITTER. *Citrullus Colocynthis*. — BOTTLE, CLUB, or TRUMPET. Different forms of *Lagenaria vulgaris*. — COLOCYNTH. *Citrullus Colocynthis*. — ETHIOPIAN SOUR. *Adansonia digitata*. — GOOSEBERRY. *Momordica echinata*. — ORANGE. *Cucurbita aurantia*. — SNAKE. *Trichosanthes*. — SPANISH. *Cucurbita maxima*. — SOUR. *Adansonia Gregorii*. — SQUASH. *Cucurbita Meloepo*. — WHITE, of India. *Sentiasa cerifera*.

GOURDE. (Fr.) *Lagenaria vulgaris*.

GOURLIEA. A genus of *Leguminosæ* related to *Sophora*, but the pods, instead of being long and constricted between the seeds, are elliptical with a somewhat fleshy rind, of the size and form of a plum-stone when mature, and usually perfecting but one seed. There is but one species known, *G. chilensis*, native of extratropical S. America. It is a bush or small tree, with pale smooth bark, and short spine-like lateral branches, from which arise racemes or fascicles of small yellow pea-flowers. At the time of flowering, the hoary leaves, which consist of about four pairs of oblong leaflets and an odd one, are not fully developed. Chanar or Chanal is the name given to the bushes in Chili and Buenos Ayres; and, according to Tweedie, the pulp of the fruit is used in flavouring sweet wines in the latter place, and at Entre Rios. The name of Mr. Robert Gourlie, who gathered plants at Mendoza and died there, is perpetuated in the genus. [A. A. B.]

GOUTTE DE LIN. (Fr.) *Cuscuta europæa*. — DE SANG. *Adonis autumnalis*.

GOUTWEED, or GOUTWORT. *Egopodium Podagraria*.

GOUTY-STEMMED TREE. An Australian name for *Delabachea*.

GOUYAVIER, or GOYAVIER. (Fr.) *Psidium*.

GOVENIA. A genus of terrestrial orchids peculiar to the moist woods of tropical America. The leaves are radical, broadly lance-shaped or oblong, plaited, and from one to two feet in length. The

erect flower-scape also is radical, and terminates in a spike or raceme of medium-sized flowers, each supported by a narrow bract; they are usually white or cream-coloured, but in some yellow, with or without blood-red spots. The sepals and petals are free and of nearly equal length; the lip much shorter, without spur, entire, and joined to the base of the column; and the anther contains four solid pollen-masses fixed to a short caudicle with a small triangular gland. There are sixteen species known, seven of which have been cultivated, but none are remarkable for their beauty. The genus is named after J. R. GOWEN, Esq. [A. A. B.]

GOWAN. In Scotland, the Daley, *Bellis perennis*; but appertaining rather to *Caltha*, *Calendula*, and *Chrysanthemum*. from 'gowian,' a corruption of 'golden.' see GOOLDS, and GOLDS.

GOZELL. The Gooseberry, *Ribes uva-crispa*.

GRABOWSKIA. This ill-sounding name is applied, in honour of a Silesian botanist, to a curious Brazilian shrub which has been referred to *Solanaceæ*, but seems more closely allied to *Eurêtiaceæ*. *G. boerhaaviifolia* is much-branched, with axillary spines, and solitary flowers opposite the leaves or grouped in panicles at the end of the branches. Its flowers have five stamens projecting from the tubular corolla, their filaments hairy in the middle; and a four-celled ovary. The fruit is succulent, enclosed within the calyx, having two woody stones, each divided into two compartments containing a single seed. [M. T. M.]

GRACILARIA. A genus of rose-spored *Algae* belonging to the natural order *Sphaerococcoides*, amongst which it is distinguished by its cylindrical compressed or flat frond with oblong cruciate tetraspores dispersed among the superficial cells of the branches and branchlets. It is the same with *Plocaria*, and therefore furnishes the Corsican and Ceylon moss. [M. J. B.]

GRACILIS. Slender; applied to parts which are long and narrow.

GRÆLLIA. A genus of *Cruciferae* found in Persia, and represented by *G. sarisfragesolia*, a perennial herb, with a habit like that of *Sisifraga granulata*. The leaf-stalks remain attached to the short root-stock after the smooth rounded notched blades wither; the flower-stalk bears a number of white racemed flowers not unlike those of the cuckoo-flower; while the fruits are small oblong much-compressed siliques, ripening but a single seed. [A. A. B.]

GRAHAMIA. A genus of *Portulacaceæ*, consisting of a small Chilean shrubby plant, with alternate fleshy oblong terete leaves, and solitary flowers at the extremity of the branches, the calyx having eight or nine imbricated bracts, the white petals five in number, and the stamens

numerous, with the filaments united at the base. [J. T. S.]

GRAINS OF PARADISE. The seeds of *Amomum Grana Paradisi*; also called Gumea Grains.

GRAINES D'AMBRETTE. (Fr.) *Abelmoschus moschatus*. — DAVIGNON. *Rhamnus infectarius, saratilis*, &c. — DE CANARY. *Phalaris canariensis*. — DES MOUQUES. *Croton Tiglium*. — MUSQUÈS. *Abelmoschus moschatus*. — D'ORSEAU. *Phalaris canariensis*. — DE FERROQUET. *Carthamus tinctorius*. — DE TILLY. *Croton Tiglium*.

GRAM. The Chick Pea, *Cicer arctinum*. — BLACK. *Phaseolus Mungo melanospermus*. — GREEN. *Phaseolus Mungo chlorospermus*, and *P. radiatus*. — HORSE. *Dolichos uniflorus*. — TURKISH. *Phaseolus aconitifolius*. — RED. *Dolichos Catjang*. — WHITE. *Soja hispida*.

GRAMEN FLEURI. (Fr.) *Stellaria Holstea*. — TREMBLANT. *Brisa media*.

GRAMIGNA. The underground stems of *Triticum repens*, used in Italy as food for horses.

GRAMINACEÆ. (*Gramineæ*, *Grassæ*.) A natural order of glumiferous monocotyledons belonging to Lindley's glumal alliance of Endogens. Herbaceous plants with round usually hollow jointed stems; narrow alternate leaves, having a split sheath and often a ligule at its summit; and flowers arranged in spikes or panicles, perfect or imperfect. The flowers are composed of a series of leaves or bracts—the outer, called glumes, alternate, often unequal, usually two, sometimes one, rarely none; the rest, called pales or glumellets, usually two, alternate, the lower or outer one being simple, the upper or inner having two dorsal or lateral ribs, and supposed to be formed of two pales united; sometimes one or both are wanting. The glumes enclose one or more flowers, and among the flowers there are often abortive florets. Stamens hypogynous, one to six, usually three; anthers versatile. Ovary superior, one-celled, with two (rarely one or none) scales called lodicules; ovule one; styles two or three, rarely united; stigmas often feathery. Fruit a caryopsis; embryo lenticular, lying on one side at the base of farinaceous albumen. Grasses are widely distributed over the world, forming about one twenty-second of all known plants, according to Schouw. They are social plants, forming herbage in temperate climates, and becoming arborescent in tropical countries. The order is a very important one, as supplying food for man and animals. The various cultivated grains and the pasture grasses belong to it. It is said that darnel grass (*Lolium temulentum*) has poisonous qualities, and some think that it is the tares of Scripture. Several species of *Andropogon* yield fragrant oils, such as kum-kus, rousai oil, and citronelle. The bamboo (*Bambusa arundinacea*) is one of the most useful grasses in warm

countries; the sugar-cane (*Saccharum officinarum*) is another valuable grass from a commercial point of view. Among the cereal grasses cultivated for food may be enumerated:—wheat, barley, oats, rye, rice, Indian corn, millets, Guinea corn, and swamp rice. The grains of *Corx Lachryma* are used as beads under the name of Job's tears. The tussac grass of the Falkland Islands is the *Dactylis cespitosa*. Some grasses are useful in binding the loose sand of the sea-shore. There are about 300 genera of grasses and 4,000 species. Examples: *Oryza*, *Zea*, *Phleum*, *Panicum*, *Anthozanthum*, *Poa*, *Dactylis*, *Festuca*, *Bromus*, *Bambusa*, *Lolium*, *Triticum*, *Hordeum*, *Saccharum*. [J. H. B.]

GRAMMADENIA. A small genus of *Myrsinaceae*, found in the West Indies and the adjoining mainland, related to *Myrsine*, but having the flowers in racemes instead of fascicles; and to *Cybianthus*, but having a five to six-parted instead of four-parted calyx and corolla. Their stems are abundantly furnished with sessile, lance-shaped, entire leaves, marked with curious linear glands, thus suggesting the name of the genus. The very minute flowers are succeeded by a globose ovary, which becomes when ripe a round berry the size of a small pea, with few seeds. [A. A. B.]

GRAMMANTHES. Succulent herbaceous plants, natives of the Cape of Good Hope, forming a genus of *Crassulaceae*, nearly allied to *Crassula*, but distinguished from it by the corolla, which is tubular, with a limb divided into five or six oval lobes, and by the absence of scales at the base of the ovary. They are pretty little plants as seen during sunshine. [M. T. M.]

GRAMMATOCARPUS. A genus of *Louiseae* found in Chili, and nearly allied to *Louisa*, differing chiefly in its slender twisted capsular fruits, which are one to two inches long, and not much thicker than their stalks. The Chilean and only species, *G. volubilis*, is a slender twining annual herb, with opposite twice pinnatifid leaves, and stalked yellow cup-shaped flowers, solitary in the axils of the leaves, and nearly an inch across; they have a calyx border of five linear segments; ten petals, five large and somewhat spurred at the base, and five smaller three-awned at the apex; and numerous stamens, the fertile ones in five bundles. [A. A. B.]

GRAMMATOPHYLLUM. The few species which make up this genus of orchids are amongst the most choice in cultivation. *G. speciosum* has been called the Queen of Orchidaceous plants. This superb species, a native of Java and the adjacent islands, has stout stems from six to ten feet long, bearing a number of strap-shaped leaves one to two feet in length, arranged in a two-ranked manner. The flower-scape arises from the base of the stem, and is sometimes six feet in length, the flowers numerous but distant on the panicle, each borne on a stalk (ovary) about six inches long, this being also the diameter of the fully

expanded flowers, which are of a bright yellow colour, spotted and blotched with deep purple; the lip is trilobed and comparatively small. From Manila we have *G. multiflorum*, a plant with pseudobulbs instead of lengthened stems, producing from its apex three or four long strap-shaped leaves, and from its base a raceme nearly two feet long of yellow flowers beautifully painted over with blood-red stains of grotesque form. *G. Ellisii*, another pseudobulbous species, was introduced from Madagascar, and has the sepals and petals yellow and beautifully barred transversely with dark lines, while the petals and lip are of a pale pink colour. This plant is considered by Reichenbach to form a distinct genus, to which he gives the name *Grammangia*. The genus is nearly related to *Cymbidium*—the principal difference being, according to Dr. Lindley, that in the latter the gland of the pollen-masses is triangular, while in this it is crescent-shaped, with one pollen-mass at each extremity of the crescent. There is also a shallow sac at the base of the column and lip, not noted in *Cymbidium*. [A. A. B.]

GRAMMATOTHECA. A genus of slender branching herbs, natives of the Cape of Good Hope, and belonging to the *Lobeliaceae*. They are distinguished mainly by their corolla, which is tubular below, with a five-parted limb in two divisions, the lower lip consisting of three pendent segments, larger than the two constituting the upper lip; the style is concealed within the corolla, and bears a two-lobed stigma whose lobes are widely separate one from the other. The genus is closely related to *Clintonia*. [M. T. M.]

GRAMMITIS. A genus of polypodiaceous ferns, producing oblique naked oblong or elliptic sori, and having free simple or forked veins. The group is often restricted to certain small simple-fronded plants, of which *G. Billardieri* may be taken as the type; but to these are sometimes added a few larger compound-fronded species, more closely resembling *Gymnogramma* in habit, but having simple oblong instead of forked sori. [T. M.]

GRAMMICUS. When the spots upon a surface assume the form and appearance of letters.

GRAMON DE MONTAGNE. (Fr.) *Smilax aspera*.

GRANA MOLUCCANA. The seeds of *Croton Tiglium* and *Pavona*. — **PARADISI.** The seeds of *Anomum Granum Paradisi*. — **SAGU.** The granulated Sago of commerce. — **TETRASTICHEA.** The spores of certain fungi. — **TIGLIA** or **TILLA.** The seeds of *Croton Tiglium*.

GRANADILLA. *Passiflora quadrangularis*, *maliformis*, *luridifolia*, *incarnata*, *edulis*, &c., which bear edible fruits.

GRAND BAUME. (Fr.) *Pyrethrum Tanacetum*. — **GENTIANE.** *Gentiana lutea*. — **MILLET.** *Sorghum vulgare*. — **MO-**

NARQUE. *Narcissus concolor*. — ORCHIS MILITAIRE. *Orchis fusca*. — PIN. *Pinus Pinaster*. — PLANTAIN. *Plantago major*. — RAIPORT. *Cochlearia Armoracia*. — SCEAU DE SALOMON. *Convolvularia multiflora*. — TRÈFLE ROUGE. *Trifolium pratense*. — VALÉRIANE. *Valeriana Phil.*

GRANDE CAPUCINE. (Fr.) *Tropaeolum majus*. — CIGUË. *Conium maculatum*. — CONSEUDE. *Symphytum officinale*. — DOUVE. *Ranunculus Lingua*. — ÉCLAIRE. *Chelidonium majus*. — ÉPIAIRE. *Stachys sylvatica*. — ÉSULE. *Euphorbia Lathyris*. — FOUGÈRE. *Pteris aquilina*. — GESSE. *Lathyrus latifolius*. — LUNAIRE. *Lunaria biennis*. — MAUVE. *Malva sylvestris*. — ORTIE. *Urtica dioica*. — OSEILLE. *Rumex Acetosa*. — PATIENCE DES EAUX. *Rumex Hydrolapathum*. — PERVENCHE. *Vincetoxicum major*. — RENOUÉE. *Polygonum orientale*. — SAUGE. *Salvia officinalis*. — VRILLÉE BÂTARDE. *Polygonum dumetorum*.

GRANGEA. A few small prostrate or erect weeds of the chamomile group of the composite family, most nearly related to *Cotula*, differing chiefly in the broadly three-toothed ray florets, and in the presence of a small cup-shaped fringed pappus. The species are widely diffused over the tropics of both hemispheres; and have pinnatifid leaves, and solitary terminal yellow flower-heads, much like those of a chamomile divested of its white ray florets; all the florets are tubular, the outer bearing pistil only, the inner perfect. *G. maderaspatana*, a very common weed all over India, occurs in Brazil, growing abundantly in sandy plains, and is used, according to

tubular and perfect, placed upon a pitted receptacle, with membranous scales between the pits; the branches of the style are elongated and cylindrical. The fruits are somewhat cylindrical, ribbed, crowned by a pappus, of which the outer row consists of a few narrow scales, the inner of hairy bristles. [M. T. M.]

GRANULA. Large spores contained in the centre of many algae, as *Gloionema*. Among fungals it sometimes expresses a spore-case.

GRANULAR, GRANULATE. Divided into little knobs or knots, as the roots of *Saxifraga granulata*.

GRANULES. Any small particles; grains; the hollow shells which constitute pollen.

GRAPE. The well-known fruit of the vine, *Vitis vinifera*. — BEARS. *Vaccinium Arctostaphylos* and *Arctostaphylos Uva ursi*. — CHICKEN. *Vitis cordifolia*. — CORINTH. The fruits of the Black Corinth variety of *Vitis vinifera*, which when dried form the currants or corinths of the shops. — FOX. *Vitis vulpina* and *Vitis Labrusca*. — FROST. *Vitis cordifolia*. — SEA. *Ephedra distachya*; also *Sargassum bacciferum*. — SEASIDE. *Corcoba*, especially *C. wisera*. — WILD, of Peru. *Chondrodendrum convolvulaceum*. — WINTER. *Vitis cordifolia*.

GRAPE FLOWER. *Muscari racemosum*.

GRAPHIDEI. A natural order of lichens, distinguished by the disk of the fruit being linear and either simple or branched. There is generally a distinct receptacle, though this is sometimes wanting. It is exactly analogous to *Hysterium* amongst Fungi. Many fine species occur in tropical

name of Marcellia.

[A. A. B.]

GRANGERIA. A genus of *Chrysobalanaceae*. *G. borbonica*, the only species, is a common bush or small tree of the Mauritius, where it is known as Arbre de Bois (box tree). It has glossy green coriaceous leaves, in form like those of the common box but somewhat larger; and the small white flowers are disposed in short racemes, and have a five-parted calyx, five rounded petals, fifteen stamens, and a style arising from the base of a woolly ovary which, when ripe, becomes a three-sided pyriform drupe, with a single seed. The genus is nearly related to the American *Hirtella*, but differs in the stamens being regularly disposed, and not all arising from one side of the flower. [A. A. B.]

GRANITICUS. Growing in granitic soil.

GRANTIA. A genus of Persian herbaceous succulent-leaved composite plants. The involucre consists of two rows of somewhat leafy bracts; the outer florets are strap-shaped and neuter, the inner ones

foresta. In *Sclerophyton* the fruit is collected in linear elevations of the crust, so that it is parallel with *Trypethelium* amongst *Verrucariæ*. Though *Opogon* is so common in the northern hemisphere, it does not occur at all in New Zealand. In *Arthronia*, which is one of the lowest genera of lichens, the receptacle vanishes altogether. [M. J. B.]

GRAPPLE PLANT. The colonial (Cape) name of *Uncaria procumbens*.

GRAPTOPHYLLUM. A genus of *Acanthaceae*, consisting of *G. hortense*, a native of India, but which having escaped from gardens has been diffused over the tropical regions of both the Old and New worlds. It is a shrub with oblong or ovate variegated leaves, and flowers in terminal racemes; they have an equally five-parted calyx, a pliant corolla with the upper lip arched and the lower trifid, and two stamens with sagittate anthers. The capsule is rostrate. [W. C.]

GRASS. A general name for all grami-

naceous plants. —, **ARROW.** *Triglochin*. —, **ARTIFICIAL.** A name given by agriculturists to various fodder plants, as clover, lucerne, sainfoin, &c. —, **AWNED HAIR.** *Muhlenbergia capillaris*. —, **BAL-LOOK.** Orchis. —, **BARLEY.** *Hordeum*. —, **BARNYARD.** *Panicum Crus galli*. —, **BASTARD KNOT.** *Corrigiola littoralis*. —, **BASTARD MILLET.** *Paspalum*. —, **BEAR.** *Fucca flamentosa*. —, **BEARD.** *Andropogon*. —, **BENT.** *Agrostis*; also applied to any wiry-stemmed grass growing on a bent or common. —, **BERMUDA.** *Cynodon*. —, **BLACK.** *Alopecurus agrestis*. —, **BLACK OAT.** *Stipa avenacea*. —, **BLUE.** *Poa compressa*. —, **BLUE-EYED.** An American name for *Styracinchium*. —, **BOTTLE.** *Setaria glauca*. —, **BOTTLE-BRUSH.** An American name for *Elymus hystris*. —, **BRISTLE-TAILED.** *Chetivrus*. —, **BRISTLY FOXTAIL.** *Setaria*. —, **BROME.** *Bromus*. —, **HURDOCK.** *Lappago racemosa*. —, **BURR.** *Cenchrus*. —, **CAPONSTAIL.** *Festuca Myurus*. —, **CANARY.** *Phalaris canariensis*, the grain of which is the canary seed of the shops. —, **CARNATION.** *Carex glauca*, and others. —, **CATSTAIL.** *Phileum*. —, **CHINA.** The fibre of the Rhea, *Bihmeria nivea*. —, **CLAYER.** An old name for Clover, *Trifolium pratense*. —, **COCK'S COMB.** *Cynosurus echinatus*. —, **COCK'S FOOT.** *Dactylis glomerata*. —, **COMB-FINGER.** *Dactyloctenium*. —, **COLD.** *Spartina stricta*. —, **COTTON.** *Eriophorum*. —, **COUCH.** *Triticum (Agropyrum) repens*. —, **COW.** *Trifolium pratense*; also *Polygonum aviculare*. —, **CRAB.** *Digitaria sanguinalis*; also an American name for *Elymus*; also *Silicornia herbacea*. —, **CRESTED HAIR.** *Kasteria cristata*. —, **CUCKOO.** *Luzula campestris*. —, **DARNEL.** *Lolium*; also especially *Lolium temulentum*. —, **DEER.** *Rhexia*. —, **DEW.** *Dactylis glomerata*. —, **DITCH.** An American name for *Ruppia*. —, **DOG.** *Triticum caninum*. —, **DOG'S-TAIL.** *Cynosurus*. —, **DOG'S-TOOTH.** *Triticum caninum*. —, **DOOB.** *Cynodon Dactylon*. —, **DROP-SEED.** An American name for *Sporobolus* and *Muhlenbergia*. —, **EEL.** An American name for *Zostera* and *Vallisneria*. —, **ELEPHANT'S.** *Typha elephantina*. —, **FALSE RED-TOP.** *Poa serotina*. —, **FEATHER.** *Stipa pennata*. —, **FES-CUE.** *Festuca*. —, **FINGER.** *Digitaria*. —, **FIORIN.** *Agrostis vulgaris*; now more commonly applied to *A. alba* and *stolonifera*. —, **FIVE-LEAVED.** *Potentilla reptans*. —, **FLEA.** *Carex pulicaris*. —, **FLOTE, or FLOAT.** *Glyceria fluitans*. —, **FODDER.** *Chilochoa*. —, **FOUR-LEAVED.** *Paris quadrifolia*. —, **FOXTAIL.** *Alopecurus*. —, **FRENCH.** *Onobrychis sativa*. —, **FRENCH SPARROW.** *Ornithogalum pyrenaicum*. —, **FROG.** *Salicornia herbacea*. —, **GALLOW.** *Connaris sativa*. —, **GAMA.** *Tripsacum dactyloides*, an esteemed fodder grass in North America and Mexico. —, **GHOHONA.** A reputedly poisonous Indian grass, supposed to be *Paspalum scrobiculatum*. —, **GINGER.** *Andropogon Nardus*. —, **GOAT'SBEARD.** *Agropogon*. —, **GOOSE.** *Gallium Aparine*;

also *Potentilla anserina*; also an American name for *Polygonum aviculare*. —, **GREAT GOOSE.** *Asperugo procumbens*. —, **GREEN.** *Chloria*. —, **GRIP.** *Gallium Aparine*. —, **GUINEA.** *Panicum jumentorum*, also known as *P. maximum*. —, **HAIR.** *Aira*; also *Trichochoa*; also an American name for *Agrostis scabra*. —, **HARD.** *Sclerochloa*; also *Egilops*; also *Dactylis glomerata*. —, **HARESTAIL.** *Lagurus*. —, **HAS-SOCK.** *Aira caespitosa*. —, **HEATH.** *Tridactylis decumbens*. —, **HEDGEHOG.** *Echinochloa*; also applied in America to *Cenchrus*. —, **HERD.** *Agrostis dispar*. —, **HERD'S, of New England.** *Phleum pratense*. —, **HERD'S, of Pennsylvania.** *Agrostis vulgaris*. —, **HOLY.** *Illeurochloa borealis*. —, **HORN.** *Cynodochloa*. —, **HORN OF PLENTY.** *Cornucopia cucullatum*. —, **INDIAN.** An American name for *Sorghum nutans*. —, **INDIAN DOOB.** *Cynodon Dactylon*. —, **KANGAROO.** *Anthistaria australis*. —, **KNOT.** *Triticum repens*; also *Illecebrum* and *Polygonum aviculare*. —, **KNOT, of Shakspeare.** *Agrostis stolonifera*. —, **LEMON.** *Andropogon Schenanthus*. —, **LOB, or LOP.** *Bromus mollis*. —, **LONG.** *Macrochloa*. —, **LOVE.** *Eragrostis*. —, **LYME.** *Elymus*. —, **MAIDENHAIR.** *Briza media*. —, **MANNA.** *Glyceria fluitans*. —, **MARL.** *Trifolium pratense*, or, according to some authorities, *T. medium*. —, **MARRAM.** *Elymus arenarius*; also *Amnophila arenaria*. —, **MARSH.** An American name for *Spartina*. —, **MARSH HEDGEHOG.** *Carex flava*. —, **MAT.** *Nardus stricta*; also *Amnophila arenaria*. —, **MEADOW.** *Poa*. —, **MELIC.** *Melica*. —, **MILLET.** *Milium*; also *Sorghum vulgare*, *Panicum miliaceum*, *Setaria italica*, &c. —, **MONKEY.** A commercial name for the whalchone-like fibre of *Atalea funifera*. —, **MOOR.** *Sesleria caerulea*. —, **MOUNTAIN, of Jamaica.** *Andropogon bicornis*. —, **MOUSE-EAR.** *Scorpioides*. —, **MOUSETAIL.** *Myosotis palustris*. —, **MOUSETAIL.** *Festuca Myurus*; also *Alopecurus agrestis*. —, **MYRTLE.** *Acorus Calamus*. —, **NAKED-BEARD.** *Gymnopus*. —, **NIT.** *Gastridium*. —, **NUT.** *Cyperus Hydrus*. —, **OAT.** *Arrhenatherum avenaceum*; also various species of *Avena*; also *Bromus mollis*. —, **OF PARNASSUS.** *Parnassia*. —, **ONE-GLUMED.** *Monachne*. —, **ORANGE.** *Hypericum Serothra*. —, **ORCHARD.** *Dactylis glomerata*. —, **PAMPAS.** *Glyceria argenteum*. —, **PANIC.** *Panicum*; also *Ehrharta panicata*. —, **PARA.** A commercial name of the Plassa fibre of *Atalea funifera*. —, **PENNY.** *Rhynanthus Crista galli*. —, **PEPPER.** *Ptilularia globulifera*; also an American name for *Lepidium*. —, **PIGEON'S.** *Verbena officinalis*. —, **POVERTY.** *Artista dichotoma*. —, **PRICKLY.** *Echinochloa*. —, **PUDDING.** *Mentha Pulegium*. —, **QUAKE, or QUAKING.** *Briza*. —, **QUICK, or QUITCH.** *Triticum repens*. —, **RATTLE-SNAKE.** *Glyceria canadensis*. —, **RAY.** *Lolium perenne*. —, **RED-TOP.** *Urtica cupress.* —, **RED.** *Arundo*; also *Clamagrostis*, and *Phalaris*. —, **RED BENT.** *Calamagrostis*. —, **RIB.** *Plantago lanceolata*. —,

RIE. *Hordeum pratense*; also *Lolium perenne*. —, RIBBON. *Digraphis arundinacea variegata*. —, RICE CUT. An American name for *Leersia oryzoides*. —, ROPE. *Reeta*. —, ROT. *Pinguicula vulgaris*. —, ROUGH. *Dactylis glomerata*. —, RUSH. An American name for *Vilfa*. —, RUSH SALT. *Spartina juncea*. —, RYE. *Hordeum pratense* and *murinum*; also *Secale* and *Lolium*. —, SAND. *Urtalepis purpurea*. —, SCORPION. *Myosotis*. —, SCOTCH. of Jamaica. *Panicum molle*. —, SCURVY. *Cochlearia officinalis*. —, SEA. *Ruppia maritima*. —, SEA HARD. *Ophirurus*. —, SEA LYME. *Elymus*. —, SEA MAT. *Ammophila arenaria*. —, SEA SP R. *Glyceria distans*. —, SENECA. *Hierochloa borealis*. —, SESAME. *Tripsacum*. —, SHAVE. *Equisetum hyemale*. —, SHELLY. *Triticum repens*. —, SHERE. *Carex*. —, SHORE. *Littorella lacustris*. —, SHRUBBY. *Thamnochortus*. —, SILK. *Eriocoma cuspidata*. —, SLENDER. *Leptochloa*. —, SMALL. *Microchloa*. —, SOFT. *Holcus*. —, SOUR. *Panicum leucophæum*. —, SPARROW. *Asparagus officinalis*. —, SPEAR. *Poa*. —, SPIKE. *Urtica*. —, SPIKED. *Triglochin*. —, SPIKED QUAKING. *Briopyrum*. —, SPRING. *Anthoxanthum*. —, SPURT. *Scirpus maritimus*. —, SQUIREL-TAIL. *Hordeum jubatum*. —, STANDER. *Orchis mascula*. —, STAR. *Callitriche*; also an American name for *Hypoxys* and *Aletris*. —, STRIPED. *Digraphis arundinacea variegata*. —, SWEET. *Glyceria*. —, SWINE'S. *Polygonum aviculare*. —, SWORD. *Gladiolus*; also *Arenaria segetalis*, and *Melilotus segetalis*. —, THIN. *Agrostis elata* and *perennans*. —, THREE-LEAVED. *Trifolium*. —, TIMOTHY. *Phleum pratense*. —, TRIPLE-AWNEED. *Aristida*. —, TOAD. *Juncus bufonius*. —, TURTLE. *Zostera marina*. —, TUSSAC, or TUSsock. *Dactylis cæspitosa*. —, TWIG. *Rhynchospora*. —, TWO-PENNY. *Lysimachia nummularia*. —, VANILLA. *Hierochloa borealis*. —, VEEVET. *Holcus lanatus*. —, VERNAL. *Anthoxanthum odoratum*. —, VIPER'S. *Scorzonera*. —, WATER SCORPION. *Myosotis palustris*. —, WATER STAR. *Lepanthus gramineus*. —, WHEAT. *Triticum*. —, WHITE. *Leersia virginica*. —, WHITLOW. *Draba*, especially *Draba verna*; also *Saxifraga tridactylites*. —, WILD OAT. *Danthonia*. —, WIND. *Apera spica-venti*. —, WIRE. *Elymus indica*, and *Poa compressa*. —, WIRE BENT. *Nardus stricta*. —, WOOD. *Sorghum* (*Audropogon*) *nutans*; also *Luzula sulcatrice*. —, WOOD REED. *Cinna*. —, WOOLLY. *Lasiagrostis*. —, WOOLLY-BEARD. *Eriophorum*. —, WORM. *Spargelia*; also *Sedum album*. —, YARD. An American name for *Elymus*. —, YELLOW-EYED. *Xyris*.

GRASS-CLOTH PLANT. *Buhmeria nivea*.

GRASSETTE. (Fr.) *Pinguicula vulgaris*.

GRASS-GREEN. Clear, lively green, without any mixture.

GRASS OIL. An oil obtained from *Audropogon Iwarcusa*.

GRASS-TREE. *Xanthorrhoea*; also *Richia dracophylla*, and *Kingia australis*.

GRASS-WRACK. *Zostera marina*.

GRATIA DEI. *Gratiola officinalis*.

GRATIOLA. A genus of *Scrophulariaceæ*, consisting of perennial herbaceous plants, found wild in central Europe, North America, and extra-tropical Australia. The flowers have a calyx of five equal divisions, a tubular corolla whose limb is two-lipped, the upper lip notched or cleft into two divisions, the lower three-cleft; four stamens, two of which are sterile and longer than the fertile; and a capsular fruit. *G. officinalis*, the Hedge Hyssop of the herbalists, was in former times called *Gratia Dei*, on account of its active medicinal properties. It is a bitter purgative and emetic, and is even poisonous in large doses. It is not used in medical practice in this country, but is said to have formed the basis of a famous nostrum for gout called *Eau medicinale*. Haller says that the abundance of this plant in some of the Swiss meadows renders it dangerous to allow cattle to feed in them. *G. peruviana* has similar properties. [M. T. M.]

GRATIOLE. (Fr.) *Gratiola officinalis*.

GRATTERON. (Fr.) *Galium aparine*.

GRAVELIN. (Fr.) *Quercus pedunculata*.

GRAVEL-ROOT. *Eupatorium purpureum*.

GRAVEOLENS. Strong-scented; having a smell which is unpleasant because of its intensity.

GRAVESIA. A genus of Madagascar *Melastomaceæ*, of which *G. bertolonoides* is a nearly stemless hairy herb, with opposite ovate five to seven ribbed crenelled leaves, and flower-stalks arising from the axis bearing an umbel of flowers which have a top-shaped five-toothed hairy calyx, five ovate petals, and ten stamens of equal length, with the connective, produced below into an obtuse spur-like appendage. This latter character serves to distinguish the genus among its near allies. [A. A. B.]

GRAWATHA. Curra-tow, the fibre of *Bromelia* (or *Ananassa*) *Saganiaria*, which is twisted into ropes.

GRAYA. A genus of *Chenopodiaceæ*, comprising a North American erect branched spiny shrub with solitary or fascicled oblong-lanceolate entire fleshy leaves and dioecious flowers. The male flowers have a regular five-parted perigone and five stamens; the females a monopetalous perigone, compressed and winged, notched at the apex, and bulging above the middle within, and a subulate style with two filiform stigmas. [J. T. S.]

GREEDS. *Potamogeton*.

GREENBRIER. An American name for *Smilax*.

GREENGAGE. A delicious variety of plum.

GREENHEART TREE. *Nectandra Bodin.*

GREEN-MAN. *Aceras anthropophora.*

GREENS. The familiar domestic name for open-hearted Cabbages, Kale, and other leafy esculents; also applied to *Lenina*.

GREENWEED, or GREENWOOD. *Genista tinctoria* and *pilosa*.

GREENWITHE. *Vanilla claviculata.*

GREGGIA. A genus of *Cruciferae* from New Mexico, discovered by Dr. Gregg, who died in California through over-exertion in scientific pursuits. This plant, called *G. camporum* from its growing on the Canyons or plains, has the habit of a wallflower, and all its parts clothed with hoary pubescence. The stems are furnished with alternate spatulate sinuate leaves, and the pink or white flowers, somewhat like those of the Brompton stock but smaller, are disposed in loose terminal racemes. The narrowed pods (siliques) are about an inch long and flattened laterally, so that the valves are boat-shaped. The genus differs from others of the *Lepidium* group, by its long pods, and from its nearest allies in having incumbent cotyledons. [A. A. B.]

GREGRE TREE. *Erythrophleum guineense.*

GREGORIA. A genus of primworts, having a five-cleft bell-shaped calyx; a salver-shaped corolla, its tube dilated at the upper end, with a border of five spreading lobes, and five ovules, two only of which reach maturity. The only species is a small herb formerly known as *Aretia Vilatiana*, a native of the Pyrenees. [G. D.]

GRÉMIL. (Fr.) *Lithospermum officinale.*

GREMILLET. (Fr.) *Myosotis.*

GRENADIER. (Fr.) *Punica Granatum.*

GRENADILLE. (Fr.) *Passiflora.*

GRENADIN. (Fr.) *Dianthus Caryophyllus.*

GRENIERA. A genus of *Caryophyllaceae* which it has been proposed to separate from *Alysse* on account of the seeds being much compressed, with a transparent wing round the back, and a thin layer of albumen above the peripheral embryo. *G. Douglasii* and *tenella* are slender herbs from California and Arkansas, with the habit of *Alysse verna* and *tenuifolia*. [J. T. S.]

GRENOUILLETTE. (Fr.) *Ranunculus acris*, and others.

GREVILLEA. A genus of *Proteaceae*, distinguished by having apetalous flowers; a calyx which is either four-cleft or has four linear sepals broadish at the end; four ovate sessile anthers, one of which is attached to the concave apex of each sepal; and an elongated curved style, with the stigma either lateral or oblique, plane or concave. The seed-vessel, called a follicle, is woody or leathery, containing one or two occasionally winged oval seeds. This is the most extensive and also the handsom-

est genus of the order. It contains every variety of form, from lofty trees a hundred feet in height, with a girth of eight feet, as in *G. robusta*, the Silk Oak of the colonists, to humble procumbent shrubs, as in *G. lanceifolia*. The foliage is equally varied: in *G. juniperina*, *ericifolia*, &c., it is needle-shaped; in *G. glabella* and *junciifolia*, it is filiform; in *G. obliqua*, *polystachya*, and *Leucodendron*, it is linear, twelve to eighteen inches in length; in *G. asplenifolia* and *mitmosoides*, it is linear and serrated; in *G. laurifolia* it is ovate and entire; in *G. angulata* and *agrifolia* it is rounded at the apex, wedge-shaped and serrated; in *G. thicifolia*, *acanthifolia*, and *Cunninghamii*, it is deeply cut, with sharp prickly teeth; in *G. cinerea* and *buzifolia*,



Grevillea acanthifolia.

box-leaved; in *G. anethifolia* and *triternata*, triternate; in *G. Gaudichaudii*, *Aquilifolium*, *Sturtii*, &c., pinnatifid; in *G. Banksii*, *Caleyii*, *robusta*, &c., pinnate or bipinnatifid. The inflorescence is in spikes generally of a deep rich red, occasionally yellow as in *G. sulphurea*, *Banksii*, and *Chrysodendron*. In the latter species the flower-spikes exceed one foot in length, and are extremely beautiful. In *G. Dryandri*, *asplenifolia*, *Caleyii*, and *robusta*, the flowers are also in long spikes, of a deep red colour. The seed-vessels in the following species are of a hard woody substance, nearly spherical, from an inch to two inches in diameter, viz. *G. refracta*, *mitmosoides*, and *Leucodendron*, and especially *G. gibbosa*; these are all either tropical or subtropical plants. (With the exception of three or four New Caledonian species, the genus is limited to Australia; two or three being found in Tasmania.) [R. H.]

GREWIA. An extensive genus of *Tiliaceae*, consisting of shrubs or small trees, with simple usually serrated leaves, natives of the tropical and subtropical regions of the Asiatic and African continents, and also of the islands of the Malayan Archipelago, the Fijis, &c., but not found on the

American continent. The flowers have five sepals, which are coloured (not green) on the inside and often hairy outside; and five petals, each with a gland or hollow at the base inside, and inserted at the bottom of the stalk-like receptacle of the three to four-celled ovary, while the numerous stamens are inserted round its summit. The fruit consists of from one to four stones, each containing one or two seeds. Upwards of eighty species of this genus are described.

G. asiatica and *sepidia* have both small red fruits, which, on account of their pleasant acid taste, are commonly used in India for flavouring sherbets. The wood of the Dhamnoco, *G. elastica*, a species common in the Himalayas, is very strong and elastic, and is consequently much prized by the natives for making their bows, besides which it is used for carriage-shafts and other purposes where elasticity is requisite. At the Cape of Good Hope, the elastic wood of *G. occidentalis*, called Kruysbesje, is used for similar purposes. Most of the species have a fibrous inner bark, which is commonly employed by the natives for making fishing-nets, ropes, twine, &c.

[A. S.]

GRIS. A genus of *Barringtoniaceæ* peculiar to the West Indies and the adjoining mainland. The Anchovy Pear of Jamaica, *G. cauliflora*, has long been cultivated in plant stoves for the sake of its magnificent foliage. It is a slender tall unbranched tree, furnished at top with a large crown of drooping glossy-green alternate lance-shaped or spatulate entire leaves, which are sometimes upwards of three feet long. The flowers (not well known) are said to be large, white, arranged in clusters which arise from the old wood, and consisting of a superior four-toothed calyx, four rounded petals, numerous stamens in five rows with their stalks united at the base, and an ovary tipped with a cruciform sessile stigma. The fruits are said to be russet-brown drupes, and to be pickled and eaten like the mango, having a similar taste. *G. Fendleri*, found in Panama, with equally handsome leaves, has its flowers in short racemes arising from the trunk, yellow, and one to two inches across. [A. A. B.]

GRIFFINIA. A small genus of South American *Amaryllidaceæ*, consisting of dwarfish bulbous plants, with broad oblong petiolated nervose leaves, and a many-flowered umbel of handsome purplish flowers. The perianth has a short cylindrical declinate tube, and unequal reflexed limb of six segments, the lower of which are divaricate, and the lowest stretched forward; there are six stamens with thread-shaped filaments, one of them ascending, the rest declinate; and a three-celled ovary, containing two collateral ovules in each cell, and tipped by a three-furrowed style, and an undivided or obsoletely three-lobed stigma. *G. Ayacastina*, the best known species, grows in woods on the hills behind Rio Janeiro, and is a very ornamental

[T. M.]

GRIFFITHIA. An Indian shrub of the *Cinchona* family, with glandular leaves and spiny stems; flowers white, in terminal clusters, with a funnel-shaped corolla, whose throat is hairy, and whose limb is divided into five oblong acute segments; ovary two-celled, surmounted by a fleshy disk; stigma undivided striated. The fruit is succulent and reddish. [M. T. M.]

GRIGG. *Calluna vulgaris*.

GRIGNON. (Fr.) The wood of *Bucida Buceras*.

GRIGRI. A name in Trinidad for the wood of *Astrocaryum aculeatum*.

GRIMMIA. A genus of acrocarpous mosses, distinguished, as now reduced, by the columella not adhering to the lid, the short even tip of the veil which is entire and not lacerated at the base, and the generally exerted capsule. The peristome, when present, consists of sixteen large lanceolate convex teeth, which are split once or twice. *G. pulvinata*, remarkable for its curved peduncle, from whence it obtained formerly the name of the Swan's-neck Bryum, forms cushion-like tufts, hoary with the long white hair-points of the leaves, and thickly studded with fruit. The other British species are either Alpine or subalpine. [M. J. B.]

GRIMMIEI. A natural order of mosses, with an equal often sessile capsule, a single peristome, a mitreiform calyptra, and leaves of a dark green, always terminated by a white hair, and formed of punctiform cells. *Schistidium*, in which the columella is adnate with the lid, and the capsules are immersed; *Grimmia*, with its free lid; and *Racomitrium*, with its straggling habit, confirmed by the awl-shaped granulated beak of the veil, are the British genera. *Driptodon* differs from *Racomitrium* merely in its forked stems and fastigate innovations, and is generally united with that genus. They are found in various climates, *Schistidium opocarpum*, which is one of our more common mosses, appearing also both in Asia and South America. [M. J. B.]

GRINDELIA. A genus of *Compositæ* numbering upwards of a dozen species. The prairies of the Saskatchewan are their northern limit, Patagonia the southern, and they are found in greatest plenty in Texas and Mexico. Their chief distinguishing feature is the pappus, which consists of from two to eight rigid narrow awns, which fall early. They are biennial or perennial suffruticose plants, with branching stems, spatulate radical leaves, and sessile or clasping cauline ones, and yellow flower-heads, solitary at the ends of the twigs, and from one to two inches across. Most of the species have all their parts more or less covered with a glutinous varnish when young. [A. A. B.]

GRIOT, GRIOTTE, or GRIOTTIER. (Fr.) Names applied to varieties of *Cerasus vulgaris*.

GRISAILLE, or **GRISARD**. (Fr.) *Populus canescens*.

GRISEBACHIA. A genus of heath-works, distinguished by the following marks:—calyx bell-shaped, and slightly four-angled; corolla scarcely longer than the calyx; filaments covered with stiff hairs; the style ending in a small, very blunt stigma; seed-vessel compressed, two-celled, two-seeded. The genus was named in honour of Grisebach, a German botanist. The species are heath-like shrubs, natives of the Cape. [G. D.]

GRISELINIA. A genus of *Cornaceæ* nearly allied to *Jacuba*, which it also resembles in habit, and containing eight New Zealand, Chilean, and Brazilian species. The flowers are small, dioecious, in terminal panicles, the males with five stamens, the females with an inferior ovary of one or two cells, but with three stigmas. The fruit is a berry with a single pendulous seed. One or two species are met with in gardens as half-hardy evergreen shrubs.

GRISSET. (Fr.) *Hippophaë rhamnoides*.

GRISEUS. Pure grey, a little verging to blue.

GRISLEA. A genus of *Lythraceæ* [now limited to *G. secunda*, a native of Venezuela and New Grenada. The name is, however, best known in connection with *G. tomentosa*, now called *Woodfordia tomentosa*], a very common East Indian species, with sessile lance-shaped entire leaves clothed with white down underneath, and pretty scarlet fuchsia-like blossoms arranged in axillary cymes, and consisting of a tubular coloured calyx with a four to six-toothed border, and a like number of green glands in the clefts, four to six small narrow petals, eight to twenty stamens protruded beyond the calyx tube, and an ovary tipped with a simple style. According to Roxburgh, the calyx tube, which closely invests the ripe capsules, does not lose its colour when withered, and thus the shrub has a gaudy appearance even when in fruit. The flowers, mixed with those of *Norinda*, are used as a dye called Dhare in India. [A. A. B.]

GRIT-BERRY. *Comarostaphylis*.

GROATS, or **GRITS**. The grain of the oat deprived of its husk.

GROBYA. A genus of epiphytall orchids of Brazil, having ovate pseudobulbs, with a few grassy ribbed leaves at their apex, and a drooping flower-scape proceeding from the base of the pseudobulb, and ending in a short raceme of yellow or greenish flowers tinged and spotted with purple. The lower connate crescent-shaped sepals are larger than the upper, the petals broader, forming a sort of helmet overhanging the lip, which is small and five-lobed at the apex, and the two bilobed pollen-masses have each a distinct candle attached to an oval gland. *G. Amherstii* and *G. galatii* are the two known species, both in culti-

vation. The genus is named in compliment to Lord Grey, of Groby. [A. A. B.]

GROMWELL, or **GROMELL**. *Lithospermum officinale*. —, FALSE *Oenothera*.

GRONOVIA. A genus usually placed in *Loasaceæ*, from most of the genera in which it differs in the flowers, having five instead of numerous stamens, and the ovary one instead of many ovules. The only known species, *G. scandens*, found in Mexico, and New Grenada, is a scandent herb very like the common bryony of our hedges. Its small yellow flowers have a funnel-shaped calyx with a five-toothed border, and near its base an accessory calyx of five small bracts; the five small petals are inserted on the calyx tube, and the fruit is a little indehiscent capsula, with one seed. [A. A. B.]

GROS BLÉ. (Fr.) *Triticum turgidum*. — **GOBET**. *Cerastium vulgare*.

GROSEILLIER. (Fr.) *Ribes*. — **À MA-QUEREAUX**. The cultivated varieties of *Ribes Uva crispa*. — **ÉPINEUX SAUVAGE**. The wild Gooseberry, *Ribes Uva crispa*.

GROSIER. The Scotch name of the Gooseberry.

GROSSAILLE. (Fr.) *Triticum*.

GROSSE GRIOTTE. (Fr.) *Cerasus vulgaris*. — **JONQUILLE**. *Narcissus odoratus*.

GROSSIFICATION. The swelling of the ovary after fertilisation.

GROSSULARIACEÆ. (*Grossularia*, *Rubiaceæ*, *Courantaceæ*). A natural order of calycifloral dicotyledons characterising Lindley's grossal alliance of epigynous Exogens. Shrubs often spiny, with alternate palmately-lobed leaves, without true stipules. Calyx superior, limb four to five-lobed; petals, small, five; stamens five; ovary one-celled with two parietal placentas; styles more or less united. Fruit a berry, crowned with the remains of the flower; seeds numerous, albuminous. Natives of the temperate parts of Europe, Asia, and America. Wholesome plants, often supplying edible fruits, such as the gooseberry, red currant, and black currant. The two genera, *Ribes* and *Polygonum*, comprise about a hundred species. [Bentham and Hooker include the whole group in *Sisifragaceæ*.] [J. H. B.]

GROSSUS. Coarse; larger than usual; thus *grosus crenatus* = coarsely crenated; *grosus serratus* = coarsely serrated.

GROUNDHEELE. *Veronica officinalis*.

GROUNDSEL. *Senecio*, especially *A. vulgaris*; also *Hyoscyamus Senecionis*. — **TREE**. *Baccharis halimifolia*.

GROWING POINT. The soft centre of a bud, over which the nascent leaves are formed; and all modifications of it.

GRUBBIACEÆ. A natural order of monochlamydeous dicotyledons, containing only the genus *Grubbia*, and referred by Lindley and others to the *Bruticeæ* in the unbelial alliance of epigynous Exogens.

Some regard it as an order which should be placed between *Santalaceae* and *Burseraceae*, from the former of which it differs in habit and inflorescence, in the lobes of the stamens scarcely adhering at the base, in the form of the anthers, and in the bilocular ovary; and from the latter, in the want of lobes either to the calyx or corolla, the valvate aestivation, and the long embryo. [J. H. B.]

GRUBBIA. A genus of bruniads, distinguished by having hermaphrodite flowers in the axils of single bracts, and grouped in small heads with a two-leaved involucre; style very short, truncate at the end, which is slightly three-lobed. The species are Cape shrubs, with four-angled branches, and having the leaves in pairs, shortly stalked, narrow, acute, with their margins rolled back. [G. D.]

GRUGRU. A Trinidad name for *Astrocarum vulgare*, and also *Acrocomia sclerocarpa*.

GRUMIXAMEIRA. One of the edible-fruited *Eugenia*s of Brazil.

GRUMOUS. Divided into little clustered grums; as the *fæcula* in the stem of the sago palm.

GRUVELIA. A genus of *Boraginaceae* from Chili, with the fruit as in *Cynoglossum*, but the corolla tubular, five-toothed at the apex, and scarcely exceeding the calyx. It has the habit of an *Arenaria*, and slender leaves, the lower and middle ones opposite, the upper alternate. [J. T. S.]

GUABINOBA. The berries of certain Brazilian species of *Psidium*.

GUACO. *Aristolochia Guaco*. Besides this, which is the true Guaco, *Mikania Guaco* and *Aristolochia anguicida* have had the reputation of yielding this South American alexipharmic. —, MEXICAN. A poison obtained from a species of *Convolvulus*.

GUAIACUM. A genus of *Zygophyllaceae*, consisting of West Indian and South American trees, noted for the resin which they secrete, and the extreme hardness of their wood. They have pinnate leaves and blue flowers, which have a calyx of five unequal segments, five stalked petals, ten stamens, and a stalked five-celled five-angled capsule, sometimes by abortion two to three-celled.

G. officinale is an ornamental tree with pretty blue flowers. Its trunk yields the greenish-brown hard heavy wood, called by turners *Wignum vite*, which is used for blocks and pulleys, rulers, skittle-balls, and other purposes where hardness is required and weight is not an objection; the logs are imported from Jamaica. As is also the case with the laburnum, there is great difference in the colour of the old or heart wood and that of the young or sap wood, which is of a light yellow colour. The fibres of this wood are cross-grained. The resin, commonly called gum guaiacum, exudes from the stem, and is also obtained

by jaggng or notching the stem and allowing the exuding juices to harden; or by boring holes in logs of the wood and then placing them on a fire, so that the resin is melted and runs through the hole into a calabash put to receive it; or in small quantities by boiling the chips in salt and water, when the resin floats on the top and may be removed. Guaiacum is greenish-brown, with a balsamic fragrance, and is remarkable for the changes of colour which it undergoes when brought into contact with various substances. Gluten gives it a blue tint, and hence guaiacum has been proposed as a test of the goodness of



Guaiacum officinale.

wheaten bread, which contains gluten. Gum arabic, milk, various roots, &c., as those of the carrot, potato, colchicum, and horseradish, possess a similar property. Nitric acid and chlorine change guaiacum successively to green, blue, and brown. These changes in colour are said to be due to the absorption of oxygen by guaiacic acid, the active principle of guaiacum. The resin, as well as the bark and wood, are used medicinally as stimulants in chronic rheumatism; skin diseases, and other complaints. *G. sanctum* is used for like purposes in the West Indies, where also the leaves are used as a substitute for soap, having strong detergent properties. [M. T. M.]

GUAIABARA. *Coccoloba uvifera*.

GUAIAVA. *Psidium*.

GUALLAGA. A West Indian name for *Zamia media*.

GUANDEE. *Cajanus indica*.

GUAO. A West Indian name for *Comocladia dentata*.

GUARANA. A substance prepared in South America from the seeds of *Paulinia sorbilis*, which are pounded into a paste called guarana bread, and hardened in the sun. It is used as a remedy for various diseases, as well as to form a most refreshing beverage.

GUARANENE. A white crystalline

bitter substance, obtained from guarana, nearly identical with theine and caffeine.

GUAREA. The vernacular name, in Cuba, of a meliaceous tree, the flowers of which are in axillary clusters, with the stamens united into a cylindrical or somewhat prismatic tube, the free margin of which is entire or slightly waved, the anthers being enclosed within it. The ovary is four-celled, placed on a stalk-like disk, and the capsule is four-valved, with four or eight seeds. The trees of this genus are more or less purgative and emetic in their effects. *G. trichitoides* and other species have a musk-like perfume. Some of them present a peculiarity in the growth of their leaves which are pinnate; after a while the lower leaflets fall, and young ones grow at the end of the same leaf-stalk, which elongates, the lower older portion becoming woody, with an outer bark and a semblance of pith within—assuming in fact the characters of a branch. [M. T. M.]

GUATTERIA. A genus of *Anonaceæ*, named in honour of an Italian botanist, and consisting of trees or shrubs with lateral or terminal inflorescence. The flowers have six petals in two rows, flat oblong or linear, and all of the same form, and the carpels are distinct, each containing a single erect seed. *G. virgata* is said to yield some of the light wood used by coachbuilders under the name of Lancewood: see also **DOUVERTIA**. *G. longifolia* is an ornamental tree, commonly planted by roadsides in Bengal. *G. suberosa*, which has cork-like bark, is a native of Ceylon and various parts of India. [M. T. M.]

GUAVA. *Psidium pyrifera*, *pomifera*, &c.

GUAZA. The narcotic tops of the Indian hemp, *Cannabis sativa indica*.

GUAZUMA. A genus of shrubs or small trees of the *Sterculiaceæ*, nearly allied to *Theobroma*, but differing in their woody tubercular fruits of the size of a hazel-nut, the entire instead of two-lobed appendage at the ends of the petals, and in their whole appearance. They are found in the East Indies and the islands of Eastern Africa, but are most frequent in tropical America. The leaves are like those of the elm, and their small white pink or yellow flowers are borne in axillary cymes. *G. tomentosa* is common in India and America. The French colonists in the West Indies call it Orme d'Amerique, from its resemblance to the elm. According to M'Fadyen, it grows in Jamaica to a height of twenty to twenty-five feet, and is allowed to grow in pasture lands, not only for the sake of its shade, but because the cattle feed and thrive on the foliage and fruit. The latter, coarsely bruised, are given to horses as a substitute for corn, their nutritive properties being attributed to the mucilage which abounds in them, and also in the inner bark. This mucilage is given out abundantly on infusion or decoction in water, and, according to the same authority, has been em-

ployed as a substitute for gelatine or albumen, in clarifying cane juice in the manufacture of sugar. A like infusion is given internally as a remedy for cutaneous diseases. The timber is light, splits readily, and is employed for the staves of sugar hogsheads. The plant is known by the name of Bastard Cedar to English colonists in Jamaica. A strong fibre is obtained from the young shoots of the same species in India. Cord made from it was found by Dr. Roxburgh to break at 100 lbs. when dry, and at 140 lbs. when wet. [A. A. B.]

GUÈDE. (Fr.) *Isatis tinctoria*.

GUÊPES VÉGÉTANTES. A name applied to a species of wasp in the West Indies, when affected by *Cordiceps aphecephala*. The parasite has a long cylindrical curved stem with a club-shaped head, and at length weighs down and kills the wasp. The accounts of earlier observers, who affirmed that they had seen the wasps flying about with their heavy burden, were long disbelieved, but they have been confirmed by more recent authorities. The fungus does not seem to crucify till after the death of the insect. We have at least seen no perfect individuals. [M. J. B.]

GUERNÉSIENNE. (Fr.) *Nerine sarniensis*.

GUETTARDA. A genus of shrubs or small trees, natives of tropical America and Asia, and belonging to the *Cunchnaceæ*. The corolla is salver-shaped, with a cylindrical tube, and a limb divided into four to nine oblong segments; anthers four to nine, sessile, concealed within the corolla; ovary with from four to nine compartments, each containing a single erect ovule. The fruit is succulent, with a bony four to nine-celled stone. [M. T. M.]

GUEULE DE LION, or DE LOUP. (Fr.) *Antirrhinum majus*.

GUL. (Fr.) *Viscum album*.

GUIGNE ROUGE, or GUIGNIER. (Fr.) *Cerasus avium*.

GUILANDINA. A small genus of leguminous plants found in nearly every tropical country, particularly upon the seashore, its extensive distribution being caused by the transportation of its seeds (which have an exceedingly hard impervious shell) from one country to another by means of oceanic currents. There are three or four species, which form prickly trailing shrubs ten or twelve feet or more in height, having twice pinnated leaves, the stalks covered with short down and bearing recurved prickles on the under side. The flowers are of a rusty yellow colour, and are borne in racemes; they have a five-parted calyx with a short tube, and a corolla of five nearly equal-sized petals, the stamens being ten in number, distinct, and hairy at the base. The pods, which are about two or three inches long, flattened, but bulged out in the centre, and covered with prickles, contain one, two, or three large bony seeds. *G. Bonduc* has solitary

prickles on the leaves, and the seeds are yellow. *G. Bonducella* differs by its prickles being in pairs, and its seeds lead-coloured. The seeds of both are very hard, and beautifully polished, and are called Nicker nuts or Bonduc nuts, the latter word being derived from the Arabic, *Bondog*, signifying a necklace, the seeds being commonly strung into necklaces, bracelets, rosaries, &c. The kernels have a very bitter taste, and are employed by Indian doctors as a tonic and febrifuge. The roots also are said to possess similar properties: indeed, the Singhalese employ every part of these plants medicinally. The oil obtained from the seeds is supposed to be useful in convulsions and palsy. [A. B.]

GUILDINGIA. A group of melastomads now referred to *Mouriria*.

GUILIELMA. A genus of palms confined to the tropical regions of South America, and containing three species, which have tall slender trunks marked with circular scars and armed with exceedingly sharp black spines. The large pinnate leaves have spiny leaflets and footstalks. The flower spikes are simply branched, and bear male and female flowers mixed together. The fruit is large and egg-shaped, containing a single seed.

G. spectosa, the Peach Palm, a native of Venezuela and Guiana, is cultivated on the banks of the Amazon and Rio Negro. It grows sixty or eighty feet high, and has its stems armed with rings of long sharp needle-like spines. The fruits, which are borne in large drooping bunches, are about the size of apricots, and of a bright scarlet colour at the top passing into bright orange below; their fleshy outer portion (sarcocarp) contains a large quantity of starchy matter, which forms a considerable portion of the food of the natives. They are either boiled or roasted, and when eaten with salt resemble a potato in flavour; or they are sometimes eaten with molasses. A beverage is also prepared by fermenting them in water; and the meal obtained from them is made into cakes. The wood of old trees is black, and so exceedingly hard that it turns the edge of an ordinary axe. [A. B.]

GUILNO. (Fr.) *Bromus catharticus*.

GUIMAUVE. (Fr.) *Althaea officinalis*. — **EN ARBRE.** *Hibiscus syriacus*.

GUINCHE. (Fr.) *Molinia cærulea*.

GUINDOLLE, or GUINDOUX. (Fr.) *Cerasus vulgaris*.

GUINEA-HEN FLOWER. *Fritillaria meleagris*.

GUINEA-HEN WEED. *Petiveria alliacea*.

GUIRILA. The Persian insect-powder, prepared from *Pyrethrum carneum*, and *P. roseum*.

GUIZOTIA. A small genus of annual opposite-leaved composites herbs found in Abyssinia and India, and nearly related to *Heliotropis*, differing chiefly in the presence

of a ring of thick jointed hairs outside the corolla tubes near the base. *G. oleifera*, a plant with the habit of *Bidens cernua*, has lance-shaped stem-clasping leaves, and solitary stalked yellow-rayed flower-heads about an inch and a half across at the ends of the twigs; the ray florets female, the disk florets perfect; the achenes smooth and destitute of pappus. The plant is cultivated in Abyssinia and in India for the sake of a bland oil like that of *Sesamum*, which is expressed from the seeds, and is commonly used in India as a lamp-oil and as a condiment. The plant is sown in the Mysore districts in the autumn months, perfecting its seeds in about twelve weeks after it is sown. The yield is said to be about two bushels an acre. The oil is sweet-tasted, and is known in India as Ram-til oil. [A. A. B.]

GUJ-PIPPUL. *Scindapsus officinalis*.

GULF WEED (called also by voyagers Sea-lentils, Sea-grasses, and Sargazo) is the celebrated *Sargassum bacciferum*, which occupies a more or less interrupted space between the 20th and 45th parallels of north latitude, extending over more than a quarter of a million of square miles. It was first discovered by Columbus, unless indeed the Phœnicians fell in with it during their early voyages, as seems possible from a passage in Aristotle. The seaweed floats on the surface, being propagated from age to age by buds, and never in that situation yielding fruit, which when produced consists of little bundles of receptacles in the axils of the leaves. The area occupied by the seaweed is determined by the course of the currents in the Atlantic, and occasionally a few stragglers are carried northward by the Gulf Stream, and are thrown even upon our own coasts. The origin of this mass of seaweed has not been determined. Its increase in deep water is, however, the less surprising if we remember that the root of seaweeds merely performs the office of a holdfast, and has not the function of a true root. [M. J. B.]

GUM, ACAROID. A resinous product of *Xanthorrhæa hastilis* or *arboræa*. — **AMMONIACUM.** The gum-resin of *Dorema ammoniacum*. — **ANIME.** A resinous product of *Fraxinodendron* and *Syzygium*; also Indian Copal, the produce of *Vateria indica*. — **ARABIC.** The gummy product of various *Acacias*, as *vera*, *arabica*, *Yerek*, *Seyal*, *Senegal*, *tortilis*, &c. — **ARTIFICIAL.** Dextrine, obtained from potato starch. — **AUSTRALIAN.** A kind of gum arabic. — **BABOOL.** The gum of *Acacia arabica*. — **BARBARY.** The gum of *Acacia gummiifera*. — **BASSORA.** A gum whose origin is unknown; it is supposed to be the produce of a *Cactus* or a *Mesembryanthemum*. — **BLACK-BOY, or BOTANY-BAY.** A fragrant resinous product of *Xanthorrhæa arborea* or *hastilis*. — **BRITISH.** A preparation of roasted starch. — **BUTEA.** Bengal Kino, the gum-resin of *Butea frondosa* and *superba*. — **CAPE.** The gum of *Acacia Karroo* or

capensis. —, CARANA. The gum-resin of *Isica Carana*. —, CASHEW. The gum of *Anacardium occidentale*. —, CEDAR. A gum-resin resembling oilbalm, obtained in the Cape Colony from *Widdringtonia juniperoides*. —, CHERRY-TREE. The gum produced from the stems of *Cerasus avium* and *vulgaris*, *Prunus domestica*, and other drupaceous trees. —, COPAL. A gum-resinous product of *Trachylobium homemannianum* and perhaps other species. —, DOCTOR'S. The gum-resin of *Rhus Metopium*. —, DRAGON. The gum-resin of *Pterocarpus Draco*; also the name sometimes given to gum tragacanth in the shops. —, EAST INDIAN. The gum of *Acacia arabica*, probably. —, ELASTIC. Ocotouchou, the product of *Siphonia elastica*. —, ELEMI. The gum-resin of *Amyris Plumieri* and *hexandra*. —, GRASS-TREE. The resinous product of *Xanthorrhoea australis*. —, GUTTA, American. The gum-resin of *Viomea guianensis*. —, GUAIACUM. The gum-resin of *Guaiacum officinale*. —, HOG. A gum-resinous juice variously ascribed to *Moronebea coccinea*, *Rhus Metopium*, *Clusia flava*, and *Hedwigia balsamifera*. —, JUNIPER. The resin of *Callitris quadrivalvis*. —, KINO. The gum of *Pterocarpus erinaceus*, and according to some of *Pterocarpus Marsupium*; also a similar product of *Eucalyptus resinifera*. —, KUTEERA. The gum of *Cochlospermum Gossypium*, or according to others of *Sterculia urens*, or of *Acacia leucophloea*. —, LAO. The gummy product of *Erythrina monosperma*, and in Ceylon of *Aleurites laccifera*; a similar product is yielded by *Ficus indica*, *benghalensis*, &c. —, LADANUM. The gum-resinous product of *Oistus creticus*; also of *O. ladaniferus* and *Ledon*. —, LEDON. *Oistus Ledon*. —, MOROCCO. The gum of *Acacia gummifera*. —, MYRRH. The gum-resin of *Balsamodendron Myrrha*. —, OPOCALPASM. The gum of *Acacia gummifera*. —, ORENBURG. A gummy exudation of the larch, *Abies Lartx*. —, SANDARACH. The resin of *Callitris quadrivalvis*. —, SASSA. A kind of false tragacanth obtained from *Inga Sassa*. —, SENEGAL. The gum of *Acacia Senegal*, *Seyal*, *Verak*, *Adamsontii*, &c. —, SOUDAN. A kind of gum arabic. —, SUCCORY. The gummy juice of *Chondrilla juncea*. —, SWEET. *Liquidambar styraciflua*. —, THUR. A kind of gum arabic. —, TRAGACANTH. The gummy exudation of *As-tragalus gummifer*, *strobiliferus* or *Dicksoni*, *versus*, *creticus*, and *aristatus*. —, TRAGACANTH of Sierra Leone. The gum of *Sterculia Tragacantha*. —, TURKEY. The true white gum arabic. —, WATTLE. The gum of *Acacia mollissima*. —, YELLO-LOW. A resinous product of *Xanthorrhoea hastilis* or *arbores*.

GUM-TREE. *Eucalyptus*; also *Xanthorrhoea*. — of Jamaica. *Hippomane biglandulosa*. —, BLACK. *Nyssa villosa*. —, BLUE. *Eucalyptus globulus*. —, RED. *Eucalyptus resinifera*. —, SOUR. *Nyssa villosa* and *biflora*. —, WHITE. *Eucalyptus resinifera*. —, YELLOW. *Nyssa villosa*.

GUM-ARABIC TREE. *Acacia Verak*. —, RED. *Acacia Adamsontii*.

GUM-WOOD. The timber of *Eucalyptus*.

GUMBO MUSQUÉ. The seeds of *Abelmoschus moschatus*.

GUNDALI. An Indian name for *Pedicularis fatida*.

GUNGUN, or GUNJUN. A balsamic product of *Dipterocarpus lavis*.

GUNJA. *Abrus precatorius*.

GUNJAH. The dried Indian Hemp plant, *Cannabis sativa indica*.

GUNNALA. An Indian name for *Cassia fistula*.

GUNNERA. [A genus belonging to the *Haloragaceae*, and distinguished by having the calyx three or four-lobed; petals two or none; stamens one or two; ovary one-celled; ovule solitary; stigmas two, subulate. The flowers are in racemes, panicles, or spikes.] The name was given by Linnæus in honour of Ernest Gunner, a bishop of Norway, who published a flora of that country. There are eleven known species natives of various countries, as S. Australia, Tasmania, New Zealand, Sandwich Islands, Java, Abyssinia, Juan Fernandez, the Andes, and Antartico S. America. Two of them, *G. scabra* and *G. manicata*, are known in gardens by their coarse rough rhubarb-like lobed leaves, and singular elongated conical inflorescence. [G. D.]

GUNNIA australis is the only epiphytal orchid of Tasmania, where it is found growing on the stems of trees and shrubs. It is a little plant, hardly a span high, with wiry roots, a few lance-shaped leaves three to four inches long, and flower-racemes of about the same length. The flowers, which smell like honeysuckle, are small and green except the clawed lip, which is marked with lilac lines on a white and yellow ground. As a genus it is hardly different from *Sarcophilus*, with which, indeed, it is united by some authors. Named in honour of Mr. R. C. Gunn of Tasmania, who is well known in connection with the botany of that island. [A. A. R.]

GUNNY. A coarse kind of cloth made from jute, the fibre of *Corchorus capsularis*, and sunn, the fibre of *Crotalaria juncea*.

GURLTIA. A genus of *Begoniaceae*, consisting of erect branching shrubs, natives of Brazil. The flowers are cymose, the staminate and pistillate ones in the same plant; the former have four white perianth leaves, and numerous stamens; the latter five unequal perianth leaves, and a three-winged ovary, with a bifid stigma surrounded by a papillose band which is twice spirally twisted. There are four species. [J. H. B.]

GUSTAVIA. A genus of *Barringtoniaceae* peculiar to tropical America, and consisting of trees or shrubs with large handsome alternate ovate or spatulate glossy leaves, and showy white flowers

sometimes five or six inches across, tinged with pink, not unlike those of some *Magnolias*, and disposed in racemes or umbels at the ends of the twigs. They consist of a top-shaped calyx with an entire or lobed border, four to eight rounded or oval petals, very numerous stamens whose filaments are united below into a ring; and a four to six-celled ovary tipped with a short conical style and sulcate stigma. The fruits are somewhat fleshy and apple-like. The wood of *G. urceolata*, used for making hoops, is called Bois puant in Cayenne, because it becomes very foetid after exposure to the air. The small fruits of *G. speciosa*, according to Humboldt, when eaten, have the singular property of causing the body to assume a yellow colour, which, however, leaves it in the course of a day or two without any application. The bruised leaves of *G. brasiliensis* are said by Martius to have an unpleasant smell, and are used in cases of indurated liver. The roots are acrid, aromatic, and bitter; and the emetic fruit intoxicates fish. [A. A. B.]

GUTHNICKIA. The name of a few species separated from *Achimenes*. It forms one of the genera with a perigynous and nearly entire thickened ring, and a stomatophorous stigma. Among these it is known by the long gaping corolla, the tube of which is straight and subcylindrical, and by the stamens being adnate with the lower part of the corolla tube. They are hairy leafy Mexican herbs, with solitary axillary scarlet flowers. [T. M.]

GUTIERREZIA. A small genus of composite plants, of the same group as *Solidago*, and differing from its near allies in the achenes of the disk and ray florets being fertile and furnished with a pappus of several linear or oblong chaffy scales. They are peculiar to America, and extend from the prairies of the Red River to Mexico, a few occurring in Chili and the extreme south of the continent. For the most part they are branching herbs one to three feet high, with slender twiggy stems furnished with linear entire gummy leaves, and small yellow flower-heads very numerous, arranged in corymbs at the ends of the twigs. *G. gymnospermoides*, the only species with any pretensions to beauty, has flowers very much larger than the others, and not unlike those of *Pulicaria dysenterica*. [A. A. B.]

GUTTA PERCHA. The gum-resin of *Isandra gutta*. — TRAP. The inspissated sap of *Artocarpus*.

GUTTATUS. Spotted; that is, when colour is disposed in small spots.

GUTTIFERÆ. (*Olusiaceæ, Guttifera*.) — natural order of thalamifloral dicotyledons, belonging to Lindley's guttiferal alliance of hypogynous Exogens. Trees or shrubs with a resinous juice, opposite leathery entire leaves, and often incomplete flowers; sepals and petals two four five six eight, the former often unequal, the equilateral; stamens numerous,

often united; disk fleshy; ovary one of many-celled; stigma usually sessile and radiate. Fruit dry or succulent, one or many-celled; seeds exalbuminous, often immersed in pulp. Natives of humid and hot places in tropical regions, chiefly in South America. Several are found in India, a few in Madagascar and the continent of Africa. The plants are generally acrid, and yield a yellow gum-resin. Gamboge is produced by [*Garcinia Moralla*, and several varieties which were formerly considered species]. The famous mangosteen fruit is procured from *Garcinia Mangostana*. The American mammee apple is the produce of *Mammea americana*. Keena oil is obtained from species of *Calophyllum*. The *Clusia* are handsome trees. *Pentadesma butyracea* is the butter and tallow tree of Sierra Leone; its fruit yields fatty matter. There are 32 known genera and upwards of 150 species. Examples: *Clusia, Garcinia, Cambogia, Calophyllum*. [J. H. B.]

GUYONIA. A genus of *Melastomaceæ*, bearing pentamerous flowers, having the teeth of the calyx acute, the petals ovate-lanceolate, the stamens ten, equal, with ovoid blunt anthers, and the ovary five-celled. They are tender smooth herbs with prostrate and ascending stems, small rhomboid-ovate leaves, and small solitary rose-coloured flowers. *G. tenella* inhabits moist ground on the banks of the Senegambia rivers. [J. H. B.]

GUZMANNIA. A genus of tropical American herbs, belonging to the *Bromeliaceæ*, and having an inferior calyx of three equal segments cohering at the base and spirally twisted, three petals rolled together into a tube, the anthers also cohering so as to form a tube. The seeds are numerous, provided with hairs, and enclosed in a three-celled three-valved capsule. *G. tricolor* is a pretty species with flowers on a spike, concealed by the bracts, the lowermost of which are green, while the upper are scarlet. [M. T. M.]

GYMNADENIA. A genus of terrestrial orchids, founded on the *Orchis conopsea*, which has the pollen-masses not enclosed in any process of the stigma. Several other species of European and North American orchids have been associated with it by some botanists, whilst others retain them in *Orchis* or in *Habenaria*.

GYMNANDRA. A genus of *Selaginaceæ*, containing six species of herbaceous plants, natives of Siberia, Arctic America, and the mountains of India. The flowers grow in long spikes at the apex of an erect scape. The calyx is spathe-like, with a fissure in front, and two or three-lobed behind; the tubular corolla is two-lipped; there are two stamens; the free bilocular ovary bears a long exserted style and a stigma with two capitate lobes; and the fruit is surrounded by the withered bracts and calyx, and consists of two achenes each containing a cylindrical pendulous seed. The structure of the fruit of this genus separates it from *Scrophulariaceæ*, to which it

is otherwise nearly related. On the whole, it seems to belong to *Selaginaceae*, though differing remarkably from the other genera of the order. [W. C.]

GYMNANTHERA. A genus of *Asclepiadaceae*, containing a single species from New Holland, a twining glabrous shrub with milky juice, opposite leaves, and whitish-green flowers on lateral peduncles, having a salver-shaped corolla, and a staminal crown of five awned scales inserted at the summit of the tube and alternating with the corolla lobes. The capsule is cylindrical divaricate, and containing many comose seeds. [W. C.]

GYMNOBALANUS. Tropical American trees, constituting a genus of *Lauraceae*, and known by the following characters:—The perianth in both male and female flowers is divided into six nearly equal segments, and is deciduous; the male flowers have nine stamens in three rows, the inner row bearing sessile glands, a long style, and an abortive ovary; the females nine sterile stamens, a one-celled ovary, and a short style. The fruit is succulent, on a thickened flower-stalk. [M. T. M.]

GYMNOCARPIUM. *Polypodium*.

GYMNOCIDIDIUM. The swelling occasionally found at the base of the sporocase of urn-mosses.

GYMNOCLADUS. A large American tree, *G. canadensis*, called the Kentucky Coffee-tree, is the sole representative of this genus of leguminous plants. It is common throughout the Northern United States, and in Canada, where it is called Chicot; and is frequently cultivated, either as an ornamental tree, or for its timber, which is strong and of a compact fine grain, and used for building purposes, common cabinet-making, &c. It attains a height of fifty or sixty feet, the trunk being frequently destitute of branches for the first thirty feet, but seldom more than twelve or fifteen inches in diameter. Its leaves are twice pinnate, and sometimes as much as three feet in length, consisting of a main stalk with several pairs of secondary stalks bearing numerous oval dull-green leaflets, except the lowest pair, which have a single leaflet. The flowers are whitish and borne in racemes from the angles of the leaves, the separate sexes being on different trees; their calyx is tubular and five-cleft, and the corolla of five equal-sized petals inserted into the top of the calyx tube, along with the ten short distinct stamens. The fruit is a hard flattened pod, from six to ten inches long, containing several flattish seeds imbedded in a mass of pulp. The common American name of this tree was given to it in consequence of the early settlers in Kentucky having made use of its seeds as a substitute for coffee, at a time when they could not procure the genuine article. The rough bark of the tree is excessively bitter, and contains *saponins*, a substance which, like soap, forms a lather in water. [A. S.]

GYMNOGENS, or GYMNOSPERMAS. Naked-seeded plants, forming a division of dicotyledons or Exogens considered by Lindley as a distinct class. It includes the *Coniferae* or pines and firs, *Taxaceae* or yews, *Gnetaceae* or joint-firs, and *Cycadaceae* or cycads. These orders are usually called naked-seeded because there is no proper ovary, the seeds being fertilized by the pollen coming into direct contact with the foramen of the ovule without the intervention of a stigma. Some authors have of late doubted the correctness of this statement, and have considered the so-called seeds as a bicarpellary ovary containing one seed. Gymnospermous plants are represented largely in the fossil flora of the secondary strata. [J. H. B.]

GYMNOGRAMMA. A genus of polypodiaceous ferns, having free forked veins and linear sori which are more or less frequently forked—that is to say, the sporocases, being distributed along a portion of the veins, are continued both above and below the points where the veins fork. The sori in some species are very much elongated, and form contiguous narrow lines over a great portion of the fertile fronds. In other species the under surface, and sometimes also the upper, is farinoseo ceraceous, and usually either of a white or yellow colour, these being the Gold and Silver Ferns so frequently seen in cultivation on account of the beauty of their coloured fronds. This genus contains two of the very few known annual ferns, *G. charophyllia* and *G. leptophylla*, the first a West Indian plant, the second scattered over nearly the whole of the temperate regions of the globe from Jersey to New Zealand, and found also in the Nelligherries and Cuba. The other species are widely dispersed, but chiefly found in tropical countries. [T. M.]

GYMNOGYNE *cotuloides*, which is the only known species of the genus, is a slender composite annual weed, peculiar to West Australia. Its unbranched stems, furnished with grassy leaves, are terminated by a single flower-head the size of a pea, and somewhat like those of *Cotula*. The outer florets are female and destitute of corolla (whence the name); and the inner male, with a tubular four-toothed corolla, and free anthers. The genus is related to *Euphrosyne*, differing in the many series of female florets, the four-toothed males, and the imbricated achenes. [A. A. B.]

GYMNOGYNOUS. Having a naked ovary.

GYMNOMESIDIUM. A genus differing but little from *Arum*, except in the presence of rudimentary flowers above the stamens, and not elsewhere. The ovaries contain several ovules. *G. pictum* is frequently met with in gardens under its former name of *Arum*. It is a native of Corsica, Sardinia, &c. [M. T. M.]

GYMNOPEATALUM. The name of a genus of *Ocubritaceae*, allied to *Bygonia*, and having a calyx with a contracted throat.

a five-parted corolla, anthers cohering into a cone, and an ovate beaked few-seeded fruit. [M. T. M.]

GYMNOPOGON. A genus of grasses belonging to the tribe *Chlorideæ*, having the inflorescence in panicles, with simple alternate brachlets; spikelets two-flowered; glumes two, keeled, nearly equal, or the lower shortest. There are about half a dozen species, all natives of Brazil excepting *G. racemosus*, which is North American. [D. M.]

GYMNOPSIS. A genus of composite plants, comprising about a dozen species, spread over America from Texas to Brazil. They are herbaceous or somewhat shrubby, with opposite three-nerved toothed nettle-like rough leaves, and axillary or terminal stalked yellow-rayed heads of numerous florets, those of the ray neutral, of the disk perfect. The achenes are seated on a convex receptacle, each enveloped in a chaffy scale and surmounted by a minutely toothed pappus-crown. The presence and nature of the pappus, together with the opposite triple-nerved leaves, are the chief features. [A. A. B.]

GYMNOPTERIS. A genus of polypodiaceous ferns belonging to the tribe *Pleurogrammeæ*, in which the linear-oblong sori are placed close to and parallel with the costa. In this group it is distinguished by its compoundly anastomosing veins, and by the fructification occupying distinct contracted fronds. The species have sometimes been referred to the *Acrosticheæ*, from which, however, the definite linear sori, confined to the receptacular veins, seem to separate them. They are all Eastern tropical plants. [T. M.]

GYMNOS. In Greek compounds = naked, or uncovered.

GYMNOSCHÆNUS. A genus of cyparaceous plants belonging to the tribe *Rhynchosporææ*. The inflorescence is in distichous two-flowered spikelets. Only one species is described, namely, *G. adustus*, a native of Van Diemen's Land. [D. M.]

GYMNOSIPHON. A small slender leafless herb, from the Indian Archipelago, forming a genus of *Burmanniaceæ*, scarcely differing from the tropical American genus *Dicystostegia*.

GYMNOSPERMA. A genus of *Compositæ*, receiving its name from its chief distinguishing feature, namely, the naked achenes (without pappus). The two species, found in Texas and Mexico, are smooth glutinous shrubby plants, with twigg stems furnished with linear entire leaves, and terminating in corymbs of numerous small yellow flower-heads, each containing from eight to fourteen florets, those of the ray strap-shaped and pistillate, and those of the disk tubular and perfect. [A. A. B.]

GYMNOSTACHYS. An East Australian perennial, with a thick rootstock, and grassy leaves, from among which rises a two-edged stalk or scape, bearing towards

its summit a number of clustered slender spikes or spadices, each having at its base a short keeled spathe; stamens four; ovary one-celled; fruit succulent, blue, one-seeded. *G. anceps*, the only species, is in cultivation. The genus is nearly allied to *Acorus*, and is included with it among *Oronticeæ*. [M. T. M.]

GYMNOSTACHYUM. A genus of *Acanthaceæ* with the habit of *Branthemum* and *Cryptophragmium*. It comprises dwarf herbs, with spreading often variegated leaves, and erect spike-like racemes of tubular flowers. The calyx is five-parted nearly equal; the corolla two-lipped, with the upper lip bidentate; the stamens two, with the anther-cells parallel; the stigma bifid; and the capsule columnar and four-cornered. *G. ceylanticum*, a Ceylon species, is a pretty stove-herb, with the leaves variegated with white along the course of the veins; and *G. Verschaffeltii*, from Para, is a still prettier plant with the numerous reticulated veins coloured red, as occurs in *Hæmadietion venosum*. They are chiefly interesting on account of their prettily marked foliage. [T. M.]

GYMNOSTEPHIUM. A genus of composite plants peculiar to South Africa. The three known species are herbaceous or somewhat shrubby plants, with alternate linear entire leaves, and small solitary stalked flower-heads terminating the twigs, the ray florets strap-shaped and blue, the disk tubular and yellow. The achenes of the ray being without pappus, and those of the disk being sterile, suffice to distinguish these plants from daisies and their other allies. [A. A. B.]

GYMNOSTOMUM. A genus of acrocarpous mosses, formerly containing almost every moss destitute of a peristome, but now restricted to those species which differ only in this character from *Weissia*. The species mostly, though not exclusively, inhabit temperate regions. [M. J. B.]

GYMNOSTYLIS. Under the name of *G. anthemifolia* is sometimes cultivated in botanic gardens a stemless South American herb with chamomile-like leaves, and clusters of small woolly flower-heads sitting in their midst. The plant is usually placed in *Solva*. [A. A. B.]

GYMNOTETRASPERMOUS. Having such a four-lobed ovary as is found in labiates, which was formerly thought to consist of four naked seeds.

GYMNOTHECA. A small genus of marattiaceous ferns, separated from *Marattia* on account of the absence of an involucre beneath the sorus. They are the same in habit and in general aspect, having large globose scaly rhizomes, and ample bipinnate fronds, with articulated pinnules. The typical species is *G. cicutifolia*. [T. M.]

The name has also been given to a Chinese herbaceous plant with the habit of *Saururus*, and referred to the *Saururaceæ*. The flowers are small, placed on spikes, in the axils of small somewhat fleshy bracts;

stamens six, inserted on the top of the ovary (1), which is inferior, one-celled, with four parietal placentae; ovules numerous; styles four. (*Decaisne*.) [M. T. M.]

GYMNOTHRIX. A genus of grasses belonging to the tribe *Panicæ*, joined by Steudel with *Pennisetum*. [D. M.]

GYNAION. A genus of *Cordiaceæ*, containing a single species from the Himalayas. It is a woody plant with alternate or sub-opposite elliptical entire leaves, and flowers in cymes at the ends of the branches. The calyx is unequally four to six-lobed; the corolla funnel-shaped, with the limb divided into four to six obovate-oblong lobes; the five stamens have hairy filaments; and the four-celled ovary is globose and glabrous, perforated at the apex, without style or stigma. This remarkable plant has the habit of *Varronia rotundifolia*, but differs from it in the structure of the flower, which seems to be the monstrous flower of a *Cordia* wanting the style and stigma; it differs from *Cordia* in the structure of the calyx and corolla. [W. C.]

GYNANDROUS. Having the stamens and style and ovary all blended into one common body, as in orchids, *Aristolochia*, &c.

GYNERIUM. A genus of grasses belonging to the tribe *Arundinæ*, and distinguished chiefly by the species having showy flower-panicles, the spikelets of which are two-flowered, the male and female flowers on distinct plants. Steudel describes six species, which are natives of Brazil and Chili, save one, *G. zelandicum*. That which is best known and cultivated in Britain is *G. argenteum*, the Pampas grass, so called from its being a native of the vast plains of South America called Pampas. This splendid grass has proved sufficiently hardy to withstand the rigours of our winters in Britain without protection; and blossoming as it does in October, when most other flowers are past, its value is much enhanced. Few plants produce a finer effect than good tufts of this grass, either when cultivated singly on lawns, or in the front of shrubberies, where evergreen plants afford a dark background, as a contrast to its large silvery-white feather-like panicles. Under favourable circumstances, the culms rise from ten to twelve feet high or upwards, forty, fifty, or occasionally more, springing from one plant. This Pampas grass was first introduced to Europe in 1843, through seeds sent from Buenos Ayres by Mr. Tweedie to the Glasnevin Botanic Garden, and it is now cultivated in most gardens of note throughout Great Britain, as well as on the continent of Europe, and in Australia. [D. M.]

GYNIXUS, or GYNIZUS. The depressed stigmatic surface of orchids.

GYNOBASE. The growing point inserted between the base of carpels in a conical manner, so as to throw them into an oblique position.

GYNOCARDIA. A genus of *Pangiaceæ*, differing from others in the very numerous stamens (about a hundred), and in the sterile flowers, whose anthers are fixed by the base. *G. odorata*, the only known species, is a handsome East Indian tree, abundant in hot valleys in the Sikkim Himalaya and Khasya, comparable to the common sycamore for size, having glossy entire alternate leaves, and yellow sweet-scented flowers an inch and a half across, growing in clusters generally from the old wood, the different sexes on separate plants. They have four or five calyx leaves, a like number of petals and scales opposite them, numerous stamens in the sterile flowers, and a few abortive ones in the fertile, surrounding an ovary which is tipped with five short styles. The fruits are globular ash-coloured berries the size of a shaddock, and enclose numerous seeds, imbedded in pulp. According to Roxburgh, the seeds contain an oil; and are beaten up with clarified butter, and used by the natives as a remedy for cutaneous diseases. [A. A. B.]

GYNOCEPHALIUM. A Japanese climbing shrub, belonging to the *Artocarpaceæ*. The leaves are heart-shaped and undivided; the female flowers are globular, the male in panicle heads. The genus is closely allied to *Conocephalus*, but is distinguished from it by the four-parted perianth of the male flower, the cleft style, and the crumpled seed-leaves. [M. f. M.]

GYNECIUM. The pistil and all that belongs to it.

GYNOPHORE. The stalk of the ovary, within the origin of the calyx.

GYNOPLEURA. A genus of Chilian herbs, with entire or lobed leaves, and yellow flowers in terminal clusters or tufts. They belong to the *Malosherbiaceæ*, and are known by their bell-shaped calyx, five petals inserted outside an annular membranous slightly toothed corona, which is attached to the throat of the calyx; and five stamens, inserted at the base of a short stalk that supports the one-celled ovary. [M. T. M.]

GYNOSTEMIUM. The column of orchids; that is to say, the part formed by the union of stamens, style, and stigma.

GYNOSTEMMA. A genus of *Cucurbitaceæ*, of tropical and subtropical Asia, having entire or lobed leaves, panicle unisexual flowers, a two-ranked calyx, no corolla, five monadelphous stamens, and a half-inferior ovary. Fruit succulent, with three or four one-seeded stones. [M. T. M.]

GYNOXIS. A genus of composite plants confined to America, and there found from Guatemala southward to Peru. They are nearly related to *Senecio*, and chiefly differ in the style-branches being prolonged into conical hispid points, instead of being obtuse. Some are trailing bushes with alternate lance-shaped or ovate leaves; and the yellow flower-heads few and large,

or numerous small and arranged in corymba. Another and larger group, which is restricted to the Andean regions of Ecuador and New Grenada, are erect opposite-leaved bushes or small trees, with white or yellow rayed or rayless flower-heads, resembling those of our own groundseils. This latter group M. Weddell keeps alone in the genus, and places the former with true groundseils. To the latter belongs *G. fragrans*, the only species known in cultivation, a scandent bush with somewhat fleshy ovate leaves, and pale yellow fragrant flowers, the heads about an inch across and disposed in loose corymba at the ends of the twigs. About twenty species are enumerated. [A. A. B.]

GYNERA. A genus of the compositae family, containing upwards of twenty species, all found in the tropics of the eastern hemisphere, occurring in greatest numbers in India and its Archipelago. From *Senecio*, to which it is closely allied, it differs in the style-branches having long protruding points. Many of the species are coarse perennial weeds, with distantly toothed or pinnatifid leaves, the angular stems terminating in corymba of rich yellow flower-heads, whose florets are all tubular. Other species are scrambling undershrubs. The rootstocks in some are thick and fleshy, and not unfrequently the leaves are of a fine purple colour underneath, which is the case with the *G. bicolor*, a species from the Moluccas, cultivated in hothouses for the sake of its leaves, and having rich orange-coloured flower-heads disposed in loose corymba. [A. A. B.]

GYPSOCALLIS. *Erica*.

GYPSOPHILA. A genus of annual or perennial evergreen herbaceous plants belonging to the *Caryophyllaceae*, in the alsiaceous division of which they are distinguished by having the calyx campanulate, angular, somewhat five-lobed, the margins membranous; five petals without claws; ten stamens; two styles; and a one-celled capsule. The species, which are numerous, have leaves like those of the pink, and small white or pink flowers, which are usually disposed in diffuse panicles. They inhabit various parts of Europe and Asia, growing mostly in rocky or stony places, especially in a limestone soil. Some of them are occasionally cultivated as border plants, or on rockeries. [C. A. J.]

GYRANDRA. A Mexican perennial with the habit of a *Chironia*, and forming a genus of *Gentianaceae*. The flowers have a five-parted wheel-shaped purple corolla, into the throat of which are inserted the stamens, whose showy yellow twisted anthers give a distinguishing character and name to the genus. [M. T. M.]

GYRATE. The same as *Circinate*; curled inwards like a crotler.

GYRINOPSIS. An aquilariaceous shrub of the Philippine Islands. The perianth is coloured and funnel-shaped, with a five-cleft

limb; and there are ten short hairy scales placed in pairs opposite the lobes of the perianth. [M. T. M.]

GYROCARPUS. A genus of apetalous Exogens, consisting of trees having polygamous flowers, natives of the East Indies and tropical parts of America. The leaves are alternate, undivided or lobed, and the flowers are collected in dense panicles. The calyx in the hermaphrodite flowers is superior, and four to eight-lobed; the stamens four, with glands interposed, and the anthers remarkable for opening by valves which turn upwards. The ovary, which is completely adherent to the tube of the calyx, is one-celled with one pendulous ovule, the style slender, and the stigma obtuse. The fruit is nut-like, two-winged at the apex, from two of the lobes of the calyx enlarging while the others fall off. The male flowers have the same lobed calyx and stamens as the hermaphrodite. This genus is very near *Illigera*, from which it differs in its fruit being winged at the apex, not on the sides, and in common with it is nearly allied to *Lauraceae* and *Combretaceae*, with the latter of which families it has been combined. It is sometimes considered as the type of a distinct family, and separated under the name of *Gyrocarpaceae*. See also *ILLIGERA*. [B. C.]

GYROMA, or GYRUS. The ring or articulated circle which surrounds the apothecases of ferns; also a button-like shield, such as is found among lichens in the genus *Gyrophora*.

GYROPHORA. A genus of lichens belonging to the order *Pyxizet*, distinguished by its curiously convoluted fruit, a number of disks being produced in a proliferous manner within the original fruit. The species grow on rocks and large boulders, and are remarkable as supplying the Tripe de Roche of the Arctic voyagers, so called from the bullate dilated frond. The bitter principle is so strong in these plants, that, though they have considerable nutritive qualities, they do not agree as an article of food with many constitutions. *Umbilicaria*, which is distinguished by the more simple disks, supplies also a part of the Tripe, which is collected without much discrimination of species. [M. J. B.]

GYROSE. Bent backwards and forwards as the anthers of cucurbits.

GYROSELLE. (Fr.) *Dodecatheon*.

GYROSTEMON. A genus of *Phytolaccaceae*, consisting of small branched shrubs from South-western Australia with alternate linear semi-cylindrical mucronate leaves, and solitary axillary stalked dioecious flowers, with a six or seven-lobed calyx; the males have numerous stamens, in several rows, the females many carpels placed round a thick central axis. The fruit is obovate, of many membranaceous cocci, in a single row. This latter character distinguishes it from *Odonocarpus*, which has the cocci arranged in more than one row. [J. T. S.]

HAAGHA. A genus of *Begoniaceae*, called after Haage, an Erturt horticulturist. The flowers are rose-coloured, monoclones, with two perianth leaves; the staminate ones with numerous stamens; and the pistillate ones with an inferior three-celled equally three-winged ovary, a three-parted smooth persistent style, and broadly expanded stigmas, surrounded by a papillose band twisted once spirally. The only species, *H. dipetala*, a shrub with semicordate petiolate leaves, and pendulous floral cymes, native of the East Indies, was formerly called *Begonia dipetala*. [J. H. B.]

HABEL-ASSIS. (Fr.) *Cyperus esculentus*.

HABENARIA. A well-known extensive genus of terrestrial tuberous-rooted orchids, more or less generally distributed, though most numerous in India and Africa. It is represented in Britain by *H. viridis*, *H. bifida*, and *H. chlorantha*, the first known as the Frog Orchid, the two last as the Butterfly Orchid. These two are very similar, having a stem a foot high or more, with two oblong obtuse leaves at the base, above that a few narrow green bracts, and then an erect terminal spike of very fragrant long-spurred white flowers. The difference between the two is, that in *H. chlorantha* the flowers are larger, the throat or the nectary or spur much wider, and the two pollen-masses more distant from each other. For a most interesting account of the mode of fertilisation in these two plants, see Mr. Darwin's book, *On the Fertilisation of Orchids*. Some of the Indian species are notable for the length of spur, as in the appropriately named *H. longecalcarata*, where, with flowers an inch across, the spur is four inches in length. The habit of most of the species is similar to that of our native *Orchis*, to which they are closely related, differing chiefly in the two glands of the pollen-masses being inserted into separate pouches instead of into a common one. The flowers vary much in colour, some being green, others rose, a goodly number golden yellow, but the greater part white, and usually very fragrant. [A. A. B.]

HABINE. (Fr.) *Dolichos melanophthalmus*.

HABIT. The general appearance of a plant; its manner of growth, without reference to details of structure.

HABITAT. The situation in which a plant grows in a wild state.

HABLITZIA. A perennial Caucasian twining herb, of the order *Amaranthaceae*, with a turnip-shaped root and furrowed stem, large alternate long-stalked glabrous cordate-acuminate entire leaves, and flowers in small cymes collected into dense axillary panicles; the perigone green and five-cleft, the stamens five. [J. T. S.]

HABRACANTHUS. A genus of *Acanthaceae*, containing three species from Mexico, herbs or shrubs with oblong or

oval leaves, and white or red flowers in terminal panicles or in few-flowered axillary cymes. The calyx is deeply five-parted, and the corolla ringent, with the upper lip falcate and entire, and the lower three-parted, there are two exserted diverging stamens, and the ovary is surrounded by a broad disk at the base, has four ovules near the middle, and is surmounted by an acute stigma. [W. G.]

HABRANTHUS. A genus of hippeastriform *Amaryllidaceae*, distinguished in that group, which has a narrow-mouthed perianth tube, by the perianth being declinate, but not convolute into a tube-like form as in the allied *Phycella*, and by the faucial membrane being annular. They consist of handsome South American bulbs, found principally in Chili, Monte Video, and Buenos Ayres. The plants have narrow two-ranked sacrid leaves, and a precocious scape which either is single-flowered or bears an umbel of few or many flowers of a crimson, scarlet, rose, purple, whitish, yellow, or red and yellow colour. The perianth is subcampanulate with a short tube, the limb more or less spreading, the stamens unequal inserted at the mouth of the tube, the faucial membrane annular, and the stigma three-lobed. [T. M.]

HABROTHAMNUS. A genus of beautiful Mexican shrubs, belonging to the *Solanaceae*. The flowers have a bell-shaped five-toothed calyx, a club-shaped tubular corolla, with the limb contracted and five-toothed; five stamens concealed within the corolla; and a button-shaped stigma. The fruit is succulent, surrounded by the calyx, two-celled, each cell containing a few seeds. The panicles of red or purple flowers are borne in abundance, and justify the name applied to them—which signifies graceful branch. [M. T. M.]

HABROZIA. A genus of *Scieranthaceae*, differing from the rest of the order in having the utricle adhering to the seed, and the calyx tube not constricted at the throat. It is a small annual oriental herb, with slender stems, setaceous leaves, and many-flowered terminal cymes. [J. T. S.]

HABZELIA. A small genus of *Anonaceae*, now united with *Xylopia*, having a wide geographical distribution, two species being found in Malaya, one in Upper Guinea, and the remainder in Guiana and Cuba. It belongs to the *Xylopiaceae*, and is distinguished from its allies by the torus being flat, instead of drawn up into a cone or hollowed out. The flowers are three-sided, having three sepals joined together at the bottom, and six petals arranged in two series, the inner ones being rather smaller than the outer. The fruit consists of numerous long nearly cylindrical pods, separate from each other, and containing a number of oblong seeds. The plants are either tall shrubs or trees about twenty or thirty feet high, and have long simple leaves of a leathery texture, from the base of which the flowers are produced either singly or in clusters. *H. ethiopica*,

a tall shrub, with pointed egg-shaped leaves, covered with whitish down underneath, but smooth and green above, is a native of Western Africa, where its fruit, which consists of a number of smooth pod-like carpels about the thickness of a quill, and two inches long, is dried and used instead of pepper, whence it is often called Negro-pepper, Guinea pepper, or Ethiopian pepper, and by old authors *Piper æthiopicum*. The fruits of *H. undulata* are used in the same way, as also are those of *H. aromatica*: indeed, it is probable that the fruits of all the species possess similar aromatic and pungent properties. [A. S.]

HACKBERRY. *Celtis crassifolia*; also *C. occidentalis*.

HACKMATAK. The American Larch, *Abies pendula*.

HACQUETIA. A genus of umbellifers, distinguished by having the limb of the calyx leaf-like and persistent, forming a crown to the fruit, which is contracted at the sides, each half having five narrow ribs. The genus was named in honour of Hacquet, who published an account of the Alpine plants of Carniola. *H. Epipactis*, the only species, is a small herbaceous perennial plant resembling an *Astrantia*, having digitate three-lobed leaves, and a single umbel of yellow flowers. [G. D.]

HADSNY. The narcotic Hashish, *Cannabis sativa*.

HÆMADICTYON. A genus of dogbanes, distinguished by the border of the corolla having five equal broad bent lobes, its tube having on its inside five small scales alternate with the lobes; the style ending in a head-like summit; and by five small glands being situate at the base of the seed-vessel, alternate with the divisions of the calyx. The name is from the Greek, and indicates the crimson tint of the leaf-veins. The species are climbing shrubs, natives of tropical America. [G. D.]

HÆMANTHUS. A genus of *Amaryllidaceæ*, consisting for the most part of South African bulbs, some few species being found in tropical Africa. It belongs to the amaryllidiform group, that with a solid scape, and the stamens not connected by a cup. The special characteristics are a regular perianth with straight tube, and a valveless fruit with a pulpaceous middle coat. The species are rather numerous. They have tunicated bulbs with the scales often two-ranked, and few leaves, often only two, which are thickish and plane, erect or lying flat on the ground. The scape is short, often with a pair of bracts at the base, sometimes coloured and terminating in an umbel of many crowded flowers, usually with a many-leaved spathe, the leaflets of which are erect, often coloured, and longer than the flowers. The flowers are red or white, sometimes very showy. The perianth is six-cleft with erect or spreading segments, and a short tube; the stamens six, exserted; the style filiform, with a simple or obsoletely three-lobed

stigma; and the ovary three-celled, becoming a globose or oblong berry. [T. M.]

HÆMARIA discolor, or, as it has been called, *Goodyera discolor*, is a small herbaceous orchid of South China, having creeping succulent stems throwing out roots at intervals, bearing towards the apex a few ovate leaves, and ending in an erect flower-spike a few inches in length furnished with a number of crimson bracts. The leaves are nearly three inches long, green above, and crimson underneath; and the flowers are white and three-quarters of an inch across. The plant has altogether the appearance of a *Goodyera*, and differs chiefly from that genus in the sepals being like the petals and not herbaceous. It is cultivated in gardens for the sake of its beautiful leaves. [A. A. B.]

HÆMATITICUS. Dull red, with a slight mixture of brown.

HÆMATOCOCCUS. A genus of chloroperms, in which, however, some of the species have red, and some green spores, and probably for this reason the word *Gloeocapsa* has been substituted for it. The plants consist of a shapeless gelatinous mass made up of vesicles containing a variable number of spores which propagate the plant by cell-division, new cells being formed from the divided spores within the mother cell. The species are numerous, and are important as illustrating under a simple form the great principle of increase by cell-division. The individual plants closely resemble the gonidia of *Ephra*. Some of the species are, it is believed, merely an early stage of certain lichens. [M. J. B.]

HÆMATOCYBIS. *Cyrtosia*.

HÆMATOSTAPHIS. A small glabrous tree from tropical Africa, with pinnate leaves and long axillary panicles of small white flowers, forming a genus of *Anacardiaceæ*, allied to *Odina*, *Schinus*, &c., but differing from all in its trimerous irregular flowers, and in habit. The drupes of a deep crimson, collected in bunches resembling grapes, are eatable, and although acid are not unpleasant.

HÆMATOXYLON. The tree yielding the well-known Logwood of commerce is the sole representative of this genus of *Leguminosæ Cæsalpinziæ*. It is a native of the Bay of Campechy in Yucatan—whence it is named *H. campechianum*—and also of other parts of Central America, and has been introduced into, and is now naturalised in, many of the West Indian islands. The tree is one of medium size, seldom exceeding forty feet in height, with a trunk about a foot and a half in diameter, and having its smaller branches covered with white bark, often spiny. The leaves are pinnate, consisting of from three to four pairs of small smooth obversely egg-shaped leaflets; and the yellow flowers are produced in racemes from the bases of the leaves. The pod is flat, tapered to both ends, and contains two seeds, but

instead of splitting open along the edges, as many other pods do when ripe, its thin sides burst irregularly and allow the escape of the seeds.

Logwood, the produce of this tree, was one of the valuable commodities introduced into Europe by the Spaniards, during the early part of the century following the discovery of America by Columbus. Its use in England dates from the time of Queen Elizabeth, but the dyers of that period were so little acquainted with the chemical principles involved in the art of dyeing, that they failed to render its colours sufficiently permanent, and the prejudice against it consequently became so strong, that, in the twenty-third year of Elizabeth's reign, an act of parliament was



Hematoxylon campechianum.

passed prohibiting its use, and ordering it to be burned wherever found within the realm; and although it was subsequently surreptitiously introduced under the name of Black-wood, this law was not repealed until the time of Charles II., nearly a century afterwards. At the present day it is largely employed by calico-printers and cloth-dyers, and also by hat-makers, who use it, in combination with indigo and certain mordants, for imparting the fine black to silk hats. It likewise forms an ingredient in some of the commoner descriptions of writing-ink. Its properties depend upon the presence of a colouring principle termed *hematoxylin* or *hæmatin* by Chevreul.

Logwood occurs in commerce in logs about three feet long, and consists of the heart-wood of the tree, from which the sap-wood, which is light-coloured and valueless, has been removed. It is of a deep dull brownish-red colour, and very hard and heavy; and, for the convenience of dyers, it is cut into chips by means of powerful machinery. Our imports in 1860 amounted to 26,938 tons, the greater and most valued portion of which was the produce of Cen-

tral America; the remainder being from the West Indian Islands. [L. B.]

HÆMODORACEÆ. (*Vellozia*, *Blood-root*.) A natural order of epigynous monocotyledons belonging to Lindley's narcissal alliance of *Endogæa*. Perennial plants with fibrous roots, and sword-shaped equitant leaves, and bearing woolly hairs or scurf on their stems and flowers. Perianth tubular, six-divided; stamens three, placed opposite the segments of the perianth, or six; anthers introrse. Ovary three-celled, sometimes one-celled; style and stigma simple. Fruit usually capsular, opening by valves, covered by the withered perianth; embryo in cartilaginous albumen. Natives of America, the Cape, and New Holland. The roots of some of the plants yield a red colour—hence the name of the order. Bitterness exists in some of them. There are about a dozen genera, and fifty species. Examples: *Hæmodorum*, *Aletris*, *Vellozia*, *Barbaccina*. [J. H. B.]

HÆMODORUM. A genus of *Hæmodoraceæ*, consisting of perennial glabrous Australian herbs having fasciculate tubers, simple leafy stems, with half-sheathing plane or somewhat terete averse leaves, and corymbs or branched spikes of flowers, the perianth of which has a tube connate with the base of the ovary, and a limb of six narrow persistent segments, three stamens, and a three-celled ovary with filiform style and simple stigma. [T. M.]

HAGBERRY. *Cerasus Padus*; also *Celtis crassifolia*.

HAIMARADA. *Vandellia diffusa*.

HAIR, AFRICAN. The fibre of the leaves of the Palmetto, *Chamærops humilis*.

HAIRBELL. *Campanula rotundifolia*.

HAIR-BRANCH TREE. *Trichocladus crinitus*.

HAIR-POINTED. Terminating in a very fine weak point.

HAIR-SHAPED. The same as Filiform, but more slender, so as to resemble a hair; it is often applied to the fine ramifications of the inflorescence of grasses.

HAIRS. Small delicate transparent conical expansions of the epidermis, consisting of one or more cells.

HAIRY. Covered with short weak thin hairs.

HAIR-TRIGGER FLOWER. *Stylidium grammifolium*.

HAI-TSAI. A transparent gluten much used in China; the chief ingredient is supposed to be *Plocaria tenax*, a small seaweed.

HAKEA. A large proteaceous genus containing above one hundred species. It is distinguished by having a calyx irregularly four-cleft or with four linear or spatulate sepals, each lobe or sepal bearing on its concave apex an ovate sessile anther; a filiform style, and terminal or



oblique stigma; and a one-celled seed-vessel (follicle), which is generally woody, ovate or oblong and swollen, rarely globose, smooth or tuberculated, and often with two spurs. The foliage is extremely variable: in *H. acicularis*, *propinqua*, *pugioniformis*, *longicaulis*, *Cunninghamii*, *lorea*, &c., it is simple, filiform, occasionally furrowed, and the points mostly very sharp, the leaves in the last-named species being from eighteen inches to two feet in length; in *H. lasiocarpa*, *trifurcata*, &c., it is very narrow and flat; in *H. linearis*, *florida*, *thick-folia*, *prostrata*, &c., it is linear-lanceolate or ovate, with more or less spiny margins; in *H. cucullata*, *conchifolia*, and *Victoria*, it is broadly heart-shaped, with toothed margins; in *H. arborescens*, *Leucadendron*, *pandanicarpa*, *dactyloides*, &c., it is linear-spathulate and of a very leathery texture. The fruit of *H. pandanicarpa* is very large, and covered with conical tubercles. The leaves in *H. mimosoides*, *saligna*, *oleifolia*, &c., are either lanceolate or ovate. The genus consists generally of tall shrubs, or occasionally of small trees, as *H. lorea*, *Preissii*, *arborescens*, &c. Some of the species have been found in every portion of Australia and Tasmania that has yet been visited. [R. H.]

HALBERD-WEED. *Neurotoma*.

HALBERT-HEADED. Abruptly enlarged at the base into two diverging lobes, like the head of a halbert.

HALEDSCH. *Balanites aegyptiaca*.

HALENIA. A genus of Siberian herbaceous plants of the gentian family. Their flowers have a four-parted calyx; a four-cleft corolla whose segments are prolonged at the base into a spur; four stamens; and a one-celled ovary with a two-lobed stigma. *H. heterantha* is remarkable from its lower flowers having no spurs, while the upper ones are provided with them. [M. T. M.]

HALESIACEÆ. One of the names of the order *Styracaceæ*.

HALESIA. A genus of *Styracaceæ*, differing from the others in its two to four-winged fruits, which are one to two inches long, with a bony one to four-celled kernel. The Snowdrop or Silver-bell trees, as the species are commonly called, are natives of the United States. They are deciduous shrubs or small trees with alternate stalked ovate-oblong toothed leaves, an inch or two long when the plant is in flower, but much larger when mature. The flowers bear much resemblance to snowdrops, and are supported on slender drooping stalks, two or three together, arising from the buds of the preceding year. A tree about thirty feet high of *H. tetraptera* formerly stood in the Arboretum in Kew Gardens, flowering in May and June. The genus bears the name of Dr. Stephen Hales. [A. A. B.]

HALF. Sometimes used in the sense of one-sided; as *half-cordate*, which signifies cordate on one side only. — **MONOPETALOUS.** Having the petals united, but so

slightly that they easily separate. — **NETTED.** When of several layers of anything, the outer one only is netted; as in the roots of *Gladiolus communis*. — **STEM-CLASPING.** Claspings the base in a small degree. — **TERETE.** A long narrow body, flat on one side, convex on the other.

HALVED. When the inequality of the two sides of an organ is so great that one half of the figure is either wholly or nearly wanting, as the leaf of many *Begonias*.

HALIANTHE. (Fr.) *Arenaria peploides*.

HALIDRYS. A generic name given to the old *Fucus siliculosus*, which is a frequent inhabitant of our coasts, and distinguished at once from all other native *Algæ* by the pod-like jointed air-bladders. The only other representative of the genus, *H. osmundacea*, is found on the north-west coast of America. [M. J. B.]

HALIMEDA. A genus of calcareous green-spored *Algæ*, with the habit of the Indian fig, belonging to the natural order *Siphonææ*. The frond is composed, like *Caulerpa*, of a branched thread which traverses every part of the plant, but never has any articulations. The endochrome is at length resolved into minute zoospores. The species are all inhabitants of warm seas. *H. Opuntia* is widely diffused, and is found in the Atlantic and Pacific oceans, and also in the Mediterranean and Red seas. The plants grow in sand or amongst fragments of shells, being attached by a mass of fine thread-like roots, which grasp the particles of sand &c., and form a little ball. [M. J. B.]

HALIMUS. A group of *Thenopodiaceæ*, allied to *Atriplex*, but now sunk under the genus *Oblione*; it is, however, retained as a section of the latter, distinguished by having the perigone surrounding the fruit closed, and joined by the whole length of their sidea. *Oblione pedunculata*, an annual, found, though rarely, in salt marshes in the south-east of England, belongs to this section; it has alternate obovate or oblong slightly fleshy leaves, with a mealy covering, and axillary glomerules of small flowers arranged in interrupted spikes. The fruit is remarkable from the pedunculated obcordate fruiting bracts. [J. T. B.]

HALLERIA. A genus of *Scrophulariaceæ*, consisting of erect glabrous shrubs, with opposite ovate evergreen leaves, and showy scarlet flowers, solitary or clustered in the upper axilla. The shape of the corolla is nearly that of a *Penstemon*, but the calyx is broad and cup-shaped; there is no rudimentary fifth stamen, and the fruit is a berry. There are three species known, all natives of the Cape Colony in South Africa.

HALLIA. A genus of *Lepumtnosæ* peculiar to South Africa, consisting of a few erect or decumbent perennial herbs, with slender angled or winged stems, simple heart-shaped or lance-shaped leaves, and in their axilla solitary or twin stalked flowers, nearly the size of those of a vetch,

and violet-coloured. The genus is most nearly related to *Alhagi*; but they are spiny erect bushes, with more than one seed to the pod, while here the habit is very different, and the minute compressed pods have but one seed. Linnæus named the genus after Berger Martin Hall, one of his pupils. [A. A. B.]

HALOCNEMUM. A genus of *Chenopodiaceæ*, allied to *Salicornia*, but having the perigone of three scale-like leaves, not monophyllous. They are small leafless jointed-stemmed plants, with the flowers collected into terminal spikes, much as in *Salicornia*. They occur chiefly in Southern Russia, Siberia, &c. [J. T. S.]

HALODENDRON SATINÉ. (Fr.) *Haltmodendron argenteum*.

HALODULE. A genus of *Naiadaceæ* allied to *Zannichellia*, of which it has the habit, but with diœcious flowers; the leaves resemble those of *Zostera* in miniature. The plant grows in estuaries in Madagascar. [J. T. S.]

HALOGETON. A genus of *Chenopodiaceæ* allied to *Salsola*, but having the seed vertical instead of horizontal. They are herbs or small shrubs found in Southern Russia, Siberia, Persia, &c., with alternate or opposite fleshy scmi-cylindrical leaves, and axillary glomerules of flowers, of which the perigone is furnished with transverse wings when in fruit. The seeds of *H. tamariactifolium*, a Spanish species, are called Spanish Wormseed from their anthelmintic properties. [J. T. S.]

HALOPHILA. A genus of small herbaceous plants growing in salt marshes in Madagascar and elsewhere, usually referred to the *Podostemaceæ*, but excluded by Tulasne in his elaborate treatise on that order. They are plants of little general interest, having unisexual flowers, with a two-leaved perianth, and three stamens; and in the female ones, a stalked one-celled ovary. [M. T. M.]

HALORAGACEÆ. (*Haloragaceæ*, *Hippurideæ*, *Cercodiaceæ*, *Hydrocaryeæ*, *Hippurideæ*.) A natural order of calycifloral dicotyledons, belonging to Lindley's myrtal alliance of epigynous Exogens. Herbs or undershrubs, often aquatic, with alternate opposite or whorled leaves, and small frequently incomplete flowers. Calyx adherent, with a minute limb; petals inserted into the upper part of the calyx, or absent; stamens attached to the calyx; ovary with one or more cells; ovules pendulous anastropal. Fruit dry, not opening; seeds solitary, pendulous. The plants may be regarded as an imperfect form of *Onagraceæ*. They are found in damp places, ditches, and slow streams, sometimes submerged, in all parts of the world. [Bentham and Hooker, in their *Genera Plantarum*, include the order *Gunneraceæ*, represented by *Gunnera*, and also the genus *Callitriche*, a very anomalous genus which some botanists regard as forming a distinct natural order.] *Hippuris*

vulgaris is the common mare's tail of our ponds. There are about ten genera and eighty species. Examples: *Hippuris*, *Myriophyllum*, *Haloragis*, *Loudonia*, *Gunnera*. [J. H. B.]

HALORAGIS. A genus of *Haloragaceæ*, differing from the greater number of plants of this order, in not being aquatic. They occur in tropical Asia, and more abundantly in Australia and New Zealand. Their lower leaves are opposite, the upper often alternate; and the flowers are axillary, solitary or aggregated, combined into spikes, racemes, or even panicles. *H. citriodora*, the Firi-firi of the New Zealanders, has scented leaves. [J. T. S.]

HAMADRYAS. A genus of *Ranunculaceæ* from the Antarctic regions. More or less silky herbs, with palmately-parted or undivided leaves, and scapes with one to three flowers, the calyx and corolla externally hairy, the former with five or six sepals, the latter with ten or twelve long linear subulate petals. The flowers are diœcious by abortion, and the female ones have an ovate globose head of pistils terminated by hooked styles. [J. T. S.]

HAMAMELIDACEÆ. (*Witch Hazels*.) A natural order of calycifloral dicotyledons, belonging to Lindley's umbellal alliance of epigynous Exogens. Trees or shrubs with alternate feather-veined leaves having deciduous stipules. Calyx four to five-divided; petals four, five, or wanting; stamens eight, the anthers introrse; ovary two-celled, inferior; ovules solitary or several; styles two. Fruit two-valved; seeds pendulous, albuminous. In some of the plants there are circular disk-like markings in the woody tubes. Natives of North America, Asia, and Africa. There are seventeen known genera, including *Hamamelis*, *Rhodoletia*, and *Bucklandia*. [J. H. B.]

HAMAMELIS. A genus of the witch-hazel order, distinguished by its calyx being four-parted; the corolla of four petals; the stamens four, alternate with the petals, and having four-scale-like bodies—rudimentary stamens—opposite the petals. The name was adopted from a Greek term used to indicate resemblance to an apple tree, a comparison which is scarcely applicable. The species are shrubs of North America and China, with alternate leaves, and usually yellow flowers. *H. virginica* has been long known in cultivation. It has obovate toothed leaves, and is widely diffused in North America, attaining a height of ten or twelve feet, its yellow flowers appearing in the fall of the year, and its fruit ripening in spring. Its seeds contain a quantity of oil, and are edible; while the leaves and bark are astringent. It is employed as a remedy in various ways by the aborigines. [G. D.]

HAMATO-SERRATE. When serratures have a somewhat hooked form.

HAMELIA. Tropical American shrubs, forming a genus of *Cinchonaceæ*, named in honour of M. du Hamel, a noted French vegetable physiologist. The flowers are

orange-coloured and tubular; stamens five, concealed within the corolla; ovary five-celled, surmounted by an epigynous disk; style simple; stigma undivided; fruit succulent, five-celled, with numerous seeds in each compartment. *H. patens* and other species are in cultivation as stove plants, and have handsome flowers. [M. T. M.]

HAMELINIA. A genus founded by Richard on imperfect female specimens of *Astelia Banksii* or *Solandra*, and consequently not adopted by other botanists who have had better opportunities of examining these species. [J. T. S.]

HAMI (adj). **HAMATE, HAMOSE.** Hooks, hairs, or small spines which are hooked at the point.

HAMILTONIA. Indian shrubs with fragrant flowers, constituting a genus of *Cinchonaceae*. The flowers have a funnel-shaped corolla with a long tube and a limb divided into five oblong lobes; stamens five, concealed within the tube of the corolla; ovary inferior, five-celled; style simple; stigma with five acute segments; capsule one-celled, with five one-seeded stones. *H. aureolens* and *H. scabra* are cultivated in stoves, for the sake of their white fragrant flowers. [M. T. M.]

HAMMERSEGE. *Carce hirta*.

HAMPEA. A genus of the *Bombac* family peculiar in the nature of its fruits, which are rusty-coloured capsules of the size of a cherry, bursting into two or three portions, each portion containing a single seed with a fleshy aril at its base. There are but two species, one a Mexican bush, the other a tree of New Grenada. Both have alternate long-stalked leaves, like those of the common poplar but larger; and bear on the same tree sterile and fertile white flowers, about half an inch across, solitary or two to three together in the axils of the leaves. They have a bell-shaped calyx with an entire border, five narrow petals slightly united at the base, and numerous stamens of unequal length; or, in the fertile flowers, a few barren stamens united into a ring inserted on the base of the petals, and surrounding the ovary. [A. A. B.]

HAMULOSE. Covered with little hooks.

HAMULUS. A kind of hooked bristle found in the flower of *Ucuiua*. Schleiden regards it as a third glume, free from the two which form the flask.

HANBURYA mexicana is the sole representative of a genus of *Cucurbitaceae* peculiar to the mountains near Cordoba, Mexico, and named after Daniel Hanbury, a distinguished London pharmacologist. It is a climber, having a pentagonal stem, furnished with simple tendrils, cordate leaves, axillary or terminal white and monoecious flowers, the males being arranged in racemes, whilst the females are solitary in the axils of the leaves. The calyx and corolla are bell-shaped; the ovary is four-celled, each cell containing

one seed; and the fruit is oval, covered with long spines, and bursting open like that of *Momordica*, propelling the flat circular seeds (resembling those of *Fendile*) to some distance. The Mexican squirrels are fond of eating the seeds, but, being unable to open a fruit so well protected by spines, they wait in the morning for the time when the first rays of the sun fall upon the ripe ones and cause them to burst. The Mexicans term the plant Chayotilla, from the close resemblance of its fruit to that of the cayotl or chayota (*Sechium edule*). [B. S.]

HANCHINOL. The Mexican name for *Hennu salicifolia*.

HANCORNIA. A small genus of *Apocynaceae*, found in Brazil, and forming small trees or shrubs, abounding in all parts with a viscid milky juice, which is one of the sources of caoutchouc. They have entire opposite leaves, marked with pellucid veins; and sweet-smelling flowers resembling those of the jasmine. The calyx is five-parted, without glands; the corolla has a long narrow tube, hairy inside, and the five segments spread out when the flower opens, but are previously rolled round each other; the five stamens are inserted into the middle of the tube; and the ovary is divided into two cells, and has a long thread-like smooth style, and a forked stigma. The fruit is a large globose or pear-shaped fleshy berry, exuding a milky juice when wounded, and containing numerous hard seeds lying in pulp.

H. speciosa is a small tree somewhat resembling the weeping-bursh in habit, with drooping branches, and small oblong leaves, sharp at the base, and rounded but with a short point at the apex. It is called Mangaba or Mangava, and bears a most delicious fruit, which is a great favourite with the Brazilians, but is only fit to eat when perfectly ripe, or after being kept for a short time. It is about the size of a plum, of a yellow colour marked with red spots or streaks. The milky juice of the tree, when exposed to the air, hardens into a kind of caoutchouc. [A. S.]

HAND-PLANT. *Cheirontemon platynoides*.

HANNEBANNE. (Fr.) *Hyoscyamus niger*.

HANNOA. The name of a Senegambian tree, forming a genus of *Simarubaceae*. The flowers are unisexual, the males with the sepals combined into a somewhat two-tipped calyx, and the rudimentary ovaries concealed within a large disk. The female flowers are not known. [M. T. M.]

HAPLANTHUS. A genus of *Acanthaceae*, containing three species, natives of India. They are erect branching herbs, with ovate petiolate leaves, and flowers in few-flowered terminal racemes furnished with small bracts. The calyx is five-parted, the corolla funnel-shaped, with an unequally five-cleft limb; the two stamens

are included; and the capsule is linear and flattened, with several seeds. [W. C.]

HAPLODESMIUM. A genus of *Melastomaceae*, consisting of a shrubby branching small-leaved plant, with elliptical leaves and tetramerous flowers. The calyx is campanulate, its teeth nearly equalling the tube; the petals oblong-ovate, blunt; the stamens eight equal; and the ovary free, four-celled. The fruit is a four-valved capsule crowned by the persistent teeth of the calyx. *H. Lindenianum*, a native of the Andes about Truxillo, grows at an elevation of from 4,000 to 12,000 feet. [J. H. B.]

HAPLOLENEÆ. A tribe of frondose *Jungermanniaceæ*, characterised by a one-leaved involucre without any true perianth (the sheathing tube being merely the veil), a spherical capsule, and dichotomous ribbed fronds. Sometimes the rib is confluent with the margin. This tribe contains some of the finest of the frondose liverworts, vying with the smaller *Hymenophylla* in beauty and delicacy of frond (see *SYMPHYOGYNA*). *Pellia epiphylla* is a well-known British representative. [M. J. B.]

HAPLOPAPPUS. An American genus of *Compositæ*, distinguished from its allies in the *Solidaginæ* by the oblong or top-shaped more or less silky achenes being crowned with a pappus of rigid (not capillary) bristles. Some are North American, but the greater number are Chilean, and some of them inhabit the high Andean regions. They are mostly perennials, with alternate lance-shaped or oblong leaves, and twigs terminated by yellow-rayed flower-heads, though in some the heads are without rays. A few are nearly stemless, with leaves like those of the daisy but sharply toothed, while others have pinnatifid downy leaves. A shrubby Chilean species, *H. Baylahuen*, with glutinous stems, and spatulate unequally-toothed leaves embracing the stem by their narrowed base, is used by the Chileans, according to M. Gay, in the treatment of various diseases in their domestic animals, and is called by them Baylahuen. [A. A. B.]

HAPLOPHLEBIA. *Alaphila*.

HAPLOPETALUM. A genus of *Leguminosæ*, which tribe Mr. Benthams refers to the order *Rhizophoraceæ*. The genus is thus characterised:—Calyx four-parted; petals four entire; stamens four or five times as numerous as the petals, inserted on the margin of a very short disk; lower part of the ovary, which alone contains the ovules, adherent to the calyx, the upper part detached. The species is a Pezomachus plant. [M. T. M.]

HAPLOPHYLLUM. A genus of perennial plants or undershrubs, natives of Southern Europe &c., and distinguished from *Ruta* by their simple leaves, and five to six-parted flowers, the filaments hairy on their inner surface, and the style thick towards the top. [M. T. M.]

HAPLOPTERIS. A genus of polypodiaceous ferns of the group *Pteridæ*, having simple coriaceous fasciculate fronds, on which the sori are linear continuous and marginal, with a broad firm marginal inflexed indusium opening along the inner edge. The veins are simple from a central costa. *H. scolopendrina*, the only species, a native of Bourbon, has quite the aspect of a broad-fronded species of *Vittaria* or *Ternstroemia*. [T. M.]

HAPLOSTADIUM. An Abyssinian umbellifer with radical twice-pinnated leaves, like those of a *Mium*, and simple umbels on simple or scarcely branched scapes. It was supposed to constitute a distinct genus, but is united by Benthams and Hooker with *Trachydium*.

HAPLOSTEMMA. A name proposed by Endlicher to receive a plant which Desrousseaux has referred to *Vincetoxicum*, from which it does not differ materially. [W. C.]

HAPLOSTYLUS. *Rhynchospora*.

HAPLOTAXIS. The same as *Aplotaxis*.

HARDENBERGIA. A genus of *Leguminosæ* found in Southern and Western Australia, and consisting of a few slender woody climbers, very similar in appearance, and all desirable as greenhouse plants from the profusion of their flowers. They are most nearly related to *Kennedia*, from which they are readily distinguished by their flowers being small and numerous, arranged in stalked racemes, instead of few and nearly as large as those of a pea. *H. monophylla*, a common greenhouse climber, has alternate smooth leaves, bearing a single lance-shaped or oblong leaflet two to three inches long, and prominently nerved. The racemes vary in length, but are generally longer than the leaves, and bear numerous usually blue flowers. The long carrot-shaped somewhat woody root of this plant is called by the colonists Sarsaparilla, and, according to Mr. Adamson, is used by the goldminers in infusion as a substitute for that root. Other species have three leaflets instead of one. The genus bears the name of Frances Countess Hardenberg, sister of Baron Hugel the eminent German traveller. [A. A. B.]

HARDHACK. *Spiræa tomentosa*.

HARDHAY. *Hypericum quadrangulare*.

HARDHEADS. *Centaurea nigra*.

HARDOCK, or HARLOCK. Probably the Burdock, *Arctium Lappa*.

HARDWICKIA. A small genus of East Indian trees, belonging to the *Cæsalpinia* group of *Leguminosæ*, and nearly related to the copalva-balsam trees of South America. The abruptly pinnate leaves in *H. binata* are composed of one, and in *H. pinnata* of three pairs of opposite unequal-sided somewhat oval leaflets; and the minute dull yellow flowers are arranged in a spiked manner in axillary or terminal panicles. Each flower consists of four or five sepals; eight to ten stamens, the alternate ones

shorter; and an ovary crowned with a short style, and a shield-like stigma. The lance-shaped pods are two to three inches long, compressed and one-seeded. Both species are trees of considerable size, and *H. binata* is said to yield a good timber suitable for many purposes. [A. A. B.]

HAREBELL. *Hyacinthus nonscriptus*. The name is also sometimes applied to the Hairbell, *Campanula rotundifolia*.

HAREBURN. *Arctium Lappa*.

HARESBANE. *Aconitum Lagootonium*.

HARESBEAR. *Verbascum Thapsus*.

HARESEAR. *Bupleurum*; also *Erythrum austracum* and *orientale*. — **BASTARD.** *Phyllis Nobla*.

HARE'SFOOT. *Ochroma Lagopus*; also *Trifolium arvense*, and *Davallia canariensis*.

HARE'S-LETTUCE, or HARE'S-PALACE. *Sonchus oleraceus*.

HARE'STAIL. *Lagurus ovatus*.

HARETHISTLE. *Sonchus oleraceus*.

HARICOT. (Fr.) *Phaseolus*. The ripe seeds of *P. vulgaris* and other species of kidney-bean are cooked under the general name of Haricots. — **A PIEDS.** *Phaseolus nanus*. — **A RAMER, BLANC, or COMMUN.** *Phaseolus vulgaris*. — **DE HOLLANDE.** *Phaseolus compressus*. — **DE LA JAMAÏQUE.** *Phaseolus lathyroides*. — **DESPAÏNE.** *Phaseolus multiflorus*. — **DE PRAGUE.** *Phaseolus sphaericus*. — **DE SOISSONS.** *Phaseolus compressus*. — **DE TONQUIN.** *Phaseolus tunkinensis*. — **EN ABBRE.** *Wistaria frutescens*. — **EN TOUFFE.** *Phaseolus nanus*. — **EN ZIGZAG.** *Phaseolus Mungo*. — **FLAGEOLET NAIN.** *Phaseolus tumidus*. — **LIMAÇON.** *Phaseolus Caracalla*. — **NAIN.** *Phaseolus nanus*. — **PRINCESSE.** *Phaseolus tumidus*. — **ROUGE D'ORLÈANS.** *Phaseolus vulgaris*.

HARIF, or HEIRIFF. *Galium Aparine*.

HARINA. A genus of East Indian palms, previously described under the name of *Wallichia*, by which they are most generally known. *Harina*, however, forms a section of the genus, characterised by having the male and female flowers upon the same plant, the males being in dense masses, and having an undivided calyx, and six stamens. [A. S.]

HARLANDIA. The glabrous climbing plant described under this name, and native at Hong Kong, is stated by Mr. Benthams to belong to the cucurbitaceous genus *Karibia*. [M. T. M.]

HARLOCK. Probably Burdock, *Arctium Lappa*.

HARPALYCE. A small genus of handsome erect pinnate-leaved bushes of Mexico and Brazil, belonging to the *Galega* group of the *Leguminosae*, and differing from its allies in the calyx being cleft nearly to the base and consisting of but

two narrow and entire segments nearly as long as the corolla. *H. brasiliensis*, a bush of four to eight feet high, clothed with a reddish velvety down, bears handsome scarlet pea-flowers disposed in a panicle or racemose manner towards the ends of the twigs. The Mexican species are smooth, and have purple flowers. In all, five of the ten stamens, which are united into a sheath, are shorter than the others, and have small rounded anthers. The pods are coriaceous, somewhat flattened, and many-seeded, and, as in *Cassia*, the seeds are separated by partitions. [A. A. B.]

HARPAGOPHYTUM. *Uncaria*.

HARPANEMA. * A genus of Madagascar *Asclepiadaceae*. It is a climbing shrub with opposite glabrous coriaceous leaves, and small flowers in compound axillary cymes. The calyx is five-parted; the corolla is rotate and five-cleft; the staminal corona consists of five linear bifid hooked processes alternating with the lobes of the corolla; the anthers have a fleshy apex bent down upon the stigma; and the pollen-masses are attached by fours to the stigmatic corpuscles. [W. O.]

HARRISONIA. The name of a shrub with prickly branches, found in the island of Timor, and referred to the *Simarubaceae*, among which it is known by the stamens being attached to hairy two-lobed scales; by the four-lobed ovary; and by the four styles, separate at the base, but united above. The same name has been applied to an asclepiad with scarlet flowers, now included under *Baxtera*. [M. T. M.]

HARSTRONG or KORESTRONG. *Pseudanemum officinale*.

HARTIGHSEA. A small genus of *Melastaceae* confined to the islands of the Indian Archipelago, New Zealand, the east coast of New Holland, and Norfolk Island. They are trees of moderate height, with large pinnate leaves, and long panicles of smallish flowers, which have a small four or five-lobed calyx, five narrow petals joined together by their bases, the tube of the stamens cylindrical and fleshy, with eight or ten rounded notches at the apex, and the three-celled ovary included within a tubular disk occupying the centre of the flower. *H. spectabilis*, a native of New Zealand, forms a tree forty or fifty feet high. Its drooping panicles of pale-coloured flowers measure from eight to twelve inches in length, and grow from the main trunk or older branches. The New-Zealanders call the tree *Kohu* or *Wahabé*. Its leaves have a bitter taste, and are employed as a substitute for hops, and a spirituous infusion of them as a stomachic medicine. [A. S.]

HARTOGIA. A genus of *Celastraceae* peculiar to South Africa, and represented by a single species, *H. capensis*, a small much-branched tree, with opposite lance-shaped serrated leaves, and small white numerous flowers in axillary cymes or panicles. The fruits are dry elliptical two-

colled two-seeded drupes, as large as a good-sized pea. The seeds being destitute of albumen, and not surrounded by an aril, are the distinguishing characters. John Hartog, whose name is commemorated in this genus, was an early Dutch traveller in South Africa and Ceylon. [A. A. B.]

HARTBALLS. *Elaphomyces*.

HARTSHORN. *Plantago Coronopus*.

HARTSTONGUE. *Scolopendrium*; also *Oleria cervina*.

HARTWEGIA *purpurea*. An epiphytal orchid of Mexico and Guatemala, with a short stem bearing a single lance-shaped leaf covered with brownish spots, and an erect wiry flower-scape a foot in length, with a few small bright pink flowers at the apex. It is closely related to *Epidendrum*; and is named after Mr. Theodor Hartweg, once collector in South America for the Royal Horticultural Society. [A. A. B.]

HARTWORT. *Tordylium*.

HARVEST-BELLS. *Gentiana Pneumonanthe*.

HARVEYA *capensis* is an erect simple herb, a parasite on the roots of heaths at the Cape of Good Hope; and constitutes a genus of *Scrophulariaceae* of the tribe *Gerardiæ*. It is nearly allied to *Aulaya*, and, like that genus, has four didynamous stamens, all bearing anthers, with one fertile ovate awned cell, and the other cell long and subulate but empty; it differs chiefly in its large inflated herbaceous calyx.

HASHISH. The Arabian name of the narcotic *Cannabis sativa*.

HASKWORT. *Campanula latifolia*.

HASSAGAY-TREE. *Curtisia saginea*.

HASSELQUISTIA. A genus of umbellifers distinguished by the petals of the central flowers being inversely ovate and slightly notched at the end, those in the circumference of the umbel spreading and two-cleft; by half of each fruit produced by the central flowers being abortive, the other partly folded round it; and by the fruits at the outer part of the umbel being flat with a thick winged border, slightly wrinkled. The genus was named by Linnaeus in honour of Hasselquist, a well-known Eastern traveller. The species are annual herbs, natives of Syria, and have the stems hairy. [G. D.]

HASSKARLIA. The name of a genus of Indian and Javanese *Pandanaceæ*. The fruits consist of three to five or rarely more ovaries united together, each one-seeded, the seeds being like those of the allied genus *Freyinetia*. [M. T. M.]

HASTATE. Shaped like the head of a halbert.

HATHER. The common Heath or Heather.

HAUSTORIUM. A small root which attaches itself to the surface of some other

plant, and lives by sucking it. A sucker, as in dodder, ivy, &c.

HAUTBOIS or **HAUTOÛY.** A kind of Strawberry, *Fragaria elatior*.

HAUTBOIS. (Fr.) *Sambucus nigra*.

HAVER. The Wild Oat, *Avena fatua*.

HAW. The fruit of the hawthorn, *Crataegus Oxyacantha*. —, **BLACK.** *Viburnum prunifolium*.

HAWKBIT. *Apargia*; also *Hieracium*.

HAWKNUT. *Buntium flexuosum*.

HAWKSBEARD. *Crepis*.

HAWKWEED. *Hieracium*.

HAWORTHIA. One of the subdivisions of the genus *Aloe*, consisting of small curious-looking and extremely interesting succulent herbs of South Africa, distinguished by having erect flowers, the perianth with a straight tube and two-lipped limb, the stamens adherent to the base of the perianth, and the capsule ribbed. Some of the species are remarkable for the translucent substance of their leaves, or for their elegant reticulated markings. [T. M.]

HAWTHORN. *Crataegus Oxyacantha*. —, **INDIAN.** *Rhaphiolepis*.

HAYLOCKIA. One of the bippeastriform *Amaryllidaceæ* referred to a separate genus. It is a small bulb, with hiemal very narrow linear leaves, and autumnal one-flowered concealed scapes bearing a solitary white flower stained with purple. This has a cylindrical tube enlarged at the mouth, and a regular limb, funnel-shaped below and partially spreading above; the filaments of alternate length, conniving, the sepaline inserted at the base of the limb, the petaline higher; and the style erect, with a three-cleft stigma. It is allied *ranthus*, and is found in Uruguay.

HAYMAIDS. *Glechoma*.

HAZEL. *Corylus Avellana*. —, **WITCH.** *Hamamelis*.

HAZELWORT. *Asarum europæum*.

HEAD-ACHE TREE. *Premna integrifolia*.

HEART. **FLOATING.** An American name for *Zinnanthemum*.

HEARTS-EASE. *Viola tricolor*.

HEART-SEED. *Cardiospermum*.

HEART-SHAPED. The same as Cordate.

HEART-WOOD. The central part of the timber of Exogens, hardened or altered by age.

HEATH. *Erica*. —, **BERRIED.** *Empetrum*. —, **IRISH.** *Menziesia* (or *Daboecia*) *polifolia*. —, **MOOR.** *Gypsocalitia*. —, **ST. DABOEC.** *Menziesia polifolia*. —, **SEA.** *Frankia*.

HEATHER. *Calluna vulgaris*. —, **HIMALAYAN.** *Andromeda fastigiata*.

HEATHWORTS. Lindley's name for the *Ericaceæ*.

HEAUMIER. (Fr.) *Cerasus vulgaris*.

HEBECLADUS. A genus of *Solanaceæ*, closely allied to *Atropa*. The name is given in allusion to the downy branches of the species. The corolla is funnel-shaped, with a large tube, longer than the calyx, the limb spreading, wavy, five-cleft, frequently with small teeth intermediate between the lobes. The species are natives of tropical America, and one of them, *H. biflorus*, with yellow flowers, is cultivated in our greenhouses. (M. T. M.)

HEBECLINIUM. A South American genus of *Compositæ*, closely allied to *Eupatorium*, differing chiefly in the elevated and villous instead of flat and naked receptacles on which the florets are seated. The species are herbaceous or somewhat shrubby plants with opposite leaves, and the twigs are terminated by corymbs of numerous white, purple, or rose-coloured flower-heads containing tubular florets with protruding styles. One of the most handsome is the Mexican *H. lanthium*, a good-sized bush, having the stems and branches clothed with rusty down, and the numerous flower-heads disposed in corymbs, and of a fine mauve colour. [A. A. B.]

HEBENSTREITIA. A genus of *Solaginaceæ*, containing sixteen species, natives of the Cape of Good Hope. They are undershrubs with alternate or scattered leaves, and membranaceous bracts surrounding the flowers. The calyx is monosepalous, and the corolla tubular at the base, with a somewhat one-lipped limb; there are four exserted stamens; and the deflexed style passes through a fissure of the corolla. (W. G.)

HECASTOPHYLLUM. The same as *Ecastaphyllum*.

HECUBÆA. A genus of *Compositæ* peculiar to Mexico, and there represented by a single species, *H. scorzoneraefolia*, a smooth unbranched herb about a foot high, furnished with a few alternate entire lance-shaped leaves, and terminal solitary long-stalked yellow-rayed flower-heads an inch or more across. The ray florets are strap-shaped and female, the strap deeply divided into three or five parts; and the disk florets are tubular, five-toothed, and perfect. The relationship of the genus is with the North American *Helenium*, from which it differs in the achenes being destitute of pappus. The analogy of the two genera is curiously expressed in the names they bear: *Hecuba* was the daughter of Diomedes, king of Thrace, and *Helenium* (*Helenium*) was one of her sons. [A. A. B.]

HEDAROMA. A name sometimes given to some involucrate species of *Genetyllia*.

HEDROMA. A genus of labiates almost confined to the American continent, but found in various countries from Brazil to Canada. They are annual or perennial

herbs or dwarf shrubs, with small leaves and whorls of flowers borne towards the tops of the branches. The genus is principally distinguished from its allies by having only the two lower stamens fertile, the two upper ones being either short and sterile, or altogether wanting; and by the corolla being short and never of a scarlet colour. *H. pulgioides*, the Penny-royal of America, is an annual, with numerous branches, small opposite egg-shaped leaves, and small pale-blue flowers. It is found in the United States from Carolina to Canada, and is extensively used for medical purposes, particularly in domestic practice, large quantities of it being brought to the markets for sale. An infusion or tea of it is a popular remedy for colds and pains in the legs. The whole plant has a strong pungent but pleasant scent, and a mint-like taste. [A. S.]

HEDERACEÆ. Another name for the order *Araliaceæ*.

HEDERA. A genus of *Araliaceæ*, consisting of evergreen climbing shrubs, with simple exstipulate leaves, and an umbellate inflorescence. The margin of the calyx is elevated and five-toothed, the petals five, not cohering at the apex, the stamens five, the style single with five obscure stigmas, and the berries five-celled. The common Ivy, *H. Helix*, one of our wild plants, is the badge of the Gordons. This well-known evergreen climber, which mantles and copes the picturesque ruin, adorns winter the bare trunks of deciduous trees, clothes the hedge-row banks of rural lanes, is admitted to various uses the decoration of our gardens, and 'tis by poets the emblem of friendship. Its stems cling by means of little rootlets to the walls or tree-trunks with which they come in contact, throwing out right and left their shining five-angled leaves, but after they have reached the summit of the object to which they cling, they branch out into woody bushy heads with simple leaves, bearing at the end of every twig a little umbel of yellowish flowers succeeded by dark-coloured berries. The plant is liable to much variation, and many interesting varieties are in cultivation. Many tropical species once referred here now form the genera *Oreopanax*, *Dendropanax*, *Agalma*, *Sciadophyllum*, &c. An ivy-clad ruin is shown in Plate 30. [T. M.]

HEDGEBELLS. *Calystegia sepium*.

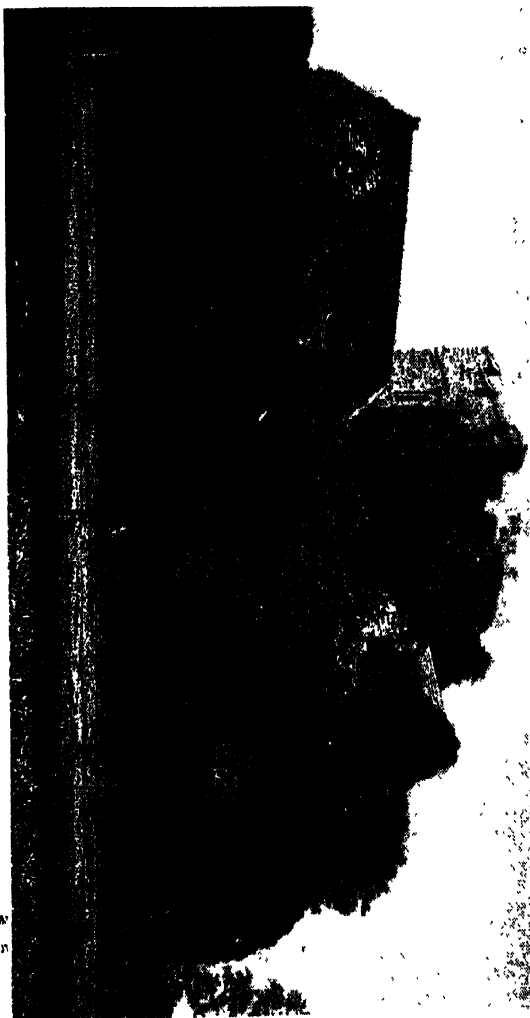
HEDGEBERRY. *Ceranus asium*.

HEDGEHOG. *Medicago holosericea*.

HEDGEHOUND. *Glechoma hederacea*.

HEDWIGIA. A West Indian tree, abounding in resin. It forms a genus of *Myricaceæ*, among which it may be distinguished by its four-parted flowers, and by its fruit, which is fleshy externally, furrowed, with four one-seeded stones in the interior. [M. T. M.]

HEDYCHIUM. The handsome and fra-



HOLY CROSS ABBEY, COVERED WITH IVY

grant flowers of some of the species of this genus of *Zingiberaceae* render them great favourites in the hothouse. They are plants with tuberous roots, herbaceous stems, clasping leaves, and a terminal spike inflorescence. The corolla consists of six segments in two rows, five nearly equal in size, the sixth or lip large notched or more deeply divided; the filaments thread-like; and the fruit capsular. The species are natives of tropical Asia. [M. T. M.]

HEDYOSMUM. A genus of fragrant resin-bearing shrubs belonging to the *Chloranthaceae*. They have unisexual flowers, the males in close spikes without bracts, the females solitary or in groups of four, sessile, provided with bracts; ovary triangular. The species are natives of Brazil and other districts of tropical America. Some of them are used medicinally as antispasmodics &c. [M. T. M.]

HEDYOTIS. A genus of *Cinchonaceae*, comprising a number of herbaceous or somewhat shrubby plants, dispersed throughout the tropics. The floral whorls are arranged in fours; the corolla is funnel-shaped or wheel-shaped; the ovary has two compartments, and is surmounted by an epigynous disk and cleft stigma; the fruit is a capsule. *H. umbellata* supplies a valuable red dye in Coromandel and other parts of India where it is cultivated. The Chay-root, as it is called, is the dye employed for producing the durable red colour for which the chinthees of India are noted (*Simmonds*). Wild chay-roots are preferred to cultivated ones, and licenses to dig the former are granted in Ceylon. The colouring matter resides in the rind and outer portions of the root. The leaves of this plant are also used by the natives as expectorants.

Some of the species, especially those formerly included under the genus *Houstonia*, are cultivated in gardens, their low stature, elegant appearance, and pretty flowers rendering them desirable plants for rock-work &c. The colour of the flowers varies from white to scarlet blue and purple. [M. T. M.]

HEDYPNOIS. A name given by Pliny to a kind of wild endive, said to have medicinal virtues, being astringent and useful in dysentery. By modern botanists the name is applied to a genus of uninteresting annual herbaceous plants with diffuse stems, toothed leaves, and yellow flowers, belonging to the *Cichoraceae*. The generic characters are:—Receptacle naked; involucre furnished with small bracts; florets of the disk furnished with a double pappus, the outer bristly, the inner chaffy; pappus of the ray a membranous finely-toothed margin. [C. A. J.]

HEDYSARUM. A genus of herbaceous or somewhat shrubby leguminous plants, distinguished by the peculiar structure of the seed-pod, which is composed of numerous even one-seeded joints convex on both sides. The leaves are pinnate, with an odd leaflet; and the flowers axillary, in

stalked clusters or spikes, purple, white, or cream-coloured. The genus includes about fifty species, which are distributed throughout Europe, North Africa, and the temperate and mountainous parts of Asia, one, *H. boreale*, being found in N. America; many of them being handsome plants, and some valuable for their nutritive properties as fodder. *H. gyrans* is remarkable for the property possessed by its leaves of setting up a spontaneous motion, independent, as far as observation reaches, of all external impressions. Without being touched and without being excited by heat, light, wind, or rain, sometimes a single leaflet, sometimes a whole leaf, oscillates or gyrates, continuing to move for an indefinite time, and ceasing without known cause. Several ornamental species, as *H. capitatum* and *H. odoratum*, are cultivated in gardens; as also is *H. coronarium*, the plant commonly known in English gardens under the inappropriate name of French Honeysuckle, it being a native of Italy, and having no affinity with *Lonicera*. Its latter name it owes no doubt to its similarity to red clover, often called honeysuckle by country children from the use which they make of its sweet flower-tubes. In Spain and Italy it is gathered in great quantities as food for cattle. French and German, *Sulla*. [C. A. J.]

HEGBERRY. *Cerasus avium*.

HEGEMONE. A genus of *Ranunculaceae*, allied to *Trollius*, found in the Altai near the limit of perpetual snow. The species on which the genus is founded, *H. lilacina*, has an erect stem, leafy at the base, the leaves palmately five-parted, those of the stem similar. The flower is solitary and terminal, pale lilac, with fifteen or twenty persistent petaloid sepals and about ten small irregular petals, having an oblong limb and short tubular base; carpels numerous sessile. [J. T. S.]

HEIMIA. A genus of *Lythraceae* in which it is remarkable for its yellow flowers, blue or purple being the prevailing colour in the family. The two known species, *H. salicifolia* and *H. grandiflora*, are both smooth erect bushy shrubs, the former common to Texas, Mexico, and Buenos Ayres, the latter confined to Buenos Ayres. The willow-like leaves are opposite below and alternate above, and the yellow flowers, placed singly in the axils of the leaves, have great superficial resemblance to those of *Lysimachia vulgaris*, but in structure are widely different. According to Mr. Tweedie, both species are common in pasture lands about Buenos Ayres, and, as the cattle do not browse upon them, there is always an abundance of their gay yellow blossoms, which are called *abro sol*, 'it is open sun.' The twigs are strewn on floors to drive away fleas, of which there are abundance. The willow-leaved species is said to excite violent perspiration. The Mexicans consider it a potent remedy for venereal diseases, and call it Hanchinol (*Lindley*). The genus is

named in honour of Dr. Heim, a distinguished physician of Berlin. [A. A. B.]

HEINSIA. A shrub of the *Cinchona* family, native of Sierra Leone. It has spiny branches, and white flowers in clusters of three or four at the ends of the branches. The calyx has a five-parted limb with leafy segments; the corolla is salver-shaped, its tube longer than the calyx, very hairy within; anthers sessile, concealed by the hairs of the corolla; ovary two-celled; fruit dry, hard, with two indehiscent compartments; seeds numerous. *H. jasminiflora* is an evergreen stove shrub. [M. T. M.]

HEINTZIA. A genus of *Gemeraceae*, containing a single species from central America, an undershrub, with erect stem, opposite fleshy leaves, and axillary umbellate inflorescence. The flowers have a free five-parted calyx; a funnel-shaped corolla, tomentose on the outside, the limb cut into five roundish segments; four didynamous stamens; and a one-celled ovary surrounded by a disk, and having two bilobed parietal placentae, with numerous anatropal ovules; the simple style has a funnel-shaped stigma. The fruit is fleshy and one-celled. [W. C.]

HEISTERIA. A genus of small trees found in some of the West Indian islands, and also in Guiana and Brazil. They belong to the *Oleaceae*, which has very few other representatives in the western hemisphere. The flowers are produced either singly or in little clusters at the bases of the leaves. The calyx is small and five-cleft, but increases greatly in size, spreading out after flowering, and ultimately surrounding the ripe fruit; there are five petals, and ten fertile stamens. The fruit is olive-shaped, enclosed in the enlarged fleshy calyx, and contains a single seed. *H. coccinea* forms a tree fifteen or twenty feet high, with shining oblong leaves, and small white flowers borne singly on short stalks. It is a native of the West Indian islands, particularly of Martinique, where the French call it *Bois perdrix*, which is a corruption of *Pois perdrix*, signifying partridge pea, the fleshy red fruits forming a favourite food of pigeons and other birds. The corrupt French name *Bois perdrix*, however, has led to the supposition that the prettily marked wood called 'Partridge wood' by cabinet-makers was derived from it; but such is not the case, the source of that wood remaining unknown. [A. S.]

HELIOIA sanguinolenta is a pretty cultivated terrestrial orchid from the Peruvian Andes, having the habit of *Trichopilia*, and differing from that genus, according to Dr. Lindley, in that the column, instead of being rolled up in the lip, stands erect and clear of it, the anther two instead of one-celled, and the anther bed with a deep fringed border instead of two lacerated processes. The plant has elongated ovate pseudobulbs, a single undulate leaf, and a one-flowered peduncle shorter than the

pseudobulb. The sepals and petals are olive-coloured, marked with crimson spots, and the lip white with crimson and yellow streaks. About the middle the lip contracts, and has two fleshy lobes standing erect on each side of the column, without however touching it; the space between these lobes, forming the base of the lip, is a deep hairy pit. [A. A. B.]

HELDE. *Tanacetum vulgare*.

HELENIUM. A genus of herbaceous perennials belonging to the corymbiferous tribe of compound flowers. The characters are:—Receptacle of the disk naked, of the ray chaffy; pappus five-awned; involucre one-leaved, many-parted; florets of the ray three-cleft. The species are all natives of America, and bear yellow flowers. French, *Helène*. [C. A. J.]

HELIAMPHORA. A genus of plants described by Bentham, belonging to the *Sarraceniacae*. Perennial herbaceous plants found in muddy places in Guiana with radical leaves, the petiole of which is tubular and in the form of a pitcher with an



Heliamphora nutans.

oblique mouth; and an erect scape with nodding white or pale rose-coloured flowers. The perianth consists of four to five hypogynous imbricated parts; the stamens are indefinite and hypogynous; and the ovary is three-celled, with numerous ovules on an axile placentae. The pitchers are lined with hairs of a peculiar nature. The only species is *H. nutans*. [J. E. B.]

HELIANTHERUM. A genus of low mostly prostrate shrubby or subshrubby plants, closely related to *Cistus*, from which they differ in having imperfectly three-celled, instead of five or ten-celled capsules. They are most plentiful in the warmer and temperate parts of Europe, and in North Africa, but occur also in Egypt, in Arabia, in the Canaries and adjacent isles, in North America, and even in Brazil. They are showy plants, with simple subevergreen leaves, and five-petaled fugacious flowers, mostly in ter-

minal racemes, and having a calyx of from three to four sepals, a capitate stigma, a triquetrous ovary, and a three-valved capsule. Unlike their allies, the *Cistuses*, they do not appear to have any active properties, but it is stated of the common species, *H. vulgare*, that the stamens, if touched during sunshine, spread slowly, and lie down upon the petals. Many double-flowered varieties of the cultivated species have been originated in gardens. [T. M.]

HELIANTHUS. A genus of *Compositæ* or *Asteraceæ*, consisting of coarse tall-growing herbs, with large rough leaves and yellow flowers. The greater portion are natives of North America.

The only species grown for culinary purposes is *H. tuberosus*, the Jerusalem Artichoke, which, although stated to be a native of Brazil, is a hardy perennial attaining the height of six or eight feet, and, with its large rough alternate heart-shaped somewhat pointed leaves, has considerable resemblance in habit and appearance to the common sunflower. The name of Jerusalem Artichoke is considered to be a corruption of the Italian *Girasole Articoce*, or Sunflower Artichoke, under which name it is said to have been originally distributed from the Farnese garden at Rome soon after its introduction to Europe in 1617.

The roots are creeping, and towards the close of autumn produce, like the potato, a number of round irregular reddish or yellow tubers, clustered together and of considerable size. They are used either boiled and mashed with butter, or baked in pies, and when nicely cooked are not only well flavoured, but considered to be both wholesome and nutritious—more so even than the potato, as they may be eaten by invalids when debarred from the use of other vegetables. On the continent they are in considerable demand for soups, and before the potato became plentiful, they were a good deal in use in this country. Parkinson, writing in 1629, says they were then so common in London 'that even the vulgar began to despise them: they were baked in pies with marrow, dates, ginger, sack, &c., and, being so plentiful and cheap, rather bred a loathing than a liking for them.' Hence it appears that, as the culture of the potato extended, it gradually displaced the Jerusalem Artichoke, and at the present time the latter is only grown to a very limited extent in first-class gardens. Since the failure of the potato crops, the Jerusalem Artichoke has been strongly recommended as a substitute for that vegetable; but notwithstanding all that has been said and written in its favour, it is still far from common, and by no means esteemed so much as it deserves to be. [W. B. B.]

HELIOCHRYSUM. A genus of herbaceous or shrubby plants belonging to the corymbiferous tribe of *Compositæ*, and of which the characters are:—Receptacle naked; pappus hairy or feathery; involucre imbricated, radiate, scarious; ray coloured.

Most of the species are natives of the Cape of Good Hope. As the name 'gold of the sun' indicates, the flower-heads are beautifully radiated, and while some species are of a brilliant yellow, others are white, pink, or crimson. In all, the radiating involucre is very conspicuous, and retains much of its elegant form and brilliant colour when dried. *H. macranthum*, an Australian species, when first introduced, bore only white flower-heads slightly tinged with red outside, but varieties have now been raised which have exchanged the primitive white hue for numerous shades of red, orange, or rose-colour. Thus the plant, originally worthy of note for the large size of its heads, has acquired a new interest in horticulture. *H. orientale*, a native of Crete and Africa, is the Immortelle of the French. The flower-heads of this species are yellow, but are often dyed green, orange, or black, and are much employed in the making of wreaths intended to be votive offerings to the dead. In drying the flowers of these plants, they should be suspended head downwards. German, *Strohblume*. [C. A. J.]

HELICIA. A genus of *Proteaceæ* having a cylindrical club-shaped calyx with four slightly spatulate sepals, each of which bears a nearly sessile anther a little below its apex. The seed-vessel is a single-seeded follicle which does not open by valves. The leaves are ovate or oblong, five to ten inches in length, simple, scattered, sometimes opposite, herbaceous or leathery in texture, entire or toothed. The flowers grow in axillary or terminal racemes. The genus is spread over tropical Asia, extending northwards to Japan; five species are endemic to Australia. All are trees or tall shrubs. [R. H.]

HELICOGYRATE. Having a ring or gyrus carried obliquely round it; as in the spores-cases of *Trichomanes*.

HELICOID. Twisted like a snail-shell.

HELICONIA. A fine genus of herbaceous plants, belonging to the *Musaceæ*, and inhabiting tropical America. They are distinguished from their congeners by their fruit, which is capsular, separating into three one-seeded compartments. The shoots of *H. psittacorum* are eaten in the West Indies, as also are the fruits of *H. Bihai*. [M. T. M.]

H. Maria Alexandrovna, named after the Empress of Russia, a remarkable New Grenada species, with the habit of *Musa*, produces a useful fibre. Its trunk attains twelve to fifteen feet in height, and is formed of the sheaths of the leaf-stalks. The peduncles project beyond the leaves, and curving downwards bear a narrow flattened spike two and a half feet long, the red flowers of which are almost concealed by the spathe and white bracts.

HELICTERES. A genus of *Storculaceæ*, typical of the tribe *Helicteres*, containing upwards of thirty species, mostly natives of the tropics of the Western hemisphere. They are shrubs, usually covered with rusty stellate down, the

leaves simple, heart-shaped with the basal lobes unequal; the flowers in little clusters in the angles of the leaves, five-petaled, with the stamens united into a long column surrounding the stalk of the ovary, but separating at the summit into from five to fifteen filaments, partly sterile. The fruit consists of five carpels, which are generally twisted together in a screw-like manner. *M. Isora* is a native of Southern India, where its singular twisted screw-like fruit, about two inches in length, is called 'twisted stick,' 'twisted horn,' or 'twisty,' and, on account of its shape and name, is supposed to be a sovereign remedy against colic or twistings of the bowels. [A. S.]

HELIOCARPUS. A genus of *Tiliaceæ*, found in Mexico, Central America, and New Granada, readily recognised among its allies by the fruits, which are thin nearly circular bodies a quarter of an inch in diameter, beautifully ciliated round the margin with a row of radiating bristles. The resemblance of the fruits to little suns is expressed in the generic name. The species, all very similar in appearance, are shrubs, or some of them forest trees of considerable size, furnished with alternate long-stalked heart-shaped usually three-lobed leaves. The minute densely clustered yellow or green flowers are disposed in panicles or cymes terminating the branches. They consist of four sepals, four petals, twelve to twenty stamens, and a bifid style surmounting a two-celled ovary, which when ripe becomes a two-seeded fruit. [A. A. B.]

HELIOPHILA. A large genus of *Crucifera*, with twice-folded cotyledons. All the species are from the Cape of Good Hope, and are annual herbs or undershrubs, with branched stems, and racemes of yellow white rose-coloured or more frequently blue flowers. They have a more or less elongated pod with two flat or (in the elongated pods) slightly compressed valves. The calyx is equal at the base, which distinguishes it from the allied genus *Chamira*. [J. T. S.]

HELIOPSIS. A perennial herbaceous plant belonging to the corymbiferous tribe of *Compositæ*. The involucre is imbricated, the florets of the ray long and narrow, the receptacle chaffy, and the fruit four-cornered without a pappus. *H. levis*, the only species, is an American plant attaining a height of five or six feet, with rather broad serrated leaves, and large yellow flowers. [C. A. J.]

HELIOISIS. A term applied to the spots produced upon leaves by the concentration of the rays of the sun through inequalities of the glass of conservatories, or through drops of water resting upon them. In the latter case the destruction is seldom so complete as in the former, and the chlorophyll is merely altered, especially in the circumference, and not destroyed. Such spots sometimes, on the contrary, arise from the congelation or low temperature of the drops. They afford a nidus for minute

fungi, which are not in consequence to be considered as the cause. [M. J. B.]

HELIOSPERMA, or HELIOSPERMA. A proposed genus of *Caryophyllaceæ*, which may, however, be rather taken to represent a section of *Silene*. The flowers are solitary or cymose, long-stalked, with a clavate campanulate calyx. The capsule is one-celled, containing lenticular compressed seeds, having a series of prominent points round the back. *S. alpestris* and *quadrifida*, natives of central and southern Europe, belong to the section thus defined, which is by no means a natural one. [J. T. S.]

HELIOTROPE. *Heliotropium*, especially in a popular sense, *H. peruvianum*. —, **WINTER.** *Nardosmia fragrans*.

HELIOTROPE. (Fr.) *Heliotropium*. — **DRIVER.** *Nardosmia fragrans*.

HELIOTROPIACEÆ. A group of corollifloral dicotyledons, considered by most botanical writers as a suborder of *Ehretiaceæ*. The plants have a circinate inflorescence, regular symmetrical flowers, five stamens, and four united achenes forming the fruit. They are found in Europe and South America. See *EHRETIA-CEÆ*. [J. H. B.]

HELIOTRIPIUM. The *Heliotrope* or *Turnsole*, is a large genus of *Ehretiaceæ*, differing from the greater number of genera in having exalbuminous seeds; from *Schleidenia*, by having a salver-shaped, not funnel-shaped corolla; and from *Tiaridium*, by the fruit not being two-lobed. They are herbs or undershrubs found chiefly in tropical and subtropical regions, but a few species reach Europe, and one, *H. europæum*, is distributed over the greater part of southern and central Europe. They are furnished with strigose hairs, entire oval oblong or lanceolate leaves, and terminal or lateral one-sided usually circinate racemes of small white or lilac flowers. The fruit is separable into four nuts, or drupes, having a thin fleshy covering. Some of the species are sweet-scented, as the *H. peruvianum*, which is much cultivated on that account; on account of their agreeable scent, its flowers get the popular name of *Cherry-pie*. [J. T. S.]

HELIPETERUM. A considerable genus of *Compositæ*, separated from *Helichrysum*, to which a large proportion of what are commonly known as everlasting flowers belong, by having the hairs of the pappus feathery (plumose) instead of rough (pilose). They are annuals or perennials found in South Africa, Australia, and Tasmania, commonly furnished with lance-shaped or linear leaves, thickly clothed with short white wool, and usually having each twig terminated by a single flower-head, though in a few species the heads are numerous and corymbose. The thin dry papery scales of the involucre, pink, yellow, or white in colour, give beauty to these flower-heads. The inner series of scales are often spread out into a flat border so as to have the appearance of

ray florets; but the florets are all tubular and minute, yellow or purple, usually perfect, a few of the outer ones sometimes female.

H. humile, well known as *Aphelaxis humilis* in greenhouses, is one of the most handsome South African species. Its much-branched whip-like stems, clothed with compressed leaves, are terminated by a large handsome deep rose-coloured flower-head, expanding only in sunshine. Another remarkable African species, *H. eximium*, has sessile elliptical leaves clothed like the stems with close cottony wool, and having the consistence of the ears of some animal; and its flower-heads, disposed in corymbs at the ends of the branches, are of a vivid purple, not unlike those of the globe amaranth. *H. incanum* is a beautiful little Australian species a foot high growing in tufts, the flower-heads having the outer scales purple, and the inner ones white; this plant is known as Native Amaranth in Tasmania.

The name 'Everlasting flower' is promiscuously applied to the plants of this genus and their allies. Bouquets of them are sometimes seen, and when well selected and tastefully arranged, they look extremely beautiful, preserving their colour for a long period, especially if kept from dust by a glass shade. [A. A. B.]

HELLEBORE. *Helleborus*. —, AMERICAN WHITE. *Veratrum viride*. —, BLACK. *Helleborus niger*. —, BLACK, of the ancients. *Helleborus officinalis*. —, FALSE. An American name for *Veratrum*. —, STINKING. *Helleborus fatidus*. —, SWAMP. *Veratrum viride*. —, WHITE. *Veratrum album*. —, WINTER. *Eranthis hyemalis*.

HELLÉBORE À FLEURS ROSE. (Fr.) *Helleborus niger*.

HELLEBORINE. *Epipactis*.

HELLEBORINE. (Fr.) *Serapias Lingua*.

HELLEBORUS. A Latinised form of an old Greek name applied to some plants of this genus, and significant of their injurious or poisonous effects when eaten. The genus is included among the *Ranunculaceæ*, and consists of perennial low-growing plants with palmate or pedate leathery leaves, five persistent sepals, eight to ten tubular petals two-lobed at the top, and several carpels each with many seeds.

The species, for the most part, are found in Southern Europe and Central Asia. Among the best known is the Christmas Rose, *H. niger*, a common plant in gardens, where it blooms in winter and early spring. Its leaves are pedate, dark, shining, and smooth, and the flower-stalk rises directly from the root, bearing one or two flowers and as many bracts; the sepals are large, white or pinkish, and petal-like, the true petals being greenish and tubular. The plant probably derives its name of Black Hellebore from its dark-coloured rootstock and the numerous fibres proceeding from it. These roots are occasionally used in medi-

cine as a powerful cathartic, but its violent narcotic and acrid properties preclude its general use. The Black Hellebore used by the Greeks has been determined by Dr. Sibthorp to be *H. officinalis*, a handsome



Helleborus niger (flower).

plant with a branching stem, bearing numerous serrated bracts, and three to five whitish flowers. It is a native of Greece, Asia Minor, &c. According to Pliny, Black

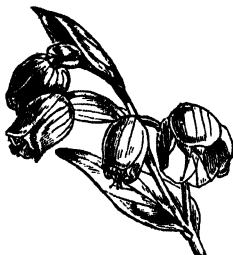


Helleborus niger (leaf).

Hellebore was used as a purgative in mania by Melampus, a soothsayer and physician, 1,400 years before Christ; hence the name *Melampodium* has been applied to the Hellebores.

Two species are found wild in many parts of England, especially on a limestone soil, though it is a matter of doubt whether they may not have been introduced at some former time. *H. fatidus*, the Bear-foot, has numerous flowers in a large loosely spreading panicle, with numerous bracts frequently exhibiting every intermediate form between the ordinary divided leaf of the plant and the ovate undivided light green bract. The flowers are globular, from the sepals converging at their extremities; their sepals are green edged with pink. It is a handsome plant, and finds a place in shrubberies from its ornamental character. *H. viridis*, the Green Hellebore, is a smaller plant with fewer flowers; the sepals are

spreading and of a yellowish-green colour. There is reason to believe that the last-named species, and probably also the others, do not flower every year or even send up many leaves, but that in certain



Helleborus foetidus (flowering branch).

seasons, and under favourable circumstances, the growth of the plant is more luxuriant than in others. The writer of this notice has seen the Green Hellebore in abundance one season, and found little or none of it in the following one, though to all appearance the locality had not been disturbed. On the other hand, when the plants have been purposely uprooted, as was the case in a copse near Oxford to which cattle had access, though the extirpation seemed complete, yet in two years an abundance of the plant sprang up—a fact first made known by the illness, if not the death, of some of the cattle. [M. T. M.]

HELLWEED. *Oscula*.

HELMET. The same as *Galea*.

HELMET-FLOWER. *Scutellaria*; also *Aconitum* and *Corynthes*.

HELMINTHIA. A common wayside composite weed of the cichoraceous group, well marked by its double involucre, the inner one of which is composed of eight to ten close scales, the outer of several large loose leafy bracts. It has hispid almost prickly stems, and leaves of the same character, the lower ones lanceolate, the upper heart-shaped embracing the stem. The flowers are in small terminal heads, of a dull yellow hue and uninteresting. The fruit, which is beaked and singularly corrugated, bears some resemblance to 'a little worm,' which is the meaning of the systematic name. The English name, Ox-tongue, has reference to the shape and roughness of the leaves. [C. A. J.]

HELMINTHOSPORIUM. A large genus of the dark-threaded moulds (*Dematiaceae*), characterised by their more or less elongated septate spores, which are dark like the mother threads. Many of the species are common on decayed wood; and it is conjectured that some are mere conditions of higher fungi. The genus is very close

to *Cladosporium*, which differs principally in its threads being less carbonised and its fruit less complicated. [M. J. B.]

HELMINTHOSTACHYSE. A genus of *Ophoglossaceae* consisting of a single species, *H. sylvatica*, a pseudofern, with stout horizontal rhizomes and somewhat coriaceous fronds, which are divided into a trifoliate digitato-pedate sterile branch, and a simple spicate fertile branch, on which the glomerate verticillate pedicellate tufts of spore-cases are distichously arranged, each whorl being terminated by a crest-like appendage. The veins are forked from a central costa, with the branches free. Besides Ceylon it is found in India and the islands of the Archipelago. [T. M.]

HELONIAS. A genus of *Melanthaceae* found in North America. They have broadly lanceolate root-leaves, from a tuberous rootstock; and a bracteate scape, bearing a dense raceme of nearly sessile flowers, which are perfect, with a perianth of six oblong persistent leaves, six long slender filaments, three revolute styles, and a three-lobed pod. *H. bullata* is found in the United States, and produces, in early spring, a short raceme of purplish flowers turning green when fading. This genus has been till lately one of the most heterogeneous; but by separating *Chamaelirion*, *Schenocaulon*, and *Antanthium*, it has assumed a more natural aspect. [J. T. B.]

HELOSCIADIUM. A genus of low umbelliferous aquatics, inhabiting various parts of the world, and represented in Britain by two species, of which *H. nodiflorum* is the most common. This plant is frequently found growing with water-cresses, for which it is sometimes gathered; it may, however, be distinguished, not only by its unbellate flowers, but by its crenate-serrate lanceolate leaves. No serious consequences need be apprehended from eating the leaves, as its properties are antiscorbutic, and by no means violent in their effects. [O. A. J.]

HELOSIS. A genus of parasitical plants inhabiting the tropical and subtropical regions of the American continent, and belonging to the *Balanophoraceae*. They have a cylindrical branched rootstock from which proceed numerous flower-stalks, bearing ovoid or globose heads of unisexual flowers: the males with a three-parted perianth and united stamens; the females with two styles. Some of the species are used as styptics. Dr. Hooker remarks that the flowers are rarely, if ever, self-fertilised, but that this process is effected by the agency of insects. [M. T. M.]

HELOTHRIX. A small Tasmanian genus of cyperaceous plants, belonging to the tribe *Scirpeae*, and distinguished chiefly by the inflorescence being in distichous spikelets. The two lower scales are barren, the two upper produce perfect flowers; perianthes with four bristles; stamens three; styles bifid. [D. M.]

HELVELLEI, or ELVELLACEI. Aa

order of ascomycetous *Fungi*, distinguished by the receptacle being more or less depressed, though sometimes covered at first by a veil, or the inflexed border of the receptacle. Many of the species are large, and afford good articles of food, while, on the contrary, many are small and mere botanical curiosities. It includes the esculent *Helvella*, the morels, &c., besides a multitude of species varying greatly in colour, texture, and form. In a large portion of these the receptacle is depressed, to form a cup or disk, but in others it is so raised that it becomes pileiform; the borders are then more or less closely attached to the stem, till at last they are quite confluent with it, so as to form a club-shaped body with scarcely any distinct stem, as in *Geoglossum difforme*. [M. J. B.]

HELVELLA. A fine genus of ascomycetous *Fungi*, distinguished by the pileate receptacle, which is hollow and barren below, and whose borders hang down on the stem, to which they are either slightly attached or quite free. The fructifying surface is even and free from pits; the asci contain large elliptic sporidia with one or two nuclei. The stem is sometimes simple, but it is also at times so deeply grooved that it appears as if it were made of many confluent stems. The cinereous-black *H. lacunosa*, and the pallid *H. crispata*, are our most common species, and both of them are esculent, and when well stewed form an acceptable dish. *H. esculenta*, which has been found abundantly in pine woods at Weybridge by Mr. Currey, is now referred to *Gyromitra*, in consequence of the hymenium having many gyrose raised ribs, and is known by this character and its brown tint. It is much eaten on the continent; but in some conditions appears to be dangerous. [M. J. B.]

HELVOLUS. Greyish-yellow, with a little brown.

HELWINGIACEÆ, HELWINGIA. A natural order and a genus of monochlamydeous dicotyledons, included in Lindley's garrulous alliance of diclinous Exogens. A shrub with the leaves alternate, and the flowers clustered on the midrib of the leaves. The flowers are staminate and pistillate; perianth three to four-parted, with ovate spreading segments; aestivation valvate; stamens three to four, alternate with the segments of the perianth; ovary adherent to the perianth, crowned with an epigynous disk, three to four-celled with a pendulous ovule in each cell; stigmas three to four diverging. Fruit drupaceous, crowned by the remains of the styles and disk. It comes from Japan, and has alternate petiolate acuminate stipulate leaves, and small flowers. The young leaves of *Helwingia ruscifolia* are used in Japan as an esculent vegetable. The genus is by some placed in *Araliaceæ*. [J. H. B.]

HÉMÉROCALE BLEUE. (Fr.) *Funkia ovata*. — DU JAPON. *Funkia subcordata*.

HEMEROCALLIDÆ. The *Hemerocallis* family, a subdivision of the natural order *Liliaceæ*, which belongs to the hypogynous monocotyledons or Endogens. They are showy plants, bearing umbellate or racemose flowers, white, yellow, red, or blue. *Phormium tenax* yields New Zealand flax. *Sansevieria cylindrica* yields fibres for cordage in Africa. Examples occur in *Hemerocallis*, *Funkia*, *Agapanthus*, and *Tritonia*: see **LILIACEÆ**. [J. H. B.]

HEMEROCALLIS. The Day Lily, a genus of *Liliaceæ*, differing from the other tubero-fasciculate rooted lilies, by having the segments of the perianth united into a tube, and by their larger yellow or orange flowers. The leaves are all radical, very long or broadly linear, keeled, the scape branched at the top with few flowers, and a shortly trumpet-shaped perianth. They are chiefly natives of temperate Asia and Eastern Europe, though the two commonest species, *H. flava* and *H. fulva*, occur even in France. [J. T. S.]

HEMESTHEUM. *Lastrea*.

HEMI. In Greek compounds = half, or halved.

HEMIANATROPOUS. An ovule which is anatropal, with half the raphe free.

HEMIANDRA. A genus of labiates, having the calyx bell-shaped and two-lipped, the stamens four, the filaments smooth, one half of each anther alone producing pollen. The name indicates the last character above mentioned, viz. the imperfect state of an anther. The species of this genus are erect or decumbent shrubs, natives of the south-eastern parts of Australia, with narrow stiff entire leaves, bearing in their axils the solitary flowers. [G. D.]

HEMIANTHUS *micranthemoides* is a minute North American annual, constituting a genus of *Scrophulariaceæ*, scarcely differing from *Micranthemum*, by the calyx being toothed only and not lobed, and by a more irregular corolla.

HEMICARPHA. A genus of cyperaceous plants belonging to the tribe *Hypolliræ*, distinguished chiefly by the inflorescence being in solitary many-flowered spikes; scales imbricated, obovate-cuneate, and deciduous; stamen one; styles cleft; achenes elliptic-oblong. Steudel describes five species, which are natives of warm climates in Africa and South America. [D. M.]

HEMICHROA. A genus of *Amaranthaceæ*, consisting of small undershrubs from the shores of South Australia. They have alternate semi-terete exstipulate leaves, and solitary sessile axillary bibracteated flowers, with a five-leaved calyx coloured within, and two to five stamens united at the base. [J. T. S.]

HEMICLIDIA. A South-west Australian proteaceous genus containing a single species, *H. Baxteri*, a shrub growing about five feet in height, clothed with rigid

wedge-shaped pinnatifid leaves having sharp-pointed lobes. The involucre is imbricated; and the flowers consist of a four-cleft calyx, the concave segments of which each bear an anther. The seed-vessel is hairy, of a crustaceous texture, containing a single wingless seed. [R. H.]

HEMIRAMBE. A genus of *Cruciferae* from North Africa, with the habit of *Brassica*, having lyrate leaves and yellow flowers. The pod has two joints, the lower one being pear-shaped, empty or with one or two seeds, the terminal one sword-shaped, three-nerved, three or four-seeded, the beak winged, without seeds. [J. T. S.]

HEMIOCYLIA. A genus of *Euphorbiaceae*, consisting of a few trees or shrubs natives of East India, Java, and North Australia. Most genera of spurge-worts have three-celled ovaries, but the ovary in these plants is one-celled with two ovules, thus showing in a measure the intimate connection of spurge-worts with antidesmads. The species are smooth trees or bushes, with alternate ovate or lance-shaped entire coriaceous leaves, and minute green or white flowers in clusters in their axils, the males and females on different plants. The fruits are oval drupes not much larger than a pea, usually ripening but one seed. [A. A. B.]

HEMIDESMUS. A genus of *Asclepiadaceae*, containing three species of twining plants, natives of India and the Moluccas. They have opposite leaves, and small flowers on interpetiolar cymes; the calyx five-parted; the corolla rotate, with five fleshy roundish scales inserted in the throat below the sinuses and forming the staminal crown. The stamens are united at the base, free above, inserted in the tube of the corolla. The apiculate anthers four-celled; the stigma large, peltate and glabrous. The follicles are cylindrical, smooth, and very much divaricated, with comose seeds. The roots of *H. indicus* are largely employed in India as a substitute for sarsaparilla: its diuretic effect is remarkable; it acts equally well as a diaphoretic and tonic. [W. C.]

HEMIDICTYUM. A genus of polypodiaceous ferns belonging to the *Asplenaceae*, among which it is distinguished by having the veins parallel and not joined near the costa, but reticulated near the margin, finishing off by a straight or arcuate connecting veinlet at the edge. The typical species, *H. marginatum*, in which the marginal veinlet is straight, is a large tropical fern, with pinnate fronds of a light green colour and delicate texture, widely distributed over South America and the West Indies. [T. M.]

HEMIDYSTROPHIA. A term applied to express the partial nourishment of trees from the unequal distribution of their roots or from the encroachment of other trees. Trees on a wall are necessarily in this condition. [M. J. B.]

HEMIGENIA. A genus of labiates,

having the calyx somewhat bell-shaped, deeply five-cleft, the divisions equal; stamens four, one cell of each anther bearing pollen, the other abortive, the upper anthers hairy or bearded. They are Australian shrubs of little interest. [G. D.]

HEMIGRAPHIS. A genus of *Acanthaceae*, containing two species, natives of India, perennial branching villous herbs, with alternate oblong serrate leaves, and axillary flowers, either solitary or aggregated in terminal spicate heads. The calyx is unequally five-parted; the corolla funnel-shaped and resupinate, with an unequally five-lobed limb. The stamens four didynamous; the stigma is simple and pubescent. The capsule is seedless above, but contains below from six to eight echinate seeds. [W. C.]

HEMIGYRUS. The same as *Follicle*.

HEMIMERIS. A genus of *Scrophulariaceae*, consisting of small much-branched spreading annuals, with opposite leaves, and small yellow flowers in the upper axils, or clustered at the ends of the branches. The calyx is five-cleft, the corolla spreading, four-lobed, and slightly two-lipped, with two deeply-coloured depressions at the base of the lower lip. There are only two stamens, with one-celled anthers. The capsule is globular, more or less opening septically in two valves. There are three species known, all natives of the Cape Colony in Africa.

HEMIONITIS. A genus of polypodiaceous ferns containing a few simple-fronded species found in the tropics of both the old and new worlds. The fronds are cordate sagittate or palmate, often profliferous, and the fertile ones generally taller. These latter are clothed with a network of closely reticulated lines of naked spores, which is the characteristic of the genus. The veins are reticulated just like the sori. [T. M.]

HEMIPHRAĞMA heterophyllum is a prostrate herb, often spreading to a great extent, a native of the Himalayas, forming a genus of *Scrophulariaceae*. The principal leaves along the wiry branches are small rounded and cordate, with dense clusters of short subulate secondary leaves in their axils. The flowers are small and pink, usually sessile and solitary, with a campanulate five-lobed corolla and four stamens. The fruit is a succulent capsule, almost a berry, but opening in two bifid valves.

HEMIPHUES. A small densely-tufted Alpine plant from Tasmania, constituting a genus of *Umbelliferae*, remarkable for the fruit, which contains only a single cell and seed. The leaves are radical, spatulate, on short petioles, the flowers in simple umbels on short simple scapes.

HEMIOGON. A genus of *Asteriadaceae*, containing two species from Brazil. They are caespitose undershrubs with rigid subulate glabrous sessile leaves in opposite

pairs or in whorls, and solitary or ternate subsessile extra-axillary flowers. The calyx consists of five acute rigid sepals. The corolla is campanulate, the limb cut into five acute erect lobes; and there is no staminal crown. [W. C.]

HEMISTEGIA. *Hemitelia*.

HEMISTEMMA. A small genus of *Dileniaceae*, in which the stamens are situated upon only one side of the flower. The species are natives of Madagascar and the northern part of Australia; they are all small twiggy plants with yellow flowers, and resemble the rock-roses of Europe, their leaves being small, entire, and of a leathery texture, smooth above, but covered with white woolly hairs underneath. The calyx consists of five permanent sepals, the corolla of five petals; the stamens indefinite, a portion of them being sterile and resembling scales; and the two distinct ovaries are terminated by thin thread-like styles. [A. S.]

HEMITELIA. A genus of tree-ferns of the polypodiaceous order and the tribe *Cyathaceae*. The fronds are large herbaceous, pinnate, bipinnate, or sometimes decomposed, the veins parallel-forked or pinnate from a central costa, the basal ones arcuately anastomosing, forming elongated costal areoles from the outer side of which free velvets are given off. This venation, taken together with the presence of a half cup-shaped involucre investing the sorus, characterizes the group, except in the case of *H. speciosa*, in which the costal arc is only here and there developed. They are South American or West Indian plants. [T. M.]

HEMITERIA. A monstrosity of elementary organs, or of appendages of the axis.

HEMITRICHIOUS. Half covered with hairs.

HEMITROPAL. A slight modification of the anatropal ovule, in which the axis of the nucleus is more curved.

HEMLOCK. *Conium maculatum*. —, **GROUND.** *Taxus canadensis*. —, **WATER.** *Rhelandrium aquaticum*; also *Cicuta virosa* and *maculata*.

HEMLOCK SPRUCE. *Abies canadensis*.

HEMP. The name of various valuable fibres employed for manufacturing purposes; and also of the plants which produce them. Common Hemp is *Cannabis sativa*. —, **AFRICAN.** *Sansevieria zeylanica* and others. —, **BASTARD.** *Datisca cannabina*. —, **BENGAL or BOMBAY.** *Crotalaria juncea*. —, **BOWSTRING.** *Sansevieria zeylanica* and others. —, **BOWSTRING.** of India. *Calotropis gigantea*. —, **BROWN.** *Crotalaria juncea*. —, **BROWN INDIAN.** *Hibiscus cannabinus*. —, **INDIAN.** *Apocynum cannabinum*. —, **JUBBALPORE.** *Crotalaria tenuifolia*. —, **MADRAS.** *Crotalaria juncea*. —, **MANILLA.** *Musa textilis*. —, **SISAL.** *Agave Sisalana*. —, **SUNN.** *Crotalaria*

juncea. —, **VIRGINIAN or WATER.** *Acnida cannabina*.

HEMP-WEED, CLIMBING. An American name for *Mikania*.

HEMPWORTS. Lindley's name for the *Cannabinaceae*.

HEN AND CHICKEN. The name given to a proliferous variety of the Daisy, *Bellis perennis*; also *Sempervivum soboliferum*.

HENBANE. *Hyoscyamus niger*.

HENBIT. *Veronica hederifolia*; also *Lamium amplexicaule*.

HENDERSONIA. One of the most striking genera of those *Coniomycetes* whose spores spring from the walls of a perithecium. The spores are always more or less articulated, and afford many exquisite objects for the microscope. Most of the species are, however, in all probability, mere states of different *Sphaeriaceae*. The most striking perhaps is one which occurs on dead reeds, the elongated spores of which have many transverse divisions, each articulation containing a large nucleus. *H. polycystis*, however, carries the division of the spores still further, having many vertical as well as transverse septa, and being moreover elegantly coated with a thick gelatinous stratum. [M. J. B.]

HENFREYA. A genus of *Acanthaceae*, named in honour of the late Professor Henfrey. It is a climber, differing in this respect from most plants of the order; and is also distinguished by its anthers, which have awn-like processes at the base, and by the small two-lobed stigma. There seems, however, little to distinguish the genus from *Asystasia*. *H. scandens*, a native of Sierra Leone, is an elegant stove climber. [M. T. M.]

HENNÉ. *Lawsonia inermis*.

HENRIQUEZIA. A genus of handsome bigoniaceous trees of Brazil and Venezuela, exceptional in having a calyx whose tube is adherent to instead of free from the ovary, its border four instead of five-toothed; in having five perfect stamens instead of four; and in the presence of stipules to the leaves. They have oblong or obovate entire leaves placed in whorls of three to five round the stem. The handsome tubular five-lobed pink or white flowers, like those of some *Bignonia*, are disposed in dense panicles at the ends of the branches. The fruits, not the least curious part of the plant, are flat hard-shelled bodies of the shape of a bean, two-celled, opening transversely by two valves, each cell containing four seeds. The latter germinate while still in the fruit. [A. A. B.]

HENRYA. A genus of *Acanthaceae*, containing two species, natives of Central America. They are shrubs, with hairy glandulose petiolate and ovate leaves, and spicate flowers in an involucre composed of two bracts, but apparently monophyllous from the two neighbouring margins of the bracts being united on the one side while

they are free on the other. The calyx is small and five-parted; the corolla two-lipped, the upper lip deeply bilobed, and the lower cut into two spatulate lobes. [W. C.]

HENSCHELIA. The name applied to a shrub, native of the Philippine Islands, and of uncertain position. It is of climbing habit with trifoliate leaves, greenish flowers in axillary panicles; calyx of ten sepals in two rows; petals ten; stamens five, placed in front of the five outer sepals; ovary one-celled, with two ovules; stigmas five radiating. By Miens it is placed in the order *Phytocnaceae*. [M. T. M.]

HENSFOOT. *Caucalis daucoides*.

HENSLOVIAEAE, HENSLOVIA. A natural order and a genus of calycifloral dicotyledons, belonging to Lindley's saxifragal alliance of perigenous Exogens. Trees with opposite entire leathery exstipulate leaves, and minute dioecious racemose flowers. Perianth five-parted, lined with a woolly disk, the aestivation valvate; stamens five, alternate with the segments of the perianth, inserted on a glandular perigenous disk; ovary superior, two-celled; ovules numerous, anatropal. Fruit a capsule opening by two valves; seeds numerous, minute, exalbuminous. The genus was named after the late Professor Henslow of Cambridge. [The few species are natives of tropical India. Bentham and Hooker include *Henslowia* in *Crypteronia*, which they refer to *Lythraceae*.] [J. H. B.]

HENSLOVIAN MEMBRANE. The cuticle; so called because Professor Henslow was one of its discoverers.

HENSLOWIA. A genus of *Santalaceae*, having monœcious flowers, the perianth adherent to the ovary, with a five-cleft limb; and the stamens inserted at the base of the segments of the perianth, and shorter than them, with awl-shaped filaments, and introrse two-celled anthers. The ovary is inferior, unilocular, covered by a disk, and containing two pendulous ovules. Fruit drupaceous, one-seeded. Shrubby plants of the Indian Archipelago, with alternate nearly sessile leaves, and small greenish flowers. There are eight known species. [J. H. B.]

HENWARE. *Alaria esculenta*.

HEP, or HIP. The fruit of the Dog Rose, *Rosa canina*.

HEPATICA. A subgenus or section of *Anemone*, marked by having the carpels without tails, and the involucre of three simple leaves close to the flower so as to resemble a calyx. The common *H. triloba* of gardens is a native of continental Europe. In a wild state the flowers are generally blue, more rarely rose-colour or white, but in cultivation many other tints are to be found. The three-lobed leaves were fancied to resemble the liver—whence the name. [J. T. S.]

HEPATIÆ. The cryptogams belonging to this curious section, known popularly

under the name of Liverworts, though confounded with lichens, differ from the mosses, to which they are closely allied, in their capsule, whether opening definitely or indefinitely, never having a distinct lid, and consequently in the total absence of a peristome. In many genera there is no stem, but the leafy shoots are replaced by an expanded membranous frond which may be quite simple or repeatedly forked, while it is sometimes irregularly lobed or lacinate. Sometimes it is crisped and plicate, and sometimes furnished with gill-like plates above. Below it is generally attached to a substance on which it grows by slender delicate rootlets. In the leafy species, the leaves have rarely the same lanceolate outline so common in mosses, and they are often accompanied by stipules or lobes which give them a habit which is very distinct from that of most mosses, though the *Hypopterygi* amongst them show something of the same structure. The section comprises three distinct natural orders as follows:—

1. **RIOCIACEI**, in which the capsules are valveless, and either sunk in the frond or seated on its surface. The spores are not mixed with the spiral threads called elaters.
2. **MARCHANTIACEI**, with valvate capsules seated on the under side of a stalked target-shaped disk. Spores mixed with elaters.
3. **JUNGERMANNIACEI**, with solitary fruit splitting into four equal valves. Spores mixed with elaters.

The development of the fruit and the manner of impregnation are the same in these as in mosses. They are also extensively propagated by gemmæ. [M. J. B.]

HEPATIUS. Dull brown with a little yellow.

HÉPATIQUE. (Fr.) *Marchantia*. — **BLANCHE.** *Parnassia palustris*. — **DES JARDINS.** *Hepatica triloba*. — **DORÉE.** A common name applied to several species of *Saxifraga*. — **ÉTOILÉE.** *Marchantia polymorpha*; also *Asperula odorata*. — **PRINTANIÈRE.** *Hepatica triloba*.

HEPTA. In Greek composition = seven.

HERACLEUM. A genus of umbellifers, distinguished by having the fruit compressed from the back, each half of it with three dorsal slender ribs, and one at each marginal line, one oil-vessel in each furrow, and generally two in the commissure.

The generic name is derived from Hercules, probably in reference to the properties of some, or the size of others. The number of described species is considerable, and they are somewhat difficult to distinguish. They are widely diffused, occurring in different parts of India, in Europe and America. Several have been long known in cultivation, but are not possessed of any very special recommendations. One species has of late years been a very general object of culture on account of its large size and commanding appear-

ance, viz. *H. giganteum*, a native of Siberia. This species is easily raised, and flowers the year after being sown, or sometimes a year later still, the latter being usually the more vigorous and attaining larger size. Individuals ten to twelve feet high are common, with a circumference of stem equal to about as many inches.

Some of the species are turned to various useful purposes. Our native *H. Sphondylium* is used for feeding pigs, and in Scania, according to Linnæus, is employed as a domestic remedy. A Kamtschatkan species is had recourse to by the natives; the foot-stalks of the lower leaves, when properly treated, yield a sweet exudation which is employed in the preparation of a distilled spirit. The roots and stems of *H. lanatum* are eaten by some of the native tribes of North America. The young shoots of *H. pubescens* contain a sweet and aromatic juice, and are used as food in some parts of the Caucasus. [G. D.]

HERB BENNET. *Geum urbanum*; also *Conium maculatum*, and *Valeriana officinalis*. — **CHRISTOPHER.** *Actæa spicata*; also *Osmunda regalis*, and *Pulsatilla dysenterica*. — **GERARD.** *Egopodium Podagraria*. — **IMPIOUS.** *Filago germanica*. — **IVE, or IVY.** *Ajuga Reva*; also *Coronopus Ruellii*, and *Plantago Coronopus*. — **MARGARET.** *Bellis perennis*. — **OF GRACE.** *Ruta graveolens*. — **PARIS.** *Paris quadrifolia*. — **PETER.** *Primula veris*. — **POOR-MAN'S.** *Gratiola officinalis*. — **ROBERT.** *Geranium Robertianum*. — **TRUE LOVE.** *Paris quadrifolia*. — **TRINITY.** *Viola tricolor*; also *Hepatica triloba*. — **TWOPENCE.** *Lysimachia Nymularia*.

HERBACEOUS. Merely green, or thin green and cellular, as the tissue of membranous leaves. Also producing an annual stem from a perennial root.

HERBA ADMIRATIONIS. *Leucas zeylanica*. — **ARTICULARIS.** *Silene alyssata*. — **BARONIS.** *Thymus Herba barona*. — **IMPIA.** *Filago germanica*. — **INDICA.** *Ionidium enneaspermum*. — **MORRIS.** *Phyllanthus Urinaria*. — **PARIS.** *Paris quadrifolia*. — **ROTA.** *Plantago Herba rota*. — **SANCTI JACOBI.** *Senecio Jacobææ*. — **SANCTI STEPHANI.** *Circæa*. — **SENTENS.** *Oxalis sensitiva*. — **STELLA.** *Plantago Coronopus*. — **SUPPLEX.** *Cymbidium ovatum*. — **VIVA.** *Oxalis sensitiva*. — **VULNERATA.** *Bupleurum falcatum*.

HERBARIUM. A collection of dried plants systematically arranged.

HERBE À CENT GOÛTS. (Fr.) *Artemisia vulgaris*. — **À CLOQUES.** *Physalis Alkekengi*. — **À COTON.** *Asclepias Cornuti*. — **À ÉCOURER.** *Chara*. — **À ÉTERNUER.** *Plantago vulgaris*. — **À GÉRARD.** *Egopodium Podagraria*. — **À JAUNIR.** *Genista tinctoria*, and *Reseda luteola*. — **À L'ARAIGNEE.** *Anthericum ramosum*, and *Nigella damascena*. — **À LA COU-**

PUR. *Sedum Telephium*. — **À LA MANNE.** *Glyceria fruticosa*. — **À LA RATE.** *Scolopendrium vulgare*. — **À LA REINE.** *Nicotiana Tabacum*. — **À LA TAUPE.** *Datura Tatula*. — **À LA VIERGE.** *Narcissus poeticus*. — **À L'ÉPERVIER.** *Hypochaeris radicata*. — **À L'ESQUINAOIE.** *Asperula cynanchica*, and *Geranium Robertianum*. — **À L'H. RONDELLE.** *Passerina Stellera*. — **À PRINTEMPS.** *Chenopodium Botrys*. — **À MILLE FLORINS.** *Erythraea Centaurium*. — **À OUAÏE.** *Asclepias Cornuti*. — **À PARIS.** *Paris quadrifolia*. — **À PAUVRE HOMME.** *Gratiola officinalis*. — **À ROBERT.** *Geranium Robertianum*. — **AU CANCER.** *Herniaria glabra*. — **AU CHANTRE.** *Sisymbrium officinale*. — **AU CHARPENTIER.** *Achillea Ageratum*. — **AU LAIT DE NOTRE-DAME.** *Pulmonaria officinalis*. — **AU NOMBRIL.** *Cynoglossum linifolium*. — **AU VENT.** *Anemone Pulsatilla*. — **AUX ÂNES.** *Oenothera biennis*. — **AUX BOUCS.** *Chelidonium majus*. — **AUX CENT MIRACLES.** *OphioGLOSSUM vulgatum*. — **AUX CHARPENTIER.** *Achillea Millefolium*, and *Sedum Telephium*. — **AUX CHATS.** *Nepeta Cataria*, and *Teucrium Marum*. — **AUX CINQ COUTURES.** *Plantago lanceolata*. — **AUX COUILLES.** *Cochlearia officinalis*. — **AUX CUREDENTS.** *Ammi Visnaga*. — **AUX ÉCUS.** *Lysimachia Nummularia*, and *Lunaria biennis*. — **AUX FEMMES BATTUES.** *Tamus communis*. — **AUX GOUTTEUX.** *Egopodium Podagraria*. — **AUX GUEUX.** *Clematis Vitalba*. — **AUX HÉMORRHOÏDES.** *Piscaria ranunculoides*. — **AUX MAGICIENNES.** *Circæa Lutetiana*. — **AUX MAMELLES.** *Lapsana communis*. — **AUX MASSUES.** *Lycopodium clavatum*. — **AUX MITES.** *Verbascum Blattaria*. — **AUX PANTHÈRES.** *Doronicum Pardalanches*. — **AUX PERLES.** *Lithospermum officinale*. — **AUX POUMONS.** *Pulmonaria officinalis*. — **AUX POUX.** *Delphinium Staphisagria*, and *Pedicularis palustris*. — **AUX PÛCES.** *Plantago Psyllium*. — **AUX SERPENTS.** *Trichosanthes anguina*. — **AUX SONNETTES.** *Fritillaria imperialis*. — **AUX SORCIÈRES.** *Circæa Lutetiana*. — **AUX TEIGNEUX.** *Trussilago Petasites*. — **AUX VERRUES.** *Chelidonium majus*, and *Helleborem europæum*. — **AUX VIPÈRES.** *Echium vulgare*. — **BLANCHE.** *Diota candidissima*. — **CACHÉE.** *Lathraea clandestina*. — **CANICULAIRE.** *Hypochoeris niger*. — **CHASTE.** *Vitis Agnus castus*. — **ŒUR.** *Pulmonaria officinalis*. — **D'AMOUR.** *Reseda odorata*. — **DE GUINÉE.** *Panicum altissimum*. — **DE L'HIRONDELLE.** *Chelidonium majus*. — **DE LA BAIE D'HUDSON.** A kind of *Poa*. — **DE LA SAINT JEAN.** *Hypericum perforatum*. — **DE LA TRINITÉ.** *Hepatica triloba*. — **DE SAINTE APO-**

LINE. *Hyoscyamus niger*. — DE SAINTE BARBE. *Barbarea vulgaris*. — DE SAINT ÉTIENNE. *Oxycora Lutetiana*. — DE SAINT FIACRE. *Heliotropium euro-pæum*. — DE SAINT INNOCENT. *Polygonum Hydropiper*. — DE SAINT JOSEPH. *Scabiosa succisa*. — DE SAINT ROCHE. *Inula dysenterica*. — DES FEMMES BATTUES. *Bryonia dioica*. — DES MAGICIENS. *Datura Stramonium*. — DU BON HENRI. *Chenopodium Bonus Heriacea*. — DU CARDINAL. *Symphytum officinale*. — DU DIABLE. *Datura Stramonium*, and *Plumbago scandens*. — DU GRAND-PRIEUR. *Nicotiana Tabacum*. — DU SIÈGE. *Scrophularia aquatica*. — DU VENT. *Anemone Pulsatilla*. — EMPOLSONNÉE. *Atropa Belladonna*. — MAURE. *Roseda odorata*. — MORE. *Solanum nigrum*. — MUSQUÉE. *Adoxa Moschatellina*. — SACRÉE. *Melittis Melissophyllum*, *Nicotiana Tabacum*, and *Verbena officinalis*. — ST. CHRISTOPHE. *Actaea spicata*. — ST. PIERRE. *Cyrtanthum maritimum*. — SANS COUTURE. *Ophioglossum vulgatum*.

HERBERTIA. A genus of dwarf bulbous Iridaceous perennials from Texas and Chili, one species found in Brazil. They have narrow acute radical leaves, and a short scape bearing at top several pretty blue or yellow flowers, which have a short-tubed six-parted perianth, with the outer segments triangular, acute, and reflexed, and the shorter inner ones rounded and erect, three monadelphous stamens inserted at the base of the exterior segments, and a three-celled ovary, crowned with three trifid stigmas having recurved petaloid branches. The genus, which is allied to *Cypella* and *Iris*, is named in honour of the late Deau of Manchester, who was a high authority on all matters relating to bulbous plants. [T. M.]

HERCULES' CLUB. *Xanthoxylon Clava Herculis*.

HÉRISSONNE. (Fr.) *Erinacea pungens*.

HERITIERA. A genus of *Sterculiaceæ*, containing two trees of considerable magnitude, found on the coasts of India, Africa, and many islands of the eastern hemisphere; in a cultivated state only in the West Indies. They are pyramidal trees with large handsome stalked entire alternate leaves of a silvery white underneath, this silvery appearance giving rise to the name of 'Looking-glass tree', sometimes applied to them. The blades in *H. macrophylla* are eight to fourteen inches long by four to six broad. The fine foliage and symmetrical habit of this species render it a beautiful object in a plant stove where it has space to grow. The minute reddish-coloured unisexual flowers are disposed in terminal panicles; they have a five-lobed or toothed calyx; the sterile with five sessile anthers united into a tube, and the fertile with five sessile ovaries which become, when ripe, hard nearly boat-shaped carpels. They usually ripen but one seed, and do

not open when ripe, in this respect differing from *Sterculia*, as well as in their less numerous stamens. C. L. L'Héritier, whose name is here perpetuated, was a distinguished French botanist. [A. A. B.]

HERMANNIEÆ. A tribe of the order *Sterculiaceæ*, distinguished by the following characters:—Petals flat; stamens monadelphous at the base, equal to the petals in number and opposite to them, all fertile; ovary one or many-celled, with two or many ovules in each cell. They are herbs or shrubs found in intertropical regions, but most abundant at the Cape of Good Hope. The group includes the genera *Wakheria*, *Melochia*, *Bledia*, *Phyodinum*, *Hermannia*, and *Mahernia*. [J. H. B.]

HERMANNIA. An extensive genus of *Sterculiaceæ*, including about eighty species. The chief features of the genus are:—A bell-shaped five-cleft calyx; five clawed petals, the claws hollowed; five stamens, with their filaments flattened, but not dilated above the middle in the form of a + as in *Mahernia*; and a five-celled ovary, which, when ripe, is a five-angled capsule with many seeds. The species are twiggy undershrubs, having the stems and leaves, especially the latter, which are often accompanied with leaf-like stipules, more or less clothed with starry hairs. The pretty nodding sometimes sweet-scented flowers are pale yellow, orange, or reddish-coloured, disposed in dense clusters or loose racemes or panicles at the ends of the twigs. The genus bears the name of Paul Hermann, once professor of botany at Leyden. [A. A. B.]

HERMAPHRODITE. Containing both stamens and pistil.

HERMAS. A genus of umbellifers, characterised by the calyx having a five-parted persistent border; and the fruit ovate, each half with five ribs, the middle one prominent, those on each side of it larger, the other two smaller. The species are small Cape herbs, with soft downy undivided leaves. The outer flowers of the umbels have stamens only, the others have both stamens and pistil. [G. D.]

HERMINIERA. A genus of tropical African trees, of the leguminous family, having thorny branches, abruptly pinnate leaves, and large orange-coloured flowers, succeeded by linear oblong compressed legumes, which become at length spirally twisted. The wood of *H. elaphroxylon*, the only species, is very white, remarkably soft, having the appearance of a mass of pith, with the medullary rays and annual rings almost imperceptible. The natives apply it to various uses. [T. M.]

HERMINIUM. A genus of terrestrial orchids, with small flowers very nearly allied to those of *Orchis*, but the perianth has no spur, and the anther-cells are distant at the base, the glands of the stalks of the pollen-masses protruding below the

cells. There are but very few species, all natives of the northern or Alpine regions of Europe and Asia. *H. Monorchis*, the Musk Orchis, the most common and widely-spread species, is occasionally found in southern and eastern England. It has globular tubers like those of an *Orchis*, but the new one is always produced at some distance from the stem at the end of a thickish fibre, so that the plant moves each year to a distance of one or more inches from the spot it previously occupied. The stem is slender, three to six inches high, with two or three narrow leaves near its base. The flowers, in a terminal spike, are small, of a yellowish green, with narrow sepals and petals.

HERMIONE. One of the divisions of the genus *Narcissus*, kept separate by some botanists, and consisting mainly of the plants which in gardens bear the name of *Polyanthus Narcissus*. According to Herbert, the distinctions are: that the cup is shorter than the slender cylindrical tube of the flower; the stamens with conniving filaments, adnate unequally near the mouth of the tube, and free only at the curved point; and incumbent acute-oval anthers attached by the middle; and the straight slender style. Most of the *Narcissi* imported along with hyacinths from Holland, for spring flowering in gardens, are of this group. [T. M.]

HERMODACTE. (Fr.) *Iris tuberosa*.

HERMODACTYLUS. The name of a few Eastern plants often included in *Iris*, but sometimes regarded as distinct. They have fleshy tubers, glaucous quadrangular leaves much longer than the stem which supports the curious black and green velvety flower, very small inner perianth-segments, and an oblong ovary narrowed to each end. *Iris tuberosa*, the typical species, is often called the Snake's-head Iris. [T. M.]

HERNANDIA. A genus of apetalous Exogens, the station of which in the natural system is regarded as doubtful: by some it has been separated as the type of a distinct family, the *Hernandiaceae*. It consists of three or four or perhaps more species, tropical trees inhabiting both the East and West Indies and Guiana. The leaves are cordate, petiolate, and smooth; and the flowers, which are monœcious, are in panicle masses, having a yellowish appearance from the sepals being petaloid. The male flower has six sepals, and three stamens opposite the three outer sepals; between the bases of the stamens are three pairs of glands. The anthers open by two valves, reflected laterally. The female flower, the structure of which has hitherto been imperfectly understood, proves on examination to have the ovary inferior, and at its base external to the calyx it is enclosed by a cup-like involucre, which in the male flower is wanting. The sepals are eight, or sometimes in imperfectly hermaphrodite flowers nine, and it has four barren stamens which are like the glands of the

male flower. The ovary is one-celled, containing one pendulous ovule; the style is short, furrowed on one side, and the stigma is broad and lobulated. The seed, in which the radicle is superior, contains no albumen, and the embryo has a crumpled appearance, in addition to which each cotyledon is three-lobed at its base. By its valvular anthers it is nearly related to *Lauræ*, but in its inferior ovary it is nearer *Combretaceæ*, and its station consequently is near *Gyrocarpus* and *Illigera* in the latter family, the flowers of these genera having no petals, and their anthers opening by valves. The bark, seed, and young leaves of *H. sonora* are slightly purgative. It is said that the fibrous roots chewed and applied to wounds caused by the Macassar poison form an effectual cure. The juice of the leaves is a powerful depilatory, destroying hair wherever applied without pain. The wood is light; that of *H. guianensis* takes fire so readily from a flint and steel, that it is used as amadou. [B. C.]

HERNANT SEEDS. The commercial name for the seeds of *Hernandia ovigera*, used for dyeing.

HERNIARIA. A genus of *Illecebraceæ*, found in barren places in the temperate regions of Europe, Asia, and Africa. They are small annuals or undershrubs with oval, oblong, or linear leaves, and small scarious stipules. The minute flowers, in lateral clusters generally arranged in an interrupted leafy spike, have a five-parted calyx, five petals reduced to mere threads, five stamens, two stigmas, and a membranous utricular fruit. *H. glabra* is a native of Britain, and not unfrequent in the southwestern counties. [J. T. S.]

HERNIOLE. (Fr.) *Herniaria glabra*.

HERON'S BILL. *Erodium*.

HERPESTIS. A genus of *Scrophulariaceæ*, allied to *Gratiola*, and having, like that genus, didynamous stamens, with two-celled anthers, and a capsule opening septicidally in two entire or bifid valves. It is, however, readily known by the calyx consisting of five distinct very unequal sepals, the lowest outer one always much larger than the others, and the two innermost often very narrow. There are above forty species known, natives of various parts of America, Africa, Australia, or southern Asia. They are all herbs, mostly procumbent or prostrate, more rarely erect, with rather small flowers usually yellow or pale blue. The most common are, *H. Monnierta*, a small creeping glabrous plant, with rather thick entire leaves, and a pale blue or nearly white flower, very abundant in almost all hot countries in moist situations; and *H. chamadryoides*, a much-branched spreading species with ovate toothed leaves and yellow flowers, common in the mountainous districts of America from South Brazil to Mexico.

HERRERIA. A genus of *Lilaceæ* of doubtful affinity, having the habit of the

Asperages, but in structure resembling the *Anthericum*. They are undershrubs found in Brazil and Chili, with tuberous root-stock, climbing stems, whorled-fascicled lanceolate or linear leaves, and small scented flowers in many-flowered axillary racemes. The perianth is herbaceous, six-parted, persistent; the stamens six; the capsule membranaceous, three-winged, and three-celled. [J. T. S.]

HERSCHELIA *caelestis* is the name of a terrestrial orchid of South Africa, with a stem a foot high, bearing at the base a number of narrow grassy leaves, and ending in a raceme of pretty flowers an inch across and of an intense sky-blue colour—therefore most appropriately named by Dr. Lindley in honour of Sir John Herschel, the celebrated astronomer. The upper sepal is helmet-shaped, spurred near the base, larger than the lower ones, and hiding the petals. The beak is trilobed, and between it and the anthers is a curious forked linear appendage. [A. A. B.]

HESPERANTHA. A genus of Cape *Fridaceæ* closely allied to *Ixia*, the species remarkable for expanding their sweet-scented flowers in the evening—whence the name. They are bulb-tuberous plants with sword-shaped leaves; and the flowers, which grow in loose spikes, have a long-tubed hypocrateriform perianth with six equal spreading limb-segments, three stamens inserted in the perianth tube, and three stigmas, which are elongate narrow-linear and conduplicate. The flowers are mostly white, sometimes stained outside with some dark colour. [T. M.]

HESPERIDÆÆ. A name given by Linnaeus to a natural order comprising the genera *Citrus*, *Sitragæ*, and *Garcinia*. It has sometimes been applied to the orange family. Endlicher gives the name *Hesperidææ* to one of his classes embracing the orders *Humiriacæ*, *Oleaceæ*, *Aurantiacæ*, *Meliaceæ*, and *Cedrelaceæ*. It is thus defined:—Trees or shrubs with alternate exstipulate usually compound leaves. Ovary free, imbricate in maturation; corolla with petals equal in number to the segments of the calyx, valvate or convolute in maturation; stamens twice or four times the number of the petals, free, monadelphous or polyadelphous; carpels numerous, united into a one or many-celled ovary; ovules solitary or many, usually anatropal; embryo very often exalbuminous; cotyledons mostly fleshy. [J. H. B.]

HESPERIDIUM. A many-celled superior indehiscent fruit, pulpy within, and covered by a separable rind; as the orange.

HESPERIS. The Rocket, a genus of *Crucifera*, belonging to the section having the radicle of the seed bent over the back of one of the flat cotyledons. It is distinguished from *Malcolmia* by the blunt not sharp-pointed lobes of the stigma at the end of the long cylindrical pod. They are biennial or annual (rarely perennial) herbs with somewhat the habit of the stock, but

usually with less stellate pubescence. The flowers are large, purple, lilac, white, or dirty yellow; in some of the species sweet-scented in the evening, whence the generic name. The common garden Rocket, or Dame's Violet, is *H. matronalis*, a native of Europe, but probably not indigenous to Britain; many varieties exist in cultivation, with white, purple, variegated, or double flowers. [J. T. S.]

HESPEROMELES. The name of a few shrubs or trees of considerable size belonging to the *Pomaceæ*, and found at elevations of eight to thirteen thousand feet on the Andes of Peru and New Grenada. They have alternate stalked coriaceous ovate or oblong leaves, and white or pink flowers much like those of the hawthorn in size and disposition. From this genus they chiefly differ in the ovaries, five in number, having each but one instead of two ovules. The fruits are also like those of the hawthorn. *H. lanuginosa* grows to a large tree in New Grenada; Mr. Purdie remarks that it forms the entire forest, beginning at ten thousand and reaching to fourteen thousand feet, or near the perpetual snow limit. *Hesperomeles* signifies Western Apple. [A. A. B.]

HESPEROSCORDON. A genus of *Liliaceæ*, differing from *Brodiaea* by having all the six stamens anther-bearing, and the ovary sessile. They are herbs found in western North America, having much the habit of some species of *Allium*, and with large white or bluish flowers. [J. T. S.]

HESSEA. A small genus of *Amaryllidaceæ*, characterised by having a bifid spathe, a short-tubed regular-limbed perianth, equal subulate filaments becoming reflexed and bearing short anthers, a filiform style, and a trifid fimbriated stigma. It is represented by the *Amaryllis stellaris* of Jacquin. The name *Hessea* has also been given to the genus *Carpolyza*. [T. M.]

HETERIA. A small Australian marsh plant, belonging to the *Philydraceæ*, and differing from *Philydrum* by its kidney-shaped anther lobes, its central placenta ultimately detached from the three valves of the capsule, and by its smooth seeds. *H. pygmæa* is a small rush-like plant with a spike of flowers of a yellow colour and invested by bracts. [M. T. M.]

HETERANTHERA. A genus of *Pontederaceæ*, consisting of small aquatic herbs with roundish long-stalked or linear leaves, and one or two small white or blue flowers produced from a spathe in the axil of a sheathing leaf-stalk. The perianth is salver-shaped, with a long slender tube and a spreading six-lobed limb. *H. reniformis*, the Mud Plantain, with roundish kidney-shaped leaves and white flowers, is not unfrequent by the muddy banks of streams in the Southern United States. [J. T. S.]

HETEROCARYUM. A genus of *Boraginaceæ*, natives of temperate Asia, resembling *Omphalodes*, but having the calyx segments caducous, the column of styles

adhering to the nuts as far as their middle, and the peduncles thickened. [J. T. S.]

HETEROCEPHALOUS. Bearing, in the same individual, heads of entirely male flowers, and others entirely female.

HETEROCHÆNIA. A genus of bell-works, having the tube of the calyx obconical, deeply five-cleft, with the lobes ciliated; seed-vessel three-celled, opening first by three valves at the summit, subsequently by rupture of other parts. The genus was founded by De Candolle, to include the Mascaren plant formerly called *Wahlenbergia ensifolia*. [G. D.]

HETEROCODON. An annual from the Oregon territory in North America, distinguished as a genus of *Campanulaceæ* by Nuttall, on account of the lower flowers having no corolla; but it is probably only a form or variety of *Specularia perfoliata*.

HETERODON. A genus of bruniads, distinguished by the calyx having ten teeth, five of which are short and blunt, and five elongated. The only species is a shrub, a native of the Cape, having semi-cylindrical leaves, which are hairy, ending in awn-like points. [G. D.]

HETEROGAMOUS. When in a capitulum the florets of the ray are either neuter or female, and those of the disk male.

HETEROIDEOUS. Diversified in form.

HETEROLÆNA. A subdivision of *Pimelea* in which the capitula are terminal, and the involucre formed of four rarely five to eight leaves, and these leaves are unlike the foliage of the branches, differing in magnitude or in form and texture, often coloured. They are shrubby plants of New Holland and Tasmania, with opposite leaves. There are thirty-eight species of *Pimelea* in this subdivision. [J. H. B.]

HETEROLEPIS. A small genus of *Compositæ*, nearly related to *Gasanina*, and found in South Africa. The species differ from this and their other allies, in having the hairs of the pappus (which are of unequal length and ciliated) in two or three series. All are branching bushes, with rosemary-like leaves, and handsome flower-heads with the florets all yellow. [A. A. B.]

HETEROMORPHA. A genus of umbellifers, distinguished from its congeners by its peculiar fruit, which is apparently five-winged owing to the different aspect of its two halves, the outer being provided with two wing-like ridges, the inner with three. The species are natives of the Cape of Good Hope. [G. D.]

HETERONEMEA. A name applied to the higher cryptogams by Fries to express the fact of the more complicated germination than in the lower cryptogams. The production of the pseudocotyledons in ferns appears to be what he had more especially in view. It may, however, be objected that in *Puccinia* and some other fungi there is a decided prothallus preceding the formation of true fruit. [M. J. B.]

HETERONEURON. *Paecliopteria*.

HETEROPAPPUS. The name formerly given to a few *Compositæ* of North China and Japan, with flower-heads like *Aster*. They are now known to belong to the genus *Calimeris*: which see. [A. A. B.]

HETEROPHRAGMA. A genus of *Bignoniaceæ*, containing a single species from India. It is a large tree with opposite or ternate impari-pinnate leaves, and whitish flowers in dense terminal downy panicles. The calyx is campanulate and three-lobed; the corolla equally five-parted, with the margins of the divisions waved; there are four fertile stamens; the ovary is surrounded by a purple disk, and surmounted by a simple style and a two-cleft stigma; the capsule is long and pointed; and the seeds have a broad wing. [W. C.]

HETEROPOGON. A genus of grasses belonging to the tribe *Andropogoneæ*, now included in *Andropogon*. They are mostly natives of Mexico. [D. M.]

HETEROPSIS. A genus of Brazilian plants, of the family *Araceæ*, deriving its name from the fact that the appearance of the plant is different from that of most of its congeners. The stem is woody and branching, with lance-shaped leaves; the spathe hooded, deciduous; spadix blunt, covered with male and female flowers, intermixed; the anthers are two-celled and gaping; ovaries two-celled, with two ovules in each cell. [M. T. M.]

HETEROPTERIS. A genus of American climbing shrubs, with yellow or bluish flowers, belonging to the *Malpighiaceæ*. Several are cultivated as evergreen stove climbing plants; their flowers have a calyx with eight glands; stamens all fertile; styles three; fruit with a wing thickened on the lower margin. [M. T. M.]

HETEROS. In Greek compounds = variable, or various.

HETEROSTEMMA. A small genus of *Asclepiadaceæ*, natives of India and the Moluccas. They are glabrous twining shrubs, with opposite membranaceous leaves, and flowers in few-flowered interpetiolar umbels. The calyx consists of five ovate sepals; the corolla is rotate and five-parted, with spreading lobes. The five-leaved staminal crown is very variable, differing in each species. The foliodes are smooth and divaricate, and contain about twenty comose seeds. [W. C.]

HETEROTOMA. The name of a Mexican herbaceous plant, constituting a genus of *Lobeliaceæ*. It has a two-lipped calyx; a tubular corolla, the tube of which is irregularly dilated at the base into a spur-like form; anthers cohering, the two lower ones hairy; ovary with two compartments; stigma two-lobed. The flowers are large, purple, arranged in racemes. *H. lobelioides* is the Bird-plant of Mexico. [M. T. M.]

HETEROTROPA. The name applied to a genus of *Aristolochiaceæ*, represented by a Japanese herb, with a coloured pitcher-

shaped perianth contracted at the throat, where it is provided with a plicated ring or 'corona.' The anthers are twelve in number, arranged in two rows: the outer, on triangular filaments, open inwardly, and are partially united together; the inner ones are sessile, open outwardly, and have their connective prolonged into a lance-shaped point. The plant has the appearance of *Asarum*, from which genus the above characters amply distinguish it. Its leaves are heart-shaped, marked with white spots. [M. T. M.]

HETEROTROPAL. Lying parallel with the hilum. A term applied only to the embryo.

HÊTRE. (Fr.) *Fagus sylvatica*.

HEUCHERA. A genus of perennial herbaceous plants of elegant appearance, natives of North America and Siberia, and included in the *Saxifragaceae*. The petals are five, inserted into the upper part of the tube of the calyx, of a linear form and slightly unequal; stamens five, inserted with the petals; ovary one-celled, with two parietal placentae; styles elongated, divergent; fruit bursting along the styles. The flowers are borne in clusters which rise from a number of lobed toothed leaves. Several of the species are grown in English gardens. The root of *H. americana* is so astringent that it is called Alum root. [M. T. M.]

HEWARDIA. A genus of polypodiaceous ferns, agreeing with *Adiantum* in all the essential points of fructification, but distinguished from it by having the veins reticulated. They have linear continuous sori, as in *Adiantum Wilsoni* and its allies, and are pinnate, bipinnate, or pedately tripinnate plants of South America. It is named after Mr. R. Heward, an amateur pteridologist, and one of the contributors to this work. The name has also been given to a melanthaceous stemless herb from Tasmania, having ensiform distichous leaves, and star-shaped purple flowers, and the habit of an *Iris* or *Sisyrinchium*; but for this the name of *Isophytis* has been suggested. [T. M.]

HEXA. In Greek compounds = six. Thus: *Hexaleptidous*, consisting of six scales; *Hexapterous*, having six wings or membranous expansions; *Hexapyrenous*, having six stones; *Hexapetaloid*, consisting of six coloured parts, like petals; *Hexandrous*, having six stamens.

HEXACENTRIS. A small genus of *Acanthaceae*, containing three species from India. They are climbing shrubs with dentate leaves, and purple or yellow flowers in axillary and terminal many-flowered racemes. The small calyx is unequally toothed, and is surrounded by two small bracts. The corolla has a short tube and an oblique five-cleft limb. The four didynamous stamens have erect two-celled anthers, which, in the shorter pair, have both cells spurred, and the longer pair have a spur on one only. A short subulate sterile fifth stamen is

present. The stigma is bifurcate. *H. mysorensis* is very ornamental. [W. C.]

HEXADESMIA. A few epiphytal orchids of Central America, differing from *Epidendrum* in having six instead of four pollen-masses; whence the generic name. They are tufted plants a few inches high, with narrow oblong pseudobulbs, a few short grassy leaves, and a number of inconspicuous green or white flowers in a terminal raceme. [A. A. B.]

HEXAGONIA. A fine genus of porobearing *Fungi*, distinguished by its large angular pores, which resemble the cells of a honeycomb. Most of the species are hard and woody, but one or two are thin and flexible as paper. They are, with but one or two exceptions, inhabitants of tropical countries. We have no species in Great Britain, but *H. sericea* is found in the forests above Canada. One or two species are found on gum trees in Australia. In some Indian species the pores are one-sixth of an inch across. [M. J. B.]

HEXALOBUS. A genus of anonaceous shrubs, inhabiting Senegal and Madagascar. They have a six-cleft corolla, with the spreading segments in two rows; numerous club-shaped stamens, attached to the sides of a convex receptacle; and numerous ovaries with sessile stigmas; fruit of several few-seeded berries. [M. T. M.]

HEYNEA. A genus of Indian trees belonging to the *Meliaceae*, among which they are distinguished by the tube formed by the union of the stamens, which is deeply five-cleft, the segments being also cleft; the anthers are ten, sharply pointed; ovary two-celled, imbedded in a fleshy disk, and ripening into a somewhat fleshy capsular fruit, which is one-celled by abortion and single-seeded. [M. T. M.]

HIANS. Gaping; opening by a long narrow fissure cut across the shorter axis.

HIBBERTIA. A genus of *Dilleniaceae* confined to Australia and Tasmania, comprising about fifty species. They usually form little heath-like tufted shrubs, or their slender stems trail along the ground, but occasionally they grow several feet in length and climb upon other shrubs. Their flowers are yellow, borne at the ends of the branches, and generally give out a very unpleasant odour; they have five thick leathery permanent sepals, and five thin fugaceous petals; the stamens are very numerous, entirely free or united at their bases into several bundles; and the one-celled ovaries, two to five in number, are terminated by a diverging style. The fruit consists of two or more carpels splitting open down the inner edge, and containing one or several roundish shining seeds, each partly surrounded by an aril.

H. densata, a climbing species, is one of the most showy, and grows six or eight feet high. *H. grossulariifolia* is another of the climbing kinds, having leaves somewhat resembling those of the common gooseberry bush, its trailing stems tinged with red, and

its flowers produced in great abundance at the ends of little side branches. *H. volubilis*, the largest species of the genus, has a stiff climbing stem, and pale yellow flowers two inches across, but most disagreeably scented. [A. S.]

HIBERNAOULUM. The poetical name of a bud or bulb.

HIBERNAL. Of or belonging to winter.

HIBISCUS. The Rose-mallow group, a very large genus of *Malvaceae*, characterized by their large showy flowers being borne singly upon stalks towards the ends of the branches; by having an outer calyx or involucre composed of numerous leaves, and an inner or true calyx cut into five divisions at the top, which does not fall away after flowering; by having five petals broad at top and narrow towards the base, where they unite with the tube of the stamens; and by the latter forming a sheath round the five-branched style, and emitting filaments bearing kidney-shaped anthers throughout the greater part of its length. The fruit is five-celled, with numerous seeds. The majority of the species are tropical, but a few are found in temperate regions, and one, *H. Trionum*, occurs in the South of Europe and also in New Zealand. Most of them are shrubs, but a few form moderately high trees. All possess the mucilaginous properties common to the order, and several are eaten as pot-herbs, while their inner bark yields more or less fibre.

H. cannabinus has a prickly stem, six or eight feet high, and deeply-parted leaves somewhat resembling those of hemp. The flowers are pale yellow with a dark purple blotch at the bottom of each petal. This is a native of the East Indies, where it is cultivated on account of the fibre contained in its stems, the seeds being sown thickly so as to induce the plants to grow up tall, straight, and unbranched. The fibre, like that of other malvaceous plants, bears more resemblance to jute than to hemp, though it is sometimes called Indian Hemp. It comes to this country in small quantities, and is sometimes called Bastard Jute. In Western India the plant is called Ambaree, and its leaves are eaten as a pot-herb, and an oil is extracted from its seeds.

H. Rosa sinensis, a well-known ornament of our hothouses, is a native of India, China, and other parts of Asia. It is a tree of twenty or thirty feet high; and has very variable flowers—double, single, red, dark purple, yellow, white, or variegated, according to the particular variety. These flowers contain a quantity of astringent juice, and when bruised rapidly turn black or deep purple; they are used by the Chinese ladies for dyeing their hair and eyebrows, and in Java for blacking shoes, whence the plant is frequently called the Shoe-black Plant.

H. syriacus, commonly called *Aithya frutescens*, is a hardy deciduous shrub, with large showy flowers, produced in great profusion in the autumn months. [A. S.]

HIBISCUS, BASTARD. *Achania Malva-viscus*.

HICKORY. *Carya*.

HIDDEN-VEINED. Having the veins so buried in the parenchyma, that they are not visible upon external inspection.

HIERACIUM. A large and exceedingly difficult genus of cichoraceous plants, mostly with yellow flowers, inhabiting the temperate countries of the eastern hemisphere, and distinguished among allied genera by having a brown brittle pappus and no beak to the fruit. From twenty to thirty species are indigenous to Britain, growing in hedges, woods, and mountains. One of the best known and most attractive of these is *H. Pilosella*, common on heaths and in dry pastures, a dwarf plant with creeping leafy scions, elliptical leaves clothed above with scattered long hairs, and bearing on leafless stalks a single brilliant light yellow flower-head. *H. spicatum* and *H. umbellatum* are tall weeds with uninteresting yellow flowers. Several others are more or less frequent, but can only be discriminated by the application of much patient care. *H. aurantiacum*, called Grim-the-collier, from the black hairs which clothe the flower-stalk and involucre, is an ornamental plant with orange flowers. The systematic name *Hieracium*, the English Hawkweed, the French *Épervire*, and the German *Habichtskraut*, all have reference to an ancient belief that birds of prey made use of the juice of these plants to strengthen their vision. [C. A. J.]

HIEROCHLOA. A genus of grasses belonging to the *Phalarida*, and consisting of several species spread over the colder parts of both hemispheres. They have loose spreading or narrow crowded panicles; three-flowered spikelets, the two lower flowers being males with three stamens, and the upper one smaller with two stamens and hermaphrodite; the glumes are scarious, boat-shaped, and pointed. One native species, *H. borealis*, found near Thurso, occurs in mountain pastures in Northern Europe, Asia, and America, and also in New Zealand. The name *Hierochloa*, sometimes written *Hierochloe*—whence Holy-grass—refers to the practice, adopted in some parts of Germany, of strewing it before the doors of churches on festival days. [T. M.]

HIERONYMA. *Stilaginella*.

HIGGINIA. A genus of small Peruvian shrubs, belonging to the *Cinchonaceae*. The parts of the flower are arranged in fours; the corolla is somewhat bell-shaped, with a short tube, concealing the stamens within it; the ovary has two compartments; the ovules are numerous, the style short, and the stigma cleft and projecting. The fruit is berry-like, and two-celled. See CAMPHYLOBOTRYA. [M. T. M.]

HIG-TAPER. *Verbascum Thapsus*. The name is, according to Dr. Prior, often incorrectly spelt High-taper.

HIGHWATER SHRUB. An American name for *Iva*.

HILIFEROUS. Bearing a hilum upon its surface.

HILLIA. The memory of Sir John Hill, a writer on various branches of botany, is held in little respect in this country, owing to some unseemly disputes with some of his contemporaries and with the Royal Society; nevertheless a genus of plants has been named in his honour, consisting of small tropical American shrubs reported to grow upon the trunks of trees, and belonging to the *Cinchonaceae*. They have somewhat fleshy leaves; an involucre of three or four bracts outside the calyx, the limb of which is divided into two to four narrow segments; a salver-shaped corolla, with a long tube, dilated at the throat, and concealing four to six sessile anthers; a thread-like style, and thick stigma. The fruit is a long pod-like two-celled two-valved capsule, with numerous seeds which are provided with a loose integument prolonged at one end into a long brush-like appendage. [M. T. M.]

HILUM. The scar produced by the separation of a seed from its placenta. Also used to indicate any point of attachment; and the apertures in the extine of pollen grains.

HIMANTHALIA. A genus of olivespored *Algae*, remarkable for the large immensely elongated forked receptacles, and the little cup-shaped frond which scarcely exceeds an inch in diameter. The plant is common on some parts of our coast, though rather local. The fronds when young sometimes become detached and form little bladders which make a loud report when trod upon. The only species, *H. lorea*, is known by the name of Sea-thongs from the strap-like appearance of the receptacles. The plant is biennial, the receptacle not being produced till the second year. It extends southward as far as Spain, but prefers rather cold waters. It is very rare, if found at all, on the coast of America. [M. J. B.]

HIMANTHUS. A Brazilian tree, constituting a genus of *Cinchonaceae*. Its flowers are arranged in spikes which are covered by a large spathe-like bract, falling off before the flowers expand. The parts of the flower are arranged in fives; the corolla is very long and funnel-shaped, concealing within it the stamens; the style is somewhat club-shaped; and the ovary has two compartments. The fruit is unknown. [M. T. M.]

HIMERANTHUS. A genus of *Solanaceae*. The flowers are placed singly on long stalks, and have a bell-shaped corolla, to the base of which, internally, the stamens with strap-shaped filaments are attached. The ovary is two-celled, the fruit fleshy, many-seeded, supported by the persistent calyx. It is found in Uruguay; and it is singular that a plant so nearly allied to

the true mandrake should be supposed by the natives of that country to possess the same power of exciting the passions as was attributed to the mandrake, in Greece &c., by the ancients, and even by mediæval writers. [M. T. M.]

HINA. The Pacific Island name for a Gourd.

HINAU, or HINO. *Eleocarpus Hinau*, the bark of which is used for dyeing in New Zealand.

HINDA. An Indian name for the Wild Date, *Phoenix sylvestris*.

HINDBERRY. *Rubus Idaeus*.

HINDHEAL. *Chenopodium Botrys*.

HINDSIA. A genus of cinchonaceous shrubs, natives of Brazil. The flowers have a calyx with unequal linear segments, sometimes dilated in a leaf-like manner; a funnel-shaped corolla with a long tube, somewhat dilated at the upper part; anthers on very short stalks at the top of the tube of the corolla; and a style divided at its upper part into two long linear compressed hairy branches. The capsule bursts by two valves, and contains numerous seeds. *H. violacea* is a stove plant of great beauty, with large deep blue flowers. [M. T. M.]

HING. The Indian name for *Asafoetida*.

HINOID. When veins proceed entirely from the midrib of a leaf, and are parallel and undivided; as in ginger-worts.

HIP-TREE. *Rosa canina*, the fruits of which are called Hips.

HIPWORT. *Cotyledon Umbilicus*.

HIPPEASTRUM. The Knight's Star Lily, a genus of *Amaryllidaceae*, consisting of South American and West Indian bulbs, remarkable for their showy flowers, and comprising most of the plants cultivated in hothouses under the name of *Amaryllis*, these being for the most part hybrids, which are very freely produced in the genus. The leaves, which are vernal, are bifarious, and precede or accompany the flowers; the latter usually grow several together at the top of a hollow scape, and are large and in most cases very handsome, the somewhat funnel-shaped declinate perianth having an abbreviated and narrow-mouthed tube with the faucial membrane deficient on the lower side; and a very irregular limb, the upper sepaline being wider, and the lower petaline narrower than the other segments. The filaments are declinate, curved, unequal, and unequally inserted into the throat; and the style is three-lobed or three-cleft. The flowers of some of the species, as *aulicum*, *equestris*, and *regium*, are crimson, scarlet, or orange-red, with a green star; of *vitatum* white striped with red; and of *reticulatum* purplish-red, beautifully veined with deeper red, and with a white central star. [T. M.]

HIPPIA. A genus of South African

Compositæ, consisting of slender herbs or small branching shrubs, with leaves and flower-heads something like chamomile. The leaves are pinnatifid; the flowers are minute yellow rayless, disposed in corymbs at the ends of the twigs, and not unlike those of *Artemisia*, to which the genus is allied. The outer florets have pistils only, the inner stamens; and the orbicular compressed achenes have slightly winged margins, and no pappus. [A. A. B.]

HIPPOBROMUS alatus, the only representative of a genus of *Sapindaceæ*, is a South African tree of considerable size, with alternate unequally-pinnate leaves, bearing in their axils short velvety clusters of small reddish flowers. The leaves are made up of four to six pairs of unequal-sided serrate leaflets; and the flowers are unisexual, the sterile with five sepals, five petals, and eight stamens, the fertile with a like calyx and corolla, and a few barren stamens surrounding a three-celled ovary tipped with a short style. The genus differs from *Sapindus*, in the petals being destitute of a scale or tuft of hairs on their inner surface, as well as in the round berried fruits the size of a pea accompanied by the remaining calyx. The colonial name of the tree is *Paardepis*. [A. A. B.]

HIPPOCASTANÆÆ. A group of hypogynous *Exogens*, forming a subdivision of the order *SAPINDACEÆ*: which see.

HIPPOCRATEACEÆ. A natural order of thalamifloral, dicotyledons, included in Lindley's rharnal alliance of perigynous *Exogens*. Shrubby plants with opposite simple leaves having deciduous stipules; sepals and petals five imbricate; stamens three monadelphous. Fruit either consisting of three-winged carpels, or baccate. The prominent character of the order is the ternary stamens, and pentamerous sepals and petals. The plants are chiefly natives of South America, but some are found in Africa and Asia. The nuts of *Hippocratea comosa* are oily and sweet. The fruit of *Tontelea pyriformis* is eaten in Sierra Leone. There are seven genera and about ninety species. Examples: *Hippocratea*, *Tontelea*, and *Salacia*. [J. H. B.]

HIPPOCRATEA. A genus of the small order *Hippocrateaceæ*, consisting of upwards of thirty species, the greater part natives of the tropics of the western hemisphere, the remainder found principally in Western Africa, India, and the island of Timor. They are climbing shrubs, with opposite entire or toothed usually smooth leaves, and panicles of small inconspicuous flowers, produced from the axils of the leaves, and characterized by the anthers of their stamens consisting of single cells, which burst open transversely. Their fruit also differs considerably from those of the allied genera, being composed of three (occasionally only one or two) separate flattened leathery carpels, which split down the middle into two halves when ripe, each half resembling in shape a little boat. [A. B.]

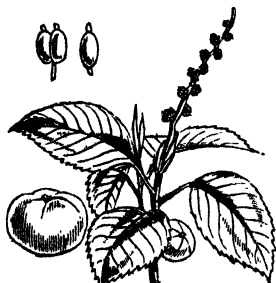
HIPPOCREPIFORM. Horseshoe-shaped.

HIPPOCREPIS. The Horseshoe Vetch, a genus of herbaceous or somewhat shrubby leguminous plants, so called from the peculiar form of their seed-vessels, which are long and jointed, each joint being one-seeded and curved into a shape somewhat resembling that of a horseshoe. In all the species the leaves are pinnate, with a terminal leaflet. The flowers are yellow, in some species solitary in the axils of the leaves, but more frequently collected into simple umbels on slender axillary stalks. The only British species, *H. comosa*, is a low trailing plant with much of the habit of the common bird's-foot trefoil, but differs both in the shape of its leaves and pods. It is not uncommon on sunny banks of chalk or limestone. Several other species, some of which are annuals, inhabit the south of Europe. French, *Hippocrépe*; German, *Hufeisenpflanze*. [O. A. J.]

HIPPOMANE. The poisonous Manchineel or Manzanillo tree of tropical South America (*Hippomane Mancinella*) is the only species of this genus of Spurge-worts (*Euphorbiaceæ*). It forms a tree forty or fifty feet high, common in many of the West Indian Islands and in Venezuela and Panama, usually growing on sandy sea-shores. Its leaves are stalked, shining green, egg-shaped or elliptical, with the edges cut into saw-like teeth, having a single gland on the upper side at the junction of the stalk and leaf. Its flowers are very small and inconspicuous, and of separate sexes, borne on long slender spikes, the females few placed singly at the base of the spike, the males in little clusters occupying the upper part. The calyx of the males is two-parted, and that of the females three-parted, the male containing two or four stamens joined together by their filaments, and the females a many-celled ovary, crowned with from four to eight styles and reflexed stigmas. Its fruit is a roundish fleshy yellowish-green berry.

The virulent nature of the juice of the Manchineel tree has given rise, in the western hemisphere, to nearly as wonderful stories as those associated with the upas tree in the eastern; but although there can be no doubt that it possesses extremely poisonous properties, its powers have been greatly exaggerated, and many of the tales must be regarded as fabulous. Among the statements referable to the latter class may be included the assertions that grass will not grow under it, that mere sleeping in its shade causes death, that its juice raises blisters difficult to heal when applied to the skin, and others of a like nature. It is certain, however, that the juice, which resembles pure white milk, does possess a considerable amount of acridity, and that some persons suffer great pain from incautiously handling it, while others again do not experience the slightest inconvenience from it, its effects, as in the case of the poisonous *Rhus* of North America, depending upon peculiarities in the constitutions of different individuals. Perhaps its most dangerous

property is that of causing blindness, if by chance the least drop of the milk, or the smoke of the burning wood, comes in contact with the eyes. Dr. Seemann, in his *Narrative of the Voyage of H.M.S. Herald*, states that at Veraguas some of the ship's carpenters were blinded for several days from the juice getting into their eyes whilst cutting down Manchineel trees; while he himself suffered temporary loss of sight from merely gathering specimens; and that the same accident happened to a boat's crew from using the wood for making a fire. Salt water is said to be an efficacious remedy. The fruit also abounds in a similar acrid milky juice, and, from its tempting appearance, is sometimes bitten by those who are unaware of its deleterious properties, but its burning effect upon the lips soon causes them to desist. It is commonly asserted that the Indians use the juice for poisoning the barbs of their arrows, but, from its excessively volatile nature, this is improbable. [A. S.]



Hippomane mancinella.

HIPPOPHÆ. A shrub or low tree of the order *Elagnaceæ*, distinguished by bearing the male flowers (with four stamens) in catkins, and the female in the axils of the leaves, on separate plants; the calyx tubular, finally assuming the character of a berry containing a single seed. *H. rhamnoides*, Sea Buckthorn or Sallow Thorn, is a native of many parts of the coast of Europe, including England, preferring a sandy soil, but sometimes found on the cliffs. In its native haunts it is usually a thick bush with numerous branches terminating each in a thorn. The leaves are narrow, of a peculiar leaden green above, silvery and scaly below. The berries, which are produced in great abundance, are yellow and of an acid flavour. The Tartars, it is said, make a jelly of them, and the fishermen of the Gulf of Bothnia prepare from them a fish-sauce, but in England they appear to be neglected. French, *Argousier*; German, *Haftdorn*. [C. A. J.]

HIPPURIDÆ. A natural group de-

scribed by Link, now included under *HALORAGACÆ*; which see.

HIPPURIS. Aquatic herbaceous plants with whorls of narrow leaves, and inconspicuous flowers (also in whorls) of very simple structure. There are only two or three species, all much alike. They grow either wholly or partially submerged in ditches and canals, sending up from their creeping roots numerous unbranched erect stems, having at short intervals whorls of linear leaves, in the axils of which are the small inconspicuous flowers, each of which contains a single stamen, but no petals, and an ovary with a single seed. The most abundant species is *H. vulgaris*, the common Mare's tail, plentiful not only in Great Britain, but throughout Europe and North America. There is some resemblance in habit between these plants and *Equisetum*, but in all essential characters they are perfectly distinct. French, *Pesse d'eau*; German, *Schafthalm*. [C. A. J.]

HIPTAGE. A genus of climbing shrubs belonging to the *Malpighiaceæ*. The flowers have a calyx provided with one large gland; unequal fringed petals; ten stamens, all fertile, and one larger than the rest; one style; and a fruit of three or fewer carpels, each provided with three wings. They are of a white or yellowish colour, and are fragrant. [M. T. M.]

HIRÆA. A genus of *Malpighiaceæ*, distinguished chiefly by its ten stamens, all of which are fertile and slightly united at the base; by its three styles compressed at their summits, with truncate two-coloured stigmas; and by its fruits with lateral wings. [M. T. M.]

HIRCINOUS. Smelling like a goat.

HIRONDAIRE. (Fr.) *Vincetoxicum officinale*.

HIRSE. A kind of *Panicum* or Millet.

HIRSUTE, HIRTUS. Hairy; covered by long tolerably distinct hairs.

HIRTELLA. A genus of tropical American shrubs or small trees, of the order *Chrysobalanaceæ*, differing from its allies in its five-petaled flowers with from three to fifteen long protruding stamens arising from one side of the flower. Upwards of thirty species are known, all of them with alternate shortly-stalked leaves accompanied by stipules; the flowers small, white or purplish, disposed in axillary or terminal racemes, and remarkable for their protruding stamens, which are usually much longer than the corollas. The fruits are pear-shaped furrowed drupes nearly an inch long, with one seed. *H. silicea* is a tree of Trinidad, where its bark, which is rich in siliceous matter, is said by M. Orùger to be used by the Indians in making pottery. *H. physophora*, a Brazilian species, is exceptional, in having on each side of the short leafstalks a leafy bladder-like process as large as a good-sized pea, with an opening at top. [A. A. B.]

HISINGER. *Xylocma*.

HISPID. Covered with long stiff hairs.

HITCHENIA. A genus of Indian herbaceous plants of the order *Zingiberaceae*. They have tuberiform rootlets; a stem destitute of leaves at its upper part, a spike inflorescence, with white flowers, having a tubular three-toothed calyx, a corolla with a long slender tube, and a somewhat two-lipped limb, a short filament, channelled to receive the thread-like style, which is surmounted by a funnel-shaped stigma. The capsule is membranous, three-valved, and contains a number of seeds provided with a large star-like arillus. [M. T. M.]

HOCHSTETTERIA. A genus of *Compositae*, represented by *H. Schimperii*, a much-branched herb found in Arabia Petrea and Scind, whose wiry stems are furnished with distant serrated leaves, and each twig is terminated by a single orange-coloured flower-head. The genus differs from its allies of the *Sebania* group, in the florets being all tubular, perfect, and seated on a frilled receptacle. [A. A. B.]

HOOK-HERB. *Aithya*; also *Malva*.

HOOKINIA. An annual gentianaceous plant of Brazil. The flowers are blue, with a five-parted cylindrical calyx, a bell-funnel-shaped corolla, five stamens having the connective prolonged into a lance-shaped point, and a hairy stigma divided into two plates. The fruit is capsular, bursting by two valves. [M. T. M.]

HODGSONIA. A magnificent cucurbitaceous plant, very common in many parts of Eastern Bengal. The stems are described by Dr. Hooker as slender, frequently one hundred feet long, climbing the forest trees, and having their branching ends matted together and covered with leaves, which sometimes form a dense hanging screen of bright green foliage. The large flowers, yellow outside and white inside, remarkable for the long filiform twisted appendages hanging from their lobes, appear in May, and are very deciduous; they may often be seen strewing the ground in abundance in the forest, when the plant itself cannot be recognised amidst the canopy of vegetation above the traveller's head. The great melon-like fruit, called Kathior-pot by the Lepchas, ripens in autumn and winter. Its coarse hard green pulp exudes a gummy fluid in great abundance, but is austere and uneatable.

HOFFMANNIA. The name of a West Indian cinchonaceous herb, with hairy branches, ovate rough leaves, and axillary many-flowered peduncles. The parts of the flower are in fours; the corolla salver-shaped; the anthers sessile; the stigma blunt on the end of a simple style; the fruit two-celled, many-seeded. [M. T. M.]

HOFFMANSEGGIA. A genus of *Leguminosae*, nearly related to *Cussia*, but differing from it in the calyx segments being united by their margins so as to form a

five-toothed cup. It consists of about fifteen species distributed over California, and the temperate parts of Peru and Chili, two being peculiar to South Africa. They are neat little perennials, with bipinnate leaves often marked with black dots; and the pretty yellow flowers are arranged in racemes which arise from opposite the leaves. [A. A. B.]

HOFMEISTERELLA *sumicroscopica* is a little epiphytall orchid of Peru, belonging to the *Vandee*, nearly related to *Tetipogon*, and remarkable for the very long beak hanging down in front of the stigma. The plant is stemless, with a few fleshy roots, a tuft of lance-shaped leaves, and a short flexuous spike bearing a few small yellow flowers. [A. A. B.]

HOGMEAT. *Boerhaavia decumbens*.

HOGWEED. *Hieracium Sphondylium*; also *Polygonum aviculare*, and *Boerhaavia*. —, **POISONOUS.** *Aristolochia grandiflora*.

HOHENACKERIA. A genus of umbellifers characterised by having the styles awl-shaped and bent back, and the fruit compressed laterally, somewhat pear-shaped, and having a cylindrical beak crowned by the five persistent sharp teeth of the calyx; each half of the fruit has five obtuse strong ridges and narrow grooves between. [There are two species natives of Southern Spain, Algeria, and the Caucasian region, dwarf annual rigid herbs densely dichotomously branched from the base, with linear entire leaves, and small greenish flowers.] [G. D.]

HOHENBERGIA. A genus of Brazilian bromeliaceous herbs, distinguished from *Bilbergia* and other genera by the perianth, the outer segments of which are unequal, the two posterior segments being somewhat pyramidal winged and keeled, the anterior one convex outwardly and shorter; while the inner segments are longer, petal-like, occasionally provided with a minute scale at the base, and ultimately spirally twisted, as also are the three linear stigmas. [M. T. M.]

HOITZIA. A genus of *Polemoniaceae*, containing seven species, natives of Mexico. They are rigid or herbaceous undershrubs with alternate leaves, and axillary flowers crowded at the tops of the branches, with many bracts below the calyx. The calyx is tubular and five-cleft; the corolla funnel-shaped, with the limb divided into five unequal laciniae, and the stamens exserted. There are but few ovules in each of the three cells of the ovary. [W. C.]

HOLACANTHA. A name expressive of the thorny character of the shrub to which it is applied, and which forms a genus of *Simarubaceae*. It is a native of the deserts of Mexico and California, has no leaves, but is beset with strong spines. The flowers are small and unisexual, with a seven or eight-parted calyx, and seven or eight petals. [M. T. M.]

HOLARRHENA. A genus of dogbanes,

having the calyx in five deep divisions, which are very narrow and acute; and five stamens attached to the lower part of the tube of the corolla, their anthers perfect. The species are Indian shrubs, erect and smooth; the leaves opposite, stalked and of thin texture; the flowers in terminal and lateral bunches. [G. D.]

HOLBELLIA. A small genus of *Lardi-sabalaceae*, consisting of scandent shrubs, natives of India, and having digitate leaves, and axillary corymbiform racemes of purple or greenish flowers, which are monocious, with six petaloid sepals and six minute petals. In the male flowers there are six free fertile stamens, and in the female six small sterile ones and three ovaries, which become oblong indehiscent berries. [T. M.]

HOLCOSORUS. A peculiar Bornean fern, referred by some botanists to *Gram-mitis* and *Polypodium*, but by others considered to form a distinct genus of the *Ternstroemia*. The fronds are solid and bluntly pentangular, with three grooves on the upper and two on the lower surface, the oval-oblong naked sori lying in the latter. The venation is reduced to a simple costa, imbedded in the centre of the wiry fronds. *H. pentagonus* is the *Grammitis bidentata* of Hooker. [T. M.]

HOLCUS. A genus of grasses, mostly European, belonging to the tribe *Phalarceae*, and distinguished by its somewhat open panicle with numerous crowded two-flowered spikelets. The upper flower is male, and has a shortly-awned glume, and the lower one is hermaphrodite, with the glume usually awnless. The outer glumes are boat-shaped, enclosing the flowers. Two species are natives of Britain; but they have soft woolly herbage, and are of little value. [T. M.]

HOLEWORT. *Corydalis bulbosa*.

HOLIGARNA. A genus of lofty Indian trees, belonging to the *Anacardiaceae*, and distinguished by the parts of the flower being arranged in fives; the petals oblong, hairy, spreading, attached to the five-toothed calyx; the ovary united to the tube of the calyx, and containing a single ovule at its upper part; and the fruit fleshy, with a one-seeded stone. From the stem of *H. longifolia*, a lofty tree, occasionally cultivated in our stoves, the natives of Malacca are said to extract an acrid juice, which is used as a varnish. The stone of the fruit likewise contains an acrid resinous juice, while the investing pulp contains a glutinous fluid made use of by painters, and for fixing colours on linen. The fruit and the bark are used medicinally, but require to be employed with caution, as they are apt to give rise to dangerous symptoms. [M. T. M.]

HOLLOWROOT. *Adoxa Moschatellina*.

HOLLOWWORT. *Corydalis bulbosa*.

HOLLY. *Ilex*. —, CAPE. *Ocrocoxylon*. KNEE. *Ruscus aculeatus*.

—, MOUNTAIN. *Nemopanthea*. —, SEA. *Eryngium maritimum*.

HOLLYHOOK. *Athaea rosea, chinensis*, and *scifolia*. Sometimes written Holli-hock, or Holy Hock.

HOLLYWORTS. Lindley's name for the *Aquifoliaceae*.

HOLM. The Holly, *Ilex Aquifolium*. —, KNEE. *Ruscus aculeatus*. —, SEA. *Eryngium maritimum*.

HOLOGRAPHIS. A genus of *Acanthaceae*, containing a single Mexican species, a branching undershrub, with oblong-ovate obtuse leaves, and axillary flowers in pairs. The calyx is equally five-parted, and the corolla ringent, with a very short tube. It has four didynamous stamens. [W. C.]

HOLOLACHNE soongarica is a plant of the *Reaumuria* family, which grows in saline places on the shores of lakes in Soongaria and Mongolia. It is a few inches high, much-branched, with white wiry stems furnished with numerous minute linear clustered fleshy leaves, bearing inconspicuous white flowers in their axilla. The few (eight to ten) stamens, and the absence of scales at the base of the petals, are the chief characters. [A. A. B.]

HOLOSERICEOUS. Silky; so covered with hairs that it feels soft to the touch, although the naked eye may fail to detect the presence of hairs.

HOLOSTEMMA. A small genus of *Asclepiadaceae*, from tropical Asia, consisting of twiners with largish flowers, deeply coloured inside and arranged in shortly pedunculate interpetiolar umbels or racemes. The corolla is rotate with a short tube, and the limb divided into five broadly ovate lobes. [W. C.]

HOLOSTEUM. A small genus of *Caryophyllaceae*, with the styles usually three and the capsule valves twice as many. They are small annuals found in Europe, North Africa, and temperate Asia, with simple stems, smooth oblong leaves in pairs, sometimes united at the base, and terminal umbels of small chickweed-like flowers. *H. umbellatum* is found in a few of the eastern counties of England, but is far from common. [J. T. S.]

HOLY GHOST. *Angelica sylvestris*. FLOWER. *Peristeris elata*.

HOLY-HERB. *Verbena officinalis*.

HOLY-ROPE. *Eupatorium cannabinum*.

HOMALIACEAE. (*Homaliadae*). A natural order of monochlamydeous dicotyledons included in Lindley's catcal alliance of epigynous Exogens. Trees or shrubs with alternate leaves; perianth funnel-shaped, with five to fifteen gland-bearing divisions and alternating petaloid scales, the latter considered by some as petals, and hence Lindley places the order between *Loasaceae* and *Cactaceae*; stamens inserted on the perianth, either singly or in bundles of three or six; ovary adherent, one-celled; ovules

numerous, pendulous; placentas three to five parietal; styles three to five; fruit a capsule or berry; seeds albuminous. Tropical plants of India, Africa, and America, having astringent qualities. There are nine known genera and thirty-six species. Examples: *Homalium*, *Blackwellia*, *Nipa*, *Cordylanthus*. [J. H. B.]

HOMALIUM. Tropical trees and shrubs, forming the typical genus of *Homaliaceae*. The principal characters reside in the stamens, which vary in number, and are attached to the perianth in groups of three or four placed opposite to the inner segments of the perianth, and alternate with fleshy glands placed in front of the outer or calycine segments; and in the capsule, which is one-celled, containing a few seeds and opening partially by three valves. The roots of some of the species are astringent. See *SAMYDACEÆ*. [M. T. M.]

HOMALONEMA. A genus of *Araceæ*, consisting of Indian herbaceous plants, with heart or arrow-shaped leaves; an expanded aromatic spathe; a spadix covered with flowers over the whole of its surface, and having rudimentary flowers mixed with the ovaries; numerous sessile anthers, and three-celled detached ovaries; and a three-cleft stigma. *H. cordatum*, with a white spathe, is cultivated in green-houses. *H. aromaticum*, a native of Chittagong, has an agreeable aromatic smell, and its root is deemed by the natives to possess medicinal virtues. [M. T. M.]

HOMBAC D'ARABIE. (Fr.) *Sodada decidua*.

HOMBURTONIA. A name given to two species of *Pandanus*, figured in the *Voyage de la Bonite*, but not yet described.

HOMERIA. The name of a few species of Cape bulb-tuberous plants, sometimes separated from *Moracæ*, from which they differ in having nearly regular flowers. The perianth has a very short tube, and six divisions, of which the three alternate or inner ones are rather but not conspicuously smaller than the others, the three stamens are monadelphous, and the stigma is trifid, with two-cleft fringed branches. They are rather handsome plants, with linear-ensiform leaves, and leafy branching scapes bearing several showy enduring flowers, usually orange-red, copper-coloured, or yellow. [T. M.]

HOMINY. A meal prepared from Indian corn.

HOMOCARPOUS. Having all the fruits of a flower-head exactly alike.

HOMODROMAL. Having all the spires turned the same way; or the spires of a lateral organ the same as those on a central organ.

HOMOGAMOUS. When all the florets of a capitulum, &c., are hermaphrodite.

HOMOGENS. A name given by Lindley to a division of *Exogens* characterised by the wood being arranged in the form of

wedges, and not in concentric circles or zones. It is seen in the case of *Piperaceæ*, the shrubby *Aristolochiaceæ*, *Xepenthaecæ*, *Lardizabalaceæ*, and *Menispermaceæ*. The term is not now used. [J. H. B.]

HOMOZYNE. A small genus of stemless composite herbs, found in Alpine situations in South Europe. They have long stalked root-leaves with kidney-shaped toothed or angled blades, and flower-scapes three inches to a foot in length, furnished with one or two distant leaves, and terminating in a single white or purple flower-head, having all the florets tubular. Related to *Petasites*, they differ in the heads being solitary instead of numerous on each scape. *H. alpina* and *H. discolor* are sometimes seen in collections of Alpine plants. [A. A. B.]

HOMOTIOS, or HOMO. In Greek compounds = alike or similar.

HOMOLOGUE. Organs are called homologous when they have the same analytical relations, or, in other words, correspondence of structure and origin, though the functions may be different; analogous when they resemble each other in outward form or in functions. Affinity, on the contrary, expresses a close relation of one species, genus, or order to another. The several external parts of a water-lily, for instance, are perfectly homologous with those of a common white lily, but there is no affinity between them. Pollen-grains and the spores of many of the higher cryptogams resemble each other in origin and germination. They are, therefore, homologous with each other, though their functions are totally different. [M. J. B.]

HOMOMORPHUS. Uniform. All shaped alike.

HOMONEMEÆ. A name given by Fries to the lower cryptogams as propagated by spores which send out threads of the same nature with the perfect plant, and do not produce anything like a false cotyledon as in ferns. [M. J. B.]

HOMORANTHUS. An Australian genus of *Chamelauciacæ* represented by one species, *H. virgatus*, a spreading or diffuse shrub, closely resembling *Darwinia tozifolia* in aspect, and only differing from that genus in the subulate calyx-lobes. The flowers are nearly sessile, growing two to four together, at the ends of the branches, with four entire petals, shorter than the calyx-lobes, and ten stamens. [J. Br.]

HOMORGANA. A term applied to cryptogamic plants, as consisting of cells only, without vessels. It is synonymous with *Cellulares*, and is liable to the same objections. [M. J. B.]

HOMOTHALAMUS. Resembling the thallus; a term employed among lichens only.

HOMOTROPAL. Having the same direction as the seed, but not straight.

HONAY. An Indian name for *Calophyllum inophyllum*.

HONESTY. *Lunaria biennis*.

HONEWORT. *Silene Amomum*; also *Trinia vulgaris*, and *Cryptotania canadensis*.

HONEYBERRY. The name in modern Greece of the berries of *Celtis australis* also *Melicocca bijuga*.

HONEYDEW. A sugary secretion from the leaves of plants in hot weather, usually attributed to aphides, because they secrete a similar matter. When the secretion is extreme, as is sometimes the case in unusual heat, it drips from the leaves in little drops, which are sometimes so abundant that they may be swept up in considerable quantities. The secretion is then called Manna, though it is not intended by the term to identify it with the manna of the ash. The affection is ranked in vegetable pathology under the genus Apostaxis, and is generally harmless. [M. J. B.]

HONEY-FLOWER, or HONEY-PLANT. *Melanthus*.

HONEYSUCKLE. *Lonicera*; also applied amongst agriculturists to meadow clover, *Trifolium pratense*. — of Australia. *Banksia serrata*. — of Jamaica. *Passiflora laurifolia*. —, BUSH. *Diervilla*. —, DWARF. *Cornus suecica*. —, FLY. *Halimolobos*; also *Lonicera xylosteum*. —, FRENCH. *Hedysarum coronarium*. —, HEATH. *Banksia serrata*. —, WHITE. *Azalea viscosa*.

HONEYSUCKLE TREE. *Banksia australis*.

HONEYWARE. *Alaria esculenta*; also *Laminaria saccharina*.

HONEYWORT. *Ceranthium*.

HONGHEL-BUSH. *Adenium Honghel*.

HONKENYA, or HONKENEJA. A genus of *Caryophyllaceae*, allied to *Alsine*, but distinguished by its few large pear-shaped seeds, beaked at the end and having an indentation on the opposite side. They are all littoral plants found in the northern hemisphere, in the temperate and arctic zones. *H. peplodes* is very common on the shores of the British Islands, its rhizome creeping in the sand. [Benth and Hooker make it a synonym of *Armodendron*, a subgenus of *Arenaria*.] [J. T. S.]

HOODED. The same as Cucullate.

HOODIA. A remarkable genus of *Asclepiadaceae*, containing two branching South African herbs, with fleshy many-angled cactus-like stems, thickly covered at the angles with strong prickles, which are dilated at the base. The flowers have a very large corolla, and are on short peduncles near the apex of the stem; the calyx five-parted; the corolla rotate with a very short tube and a large dilated faintly five-lobed limb, each lobe terminating in an aristate tooth. The staminal crown is double, the outer whorl consisting of five deeply emarginate lobes, with the margins

incurved, the inner of five alternating leaflets bent downwards. [W. C.]

HOOKED-BACK. Curved in a direction from the apex to the base; as the side lobes of the leaf of the dandelion.

HOOKERIEI. A natural order of mosses, distinguished by the flat creeping irregularly-branched stems, with reticulated leaves, a cernuous succulent capsule on a succulent elongated footstalk, a campanulate smooth veil and double peristome. *Hookeria lucens* is one of our most beautiful mosses, and remarkable for its large pale shining loosely reticulated leaves. It is not uncommon in Devonshire. Most of the species are extra-European, and inhabitants of warm regions. A few have not flattened stems, and two or three species included in the Antarctic Flora have erect capsules, but these are distinguished from *Leucodonites* by their mitroform veil. Occasionally the base of the veil is laciniate, as in the Irish *H. latevirens*. [M. J. B.]

HOOKHEAL. *Prunella vulgaris*.

HOOP-PETTICOAT. *Corbularia*.

HOP. *Humulus Lupulus*. —, WILD. *Eryonia dioica*.

HOPEA. A genus of *Dipterocarpaceae*, consisting of resin-bearing trees natives of Borneo, whose flowers differ from those of *Shorea* only in the number and disposition of the stamens. [M. T. M.]

HOPKIRKIA. A genus of *Compositae*, peculiar to Mexico, represented by a single species, *H. anthemoides*, a smooth branching herb, with pinnately-parted leaves, and small terminal flower-heads with yellow florets. The involucre consists of four or five obovate scales, and encloses three tubular four or five-toothed florets, whose silky achenes are crowned with a pappus of eight chaffy one-nerved scales, three-toothed at top, the nerve prolonged into an awn. [A. A. B.]

HOPPIA. A small genus of Brazilian cyperaceous plants, belonging to the tribe *Curicineae*. The inflorescence is in heads which are composed of compound imbricated spikes. [D. M.]

HORANINOVIA. A genus of *Chenopodiaceae* closely allied to *Aizola*, but differing in habit, and in the perianth being longer than the filaments, in the segments having a smaller wing not produced till much later, after flowering, and in the minute styles looking like a simple stigma. They are rough annual herbs of temperate Asia. [J. T. S.]

HORARIOUS. Enduring for an hour or two only; as the petals of *Cistus*.

HORDEUM. The Barley: one of the most valuable of the genera of grasses (*Gramineae*). As a corn plant, Barley is perhaps one of the most early cultivated, and its different varieties can be grown under a wider range of climatal differences than

almost any other variety of cereal; but which wild species is the true parent of the cultivated form is a matter involved in obscurity, though in all probability one of the wild forms of the more temperate parts of India may be made to yield a good grain by cultivation. The genus may be distinguished by its spikelets being in threes arranged on opposite sides of the rachis, hence forming a bilateral spike.

The species consist of—1. Cereal Barleys: *H. hexastichum*, the six-rowed, in which all three flowers of the spikelets are perfect and fertile; *H. distichum*, the two-rowed, in which only the central flower is fertile, and the two lateral abortive. 2. Wild Barleys: *H. murinum*, *pratense*, and *maritimum*.

Of the many varieties of cultivated Barley, those known as distichous or two-rowed Barley are those more commonly cultivated, for in them the seed is tolerably uniform in size, and so a better sample is produced, and we believe that it is even more productive than the six-rowed form. This latter, however, is frequently attempted to be employed in farming; but as the lateral flowers are seldom so plump as the central one, a very uneven sample is the result. This is one of the causes of the greater coarseness of the varieties of the six-rowed barley when compared with the two-rowed—a fact perhaps more observable in the black variety than in any other.

In this group we must notice a naked six-rowed variety, the grain of which separates from the chaff scales after the manner of wheat: the difference being that in ordinary barley we have the grain + the chaff scales, which adhere and form what is usually called the skin of the barley, which is described as coarse or fine according to its degree of thickness: whilst in the naked barley we have the grain—the chaff scales. This latter is not a good malting kind, and therefore, though interesting from a botanical point of view, is never likely to become extensively cultivated.

Of the Meadow Barleys, *H. pratense* only is of any importance. Its herbage is sweet and nutritious, and when the field is constantly depastured it is an exceedingly good species to encourage; but its long awns, rough as they are with little spiculae or projections for their whole length, render them highly prejudicial in hay, for being very brittle they readily break up into small lengths which stick beneath the tongue or in the gums, the spiculae acting like barbs in preventing their removal, and so creating great irritation, swelling of the mouth, and inability to eat, which often result in serious derangements to the animals partaking of it. This effect would be even more conspicuous if the Wall Barley, *H. murinum*, formed part of a meadow, but it particularly affects old walls and waste places. Still, however, it is not unfrequently occurs in waste corners of sandy fields, and when this is so the contents of such spots should never be included in the hay-rick. We all remember how in our youth we put inverted spikes of the Wall Barley

up our sleeves and found them travel to our shoulders, where they were difficult to dislodge without disarranging them. This was caused by the parts of the spikelets being compressible, so that by a gentle motion they progressed upwards with a kind of spring; but the spiculae or barbs, on pulling the spike the contrary way, stuck into the clothes, and so it could not easily be dislodged from its position.

Both the Wall and the Seaside Barleys are denizens of sandy soils—the former everywhere, the latter on the seashore. The Wall Barley is thus a remarkable agrarian indicator of the nature of land. On the sands of the tertiary it is a common weed, so on the more sandy deposits of the new and old red sandstones. A curious instance of the partiality of this grass for sand occurs in the Cotswold hills; these are composed of oolitic freestones and chalk, both calcareous rocks, and there, as in the clays of the Oxford clay and lias, it is universally absent; but in the lias hollows of the valley of the Severn, as at Gloucester and Cheltenham in the former county, and Bredon in the latter, where are thick beds of sand varying to as much as thirty feet in depth, the wall barley so abounds, as to become a most exact indicator of the boundary lines of the arenaceous deposit. See CRITHO. [J. B.]

HOREHOUND *Marrubium vulgare*. —, BLACK. *Ballota nigra*. —, STINKING. *Ballota*. —, WATER. *Lycopus*. —, WHITE. *Marrubium*. —, WILD. *Eupatorium leucifolium*.

HORESTRANG *Peucedanum officinale*.

HORKELIA. A genus of the rose family peculiar to Oregon and California, and numbering about a dozen species. They are perennial herbs one to two feet high, with pinnatifid root-leaves, the stems terminating in crowded cymes of minute white or pink flowers. From *Potentilla* they differ in the small flowers, and in the definite number of stamens (ten in two series). [A. A. B.]

HORMIDIUM. A section of the genus *Epidendrum*.

HORMIN. (Fr.) *Salvia Horminum*.

HORMINUM. A small genus of labiate plants. The calyx is bell-shaped and two-lipped, the upper lip with three teeth, the lower with two; the tube of the corolla much longer than the calyx, and the corolla itself imperfectly two-lipped, the upper lip being very short and notched, the lower three-lobed. The anthers cohere in pairs. *H. pyrenaticum* is a tufted perennial herb, with numerous root-leaves, simple almost leafless stems, and purplish-blue flowers which grow in whorls of six, all turned the same way. It is a native of the temperate parts of Europe, on the mountains. [C. A. J.]

HORMOGYNE. A name applied to an Australian shrub belonging to the order *Sapotacea*. It may be recognised by the anthers, all of which burst inwardly; and

by the jointed ring which surmounts the ovary—whence the name, from *ornos*, a necklace. [M. T. M.]

HORNBEAM. *Carpinus Betulus*. —, **HOP.** *Ostrya vulgaris*.

HORNEMANNIA *pinnata* is a slender prostrate creeping Nepalese herb, with ovate pinnately divided leaves and small flowers, forming a genus of *Scrophulariaceæ* nearly allied to *Sibthorpin*, and differing chiefly in the corolla, which is more distinctly contracted at the base into a short tube. The name *Hornemannia* had been previously applied to a species of *Thibaudia*, and to *Mazus rigosus*.

HORN OF PLENTY. *Fedia Cornucopiae*.

HORN PLANT. *Ecklonia buccinalis*.

HORNSCHUCHIA. A Brazilian genus of doubtful affinity, placed by Von Martius in the ebony family. *H. bryotrophe*, so called from the moss growing on its leaves, is said to be a scrambling shrub, with three to five-nerved oblong unequal-sided leaves, and small white flowers in racemes arising from the lower naked shoots, each flower with a cup-shaped nearly entire calyx, six petals, six stamens, and a three-celled ovary which develops into a fruit of three cylindrical carpels each about an inch long. [A. A. B.]

HORNUS. Anything the produce of the same year; thus *Rami horni* are branches not a year old.

HORNWORT. *Ceratophyllum*. Hornworts is Lindley's name for the *Ceratophyllaceæ*.

HORNY. Hard and close in texture, but not brittle, as the albumen of many plants.

HOROLOGIIUM FLORÆ. A time-paper of flowers; a table explaining the time at which the same flowers expand in different latitudes.

HORSEBANE. *Oenanthe Phellandrium*.

HORSECHIRE. *Teucrium Chamædrys*.

HORSE-FLLOWER. *Melampyrum sylvaticum*.

HORSEHEAL, or HORSHELE. *Inula Helentium*.

HORSEHOOF. *Tussilago Farfara*.

HORSEKNOB. *Centaurea nigra*.

HORSE-MUSHROOM. A term commonly applied to the larger kinds of mushroom, as *Agaricus arvensis*, to the exclusion of the true pink-gilled *A. campestris*. Though the latter is doubtless the more delicate and makes the finest ketchup, the horse-mushroom need not be excluded on account of its supposed unwholesomeness. It is largely consumed in London and all our greater towns, and when eaten in moderation is an excellent article of food. The species is distinguished from *A. campestris* by its paler gills and generally double ring,

but especially by its turning yellow when bruised. A variety of this species, commonly known as the Hedge Mushroom, with a yellower scaly pileus, is an object of suspicion, as is also one which occurs in woods and has a bell-shaped pileus which instantly becomes of a deep yellow when touched. A closely allied species or variety is known by the name of Springers. It is observable that in Italy this species is considered far safer than the common mushroom. In France, also, it is highly esteemed, and is known under the name of Boule de Neige. [M. J. B.]

HORSEPIPE. *Equisetum*.

HORSERADISH. *Cochlearia Armoracia*.

HORSERADISH-TREE. *Moringa pterygosperma*.

HORSETAIL. *Equisetum*. —, **SHRUBBY.** *Ephedra*. — **TREE.** *Casuarina equisetifolia*.

HORSEWEED. *Erigeron canadense*; also *Collinsia*.

HORSEWOOD, JAMAICA. *Cullandra comosa*.

HORSFIELDIA. A genus of umbellifers having the fruit flat and covered with wool, each half of it with three ribs on the back. The genus was founded in honour of Dr. Horsfield, well known for his researches in the natural history of Java. [There are two species, Javanese prickly shrubs: *H. aculeata* having cordate three to five-lobed leaves, glabrous above; and *H. peltata*, with peltate palmate leaves, setose above.] The genus is of interest to the botanist, as in some measure connecting umbellifers and ivywarts, having the fruit of the former and the general habit of the latter. [G. D.]

HORTENSIA. (Fr.) *Hydrangea Hortensia*.

HORTENSIS. Of or belonging to a garden.

HORTIA. Three Brazilian shrubs forming a genus of *Rutaceæ*. The flowers are arranged in a corymbose manner on thick stalks; they have a cup-shaped calyx; five lance-shaped petals much longer than the sepals, hairy at the base on their inner surface, and with their points turned inwards like a hook; five stamens inserted on a disk with the petals, the filaments glandular and flattened; and a thick style surmounting a five-lobed ovary. The fruit is a capsule with one or two-seeded compartments. *H. brasiliensis* is said to possess febrifugal properties. [M. T. M.]

HORTONIA. A genus of *Schizandraceæ*, consisting of smooth shrubs with entire leaves, axillary cymose inflorescence, and pale yellow flowers. The sepals and petals number about thirty, in many rows; the stamens seven to ten, their filaments having two glands at their base. There are from fifteen to twenty ovaries, and the stigma is sessile. The fruit consists of dry closely-agglomerated drupes. Thero

is but one species, *H. floribunda*, found in Ceylon. [J. H. B.]

HORTUS SICOUS. The same as *Herbarium*.

HOSACKIA. A genus of pretty dwarf pea-flowered annual or perennial herbs, found in Oregon, California, and Mexico. Though allied to, and having much the appearance of, *Lotus*, they differ in the minute (not foliaceous) stipules. The leaves are in many species unequally pinnate, in others trifoliate; the flowers are mostly yellow mixed with white and purple, usually disposed in umbels, which are often stalked. Upwards of twenty species are known. [A. A. B.]

HOTTENTOT BREAD. *Testudinaria Elephantipes*.

HOTTONIA. Aquatic herbaceous plants distinguished among the *Primulaceæ* by their capsules, which, when ripe, split into five valves connected at the base and summit. *H. palustris*, the Water Violet, is a singular and beautiful plant found in ditches and pools in many parts of England, and is not unfrequently cultivated. The roots are long and silvery, and are either suspended in the water or strike deep into the muddy bottom. The leaves, wholly submersed, are finely pinnated or pectinated, and grow in tufts, from the midst of which rises a long cylindrical solitary stalk, bearing a pyramid of handsome light purple and white flowers, which are disposed in whorls. French, *Plume d'eau*; German, *Wasserviole*. [C. A. J.]

HOUBLON. (Fr.) *Humulus*.

HOULLETIA. The name of a few epiphytal orchids of tropical America, having ovate or conical pseudobulbs with one long membranaceous plaited leaf at the apex, and from the base of the bulb erect or drooping spikes, ending in a raceme of rather large and handsome nodding flowers. In *H. Brocklehurstiana*, the erect flower-scape is a foot and a half high, and the individual flower two inches in diameter, and deliciously sweet; the sepals and petals spreading, nearly equal, yellow, mottled with blood-red; the lip purple at the apex, and furnished with two horn-like processes directed towards the column. The genus is related to *Stanhopea*, differing, according to Brongniart, in the spreading sepals and petals, and in the lip being articulate in the middle, with two horns on its lower half directed towards the column. It has been named after M. Houlet, a French gardener. [A. A. B.]

HOUDSBERRY, or HOUNDS-TREE. The Dogwood, *Cornus sanguinea*.

HOUDS-TONGUE. *Cynoglossum officinale*.

HOUCHE. (Fr.) *Holcus*.

HOUSELEEK. *Sempervivum tectorum*.

HOUSELEEK-TREE. *Montium arborescens*.

HOUSTONIA. *Hedyotis*.

HOUTTEA. One of the generic or sub-generic groups, separated from *GEANERA*: which see.

HOULTUYNIA. A genus of marsh plants, inhabiting Japan and tropical Asia, and belonging to the *Saururaceæ*. They have a creeping jointed rhizome, a wavy herbaceous stem, heart-shaped leaves, with a large sheathing stipule above them, and flowers placed on a spike surrounded at its base by a ring of a few white bracts. Perianth none; stamens three, adherent for some distance to the ovary; fruit capsular, of three carpels, with three parietal placentas and numerous seeds. *H. cordata*, a curious and not inelegant plant, is occasionally met with in cultivation; its leaves are accounted serviceable as a medicine in Cochin China. [M. T. M.]

HOUX. (Fr.) *Ilex Aquifolium*. — **DE MAHON.** *Ilex balcanica*. — **FRAGON, FRÉLON, or PETIT.** *Ruscus aculeatus*.

HOVE. *Nepeta Glechoma*, sometimes called *Glechoma hederacea*.

HOVEA. A genus of handsome blue-flowered evergreen bushes, belonging to the *Leguminosæ*, differing from its allies in having turgid nearly orbicular pods as large as good-sized peas. Of about twenty known species, the greater part are confined to Western Australia, the rest occurring in South-eastern Australia and Tasmania. The leaves are mostly lance-shaped or linear, with the margins entire and rolled back, and both surfaces smooth, or the lower clothed with rusty down. *H. thicketia*, sometimes called *Plagiolobium thicketia*, has holly-like leaves. *H. Celis* is one of the best known, and a very common and beautiful greenhouse plant, flowering like most of the species in spring. This plant exhibits the peculiarity of the flower-buds of the succeeding year appearing at the bases of those expanded during the present—a common condition of leaf-buds, but not frequently seen with flower-buds. The genus bears the name of M. Hove, a Polish botanist. [A. A. B.]

HOVENIA. A genus of *Rhamnaceæ*, nearly allied to *Ceanothus*, from which it is readily recognised by the short foot-stalks of the minute whitish flowers (which are in axillary or terminal forked panicles) becoming much thickened after the flower withers. [One species only is known, *H. dulcis*, which is distributed over China, Japan, and the Himalayas; the plant of the latter district has been called *H. inaequalis*.] It is a tree with alternate heart-shaped serrated leaves. The round fruits, about the size of a pea, are seated on the end of the recurved fleshy peduncle, which is cylindrical, about an inch long, and contains a sweet red pulp which is eaten. [A. A. B.]

HOWARDIA. A genus of trees or shrubs

inhabiting tropical America, belonging to the *Orobanchaceae*, and named in honour of Mr. Howard, an eminent English pharmacologist. The flowers are remarkable, in that one of the sepals of the calyx is expanded into a large heart-shaped stalked leaf. The corolla is tubular and hairy; the stamens originate from a densely hairy ring; the ovary is surmounted by a cushion-like disk; and the fruit is capsular, girt at the top by the remains of the calyx, and bursting from above downwards.

H. (Chrysocylon) febrifuga furnishes a bitter tonic bark, first detected by Mr. Howard, who likewise found that its medicinal qualities depended on two chemical principles, one an alkaloid called *howardina*, the other a bitter principle. With reference to the leafy calyx of these and some allied plants, as *Mussaenda*, &c., it may be remarked, that the arrangement of the veins of the leafy sepal is different from that of the true leaves, a fact which has, apparently, been generally overlooked. [M. T. M.]

HOYA. A genus of *Asclepiadaceae*, containing, besides one *Elaenia* species, a large number of species dispersed over tropical Asia. They are herbaceous plants with twining or creeping stems, which throw out roots at the lower nodes. The



Hoya imperialis.

leaves are opposite, often, but not in all the species, thick and fleshy; and the flowers are in lateral umbels. The corolla is rotate, the five lobes of the limb are ovate and valvate in the bud. The staminal corona consists of five scales inserted on the gynostegium, and usually spreading horizontally like a star in the centre of the corolla; the inner angle bears a small tooth incumbent on the anther. The pollen-masses are erect, oblong, and attached in pairs. The stigma is not beaked. The follicles are smooth or with wing-like appendages. The genus contains some of the most ornamental among the plants cultivated in our hothouses. [W. G.]

HUACOSARO. A Peruvian fern, *Elaphoglossum Rustianum*.

HUCKLEBERRY. *Celtis crassifolia*.

HUCKLEBERRY. *Gaylussacia*.

HUDSONIA. A genus of North American *Cistaceae*, including three species, which are bushy little heath-like shrubs, seldom a foot high, covered all over with small awl-shaped or scale-like persistent downy leaves, producing numerous small but showy yellow flowers crowded along the upper part of the branches. The capsule is one-celled, two to six-seeded; the embryo is coiled into the form of a closed hook. [J. Br.]

HUGELIA. A genus of Californian annuals belonging to the *Polemoniaceae*, now united with *Gilia*, from which it is distinguished by having a short tube to the corolla, and linear arrow-shaped anthers. All the species are more or less clothed with white down, the leaves alternate, and the flowers disposed in heads surrounded at the base with dense wool. Some of the species have blue and yellow flowers.

The name has also been given to an Australian genus of *Rutaceae*, which is said to differ from its congeners in its cleft calyx, its ten petals, and its indefinite perigynous stamens. [C. A. J.]

HUGONIACEÆ. A name given by Arnott to a group of plants now included under *Oxalidaceae*. [J. H. B.]

HUGONIA. A genus of *Oxalidaceae*, considered the type of a special order by Planchon and others. They are Indian shrubs, with alternate oval leathery leaves, and single-flowered axillary peduncles, often changed into a circinate spine. The flowers have the parts in fives, the stamens being twice as many. The fruit is a fleshy berry or drupe, with five pits. The roots of *H. Myrtax* smell like violets, and are said to act on the kidneys and skin; they are used in reducing inflammation, and as a remedy for the bite of snakes. [J. T. S.]

HUILE ANTIQUE DE LAVANDE. (Fr.) A perfumery oil, forming one of the ingredients of Eau de Cologne. — **DE CADE.** A tarry oil obtained from *Juniperus Oxycedrus*. — **DE CÉDRAT.** An essential oil obtained from the citron. — **DES MARMOTTES.** An oil obtained from the kernel of *Prunus Brigantia*.

HULDEE. An Indian name for *Curcuma longa*.

HULST. *Ilex Aquifolium*.

HULVER. *Ilex Aquifolium*. —, **KNEE.** *Ruscus aculeatus*. —, **SEA.** *Eryngium maritimum*.

HUMATA. A small genus of creeping davallioïd ferns, sometimes referred indeed to *Davallia* itself, but having more of the technical character of *Cystopteris*. They are variable in character, having simple, lobed, pinnatifid, pedately pinnatifid, or subternate rigid leathery fronds. The sori, which are covered by suborbicular-reniform or transversely oblong reniform indusia, affixed only by their broad base, are usually vertical at the apex of the veins, but sublateral in *H. Gaimardiana*. The species are mostly

natives of India and the Indian and Eastern Islands, one of two being also found in the Mascaren Islands, and in the Feejees. [T. M.]

HUMBERTIA. A genus of *Convolvulaceae*, containing a single species from Madagascar. It is a tree with obovate petiolate leaves, and single-flowered peduncles. The calyx consists of five sepals, the corolla is five-cleft, the five stamens are much exserted, and the ovary is surmounted by a curved style, and a flat hollowed-out stigma. The baccate ligneous capsule is two-celled, with two seeds in each cell. [W. C.]

HUMBLE PLANT. *Mimosa pudica*.

HUMBOLDTIA. A genus of the *Cesalpinia* group of *Leguminosae*, consisting of two elegant scrambling shrubs, found in Malabar and Ceylon. They have curiously tumid branchlets, furnished with unequally-pinnate leaves, at the base of which are remarkable leaf-like stipules, transversely dilated at their point of attachment. The numerous scarlet flowers are disposed in axillary racemes, and have a four-toothed tubular calyx supported by two bracts, three or five petals and stamens, and an ovary which becomes an oblong compressed pod, with numerous seeds. From *Jonesia* it differs in the presence of petals, and from other allied genera in the nature of the stipules. The name of the illustrious Humboldt is perpetuated in the genus. [A. A. B.]

HUMEA elegans, so well known and so frequently cultivated in gardens, is the best known species of this genus, which belongs to the *Compositae*, and is remarkable for its minute and extremely numerous flower-heads, each of which contains but three or four tubular and perfect florets. This plant, found in a wild state in Southeast Australia, is in our gardens an erect unbranched biennial, attaining a height of four to eight feet, the stems furnished below with ample dock-like leaves, and terminating in a beautiful pyramidal panicle, consisting of myriads of drooping rose-coloured heads, not much larger than the flowers of some grasses. The whole plant is somewhat glutinous, and, especially when bruised, emits a strong and peculiar balsamic odour. [A. A. B.]

HUMIFUSE. Spread over the surface of the ground.

HUMILIS. Low. When the stature of a plant is not particularly small, but much smaller than that of kindred species; thus, a tree twenty feet high may be called low, if the other species of its genus are forty or fifty feet high.

HUMIRIACEÆ. (Humirids.) A natural order of thalamifloral dicotyledons included in Lindley's erical alliance of hypogynous Exogens. Balsamic trees or shrubs with alternate simple exstipulate leaves; calyx in five divisions; petals five, imbricate; stamens numerous, monadelphous,

the anthers two-celled with a membranous connective, extended beyond the lobes; disk often present; ovary five-celled. Fruit a drupe; seed albuminous; embryo orthotropical. They are natives of tropical America. The genera are: *Vantanea*, *Humirium*, and *Saccoglotis*. [J. H. B.]

HUMIRIUM. This and two other genera of small trees or shrubs form the order *Humiraceæ*, all the species of which belong to tropical South America. *Humirium* is distinguished by its flowers being small and arranged in cymes; by their stamens being twenty in number, either all bearing a single anther, or, in a few species, five of them larger with three-forked filaments bearing three anthers; and by the disk being ten-lobed. About a dozen species are described.

H. balsamiferum, the Humiri of French Guiana, is a tree growing about forty feet high, and having smooth, egg-shaped or oval-oblong, stalkless leaves, with the base half clasping round the stem. It produces a red-coloured wood, useful for house-building; and its bark, when wounded, yields a reddish balsamic juice, possessing an odour like that of storax, and which after a time becomes hard and brittle, and is then burnt as a perfume. An ointment is also prepared from it, and used for pains in the joints, besides which it is given internally as a remedy for tape-worm and other complaints. *H. floribundum* is a small tree common in Brazil, where it is called 'Umire,' and its wood is used for the rafters of houses. Its bark is greatly esteemed as a perfume by the Brazilians, and when wounded a fragrant yellow balsam, termed balsam of Umiri, flows from it. [A. S.]

HUMMING-BIRD BUSH. *Psychotria montevidensis*.

HUMULUS. The common Hop (*H. Lupulus*), belonging to the *Cannabaceæ*, is the sole representative of this genus. It is a perennial, producing annually long, weak, roughish twining stems, and lobed coarsely-toothed leaves, which bear a general resemblance to those of the vine, but are harsh to the touch; each pair of leaves has two forked curved stipules between them. The male and female flowers are produced on separate plants. The males grow in loose, drooping panicles from the axils of the leaves, and have five sepals and five stamens; while the females form green scaly cones or catkins, which are produced either singly or in clusters, and are composed of a number of broad concave scales, partly overlapping, each having two inconspicuous flowers at its base. After flowering and during the period of ripening, these cones increase in size, and when full grown constitute the well known 'hops' used by brewers. The scales also become covered with small grains of a resinous substance, called *lupuline*; and the ovary changes into a small nut which is enveloped in the enlarged sepal, and is the true fruit.

The Hop was well known to the Romans, and is mentioned by Pliny under the name of *Lupulus salictarius*. It gradually spread through Europe during the middle ages, but was not cultivated in England till the year 1534, when it was introduced from Flanders, though not without violent opposition, petitions against it being presented to Parliament, in which it was stigmatised as 'a wicked weed that would spoil the drink, and endanger the people.' At the present day, the principal hop-producing countries are England, Belgium, Bavaria, and the United States. In England about 50,000 acres are devoted to it, chiefly in Kent, Sussex, Hampshire, Wiltshire, and Herefordshire, and more sparingly in Essex, Suffolk, Surrey, Yorkshire, &c. Several varieties are known, the finest of which are the White Bines, the Goldings, and the Grapes. The plants are supported during growth upon stout poles varying in height from ten to twenty feet. When the hop-picking season arrives, usually early in September, the stems are cut through at about a yard from the ground, and the poles pulled up, so that the hops may readily be picked off by hand. As soon as possible after picking, they are conveyed to the oast houses, where they are spread upon hair cloths and thoroughly dried by means of hot air, and afterwards pressed into large hempen bags called pockets, in which they are brought to market.

The hop crop is a very fluctuating one. In 1859 it amounted to 68,496,727 lbs., but in 1860 it was only 11,162,777 lbs.; whilst the imports of foreign hops in the same years were respectively 248,640 lbs., and 7,718,816 lbs. The Excise duty of 1½d. per lb., and the Customs duty of 2l. 5s. per cwt. (now reduced to 1l.), yielded in 1860 a total revenue of 79,439l.

Hops serve three important purposes in brewing; 1st, they impart an agreeable flavour to the beer; 2nd, they check acetous fermentation and thus render the beer capable of being kept; 3rd, their tannin helps to clarify the beer by precipitating the albumen of the barley. Their active qualities reside principally in the golden yellow grains of *lupuline* with which they are covered. Besides their use in brewing they are sometimes prescribed as a tonic; and, on account of their narcotic odour, pillows stuffed with them are employed to induce sleep. [A. S.]

HUNGERWEED. *Ranunculus arvensis*.

HUNNEMANNIA. An erect-growing perennial belonging to the *Papaveraceae*, and allied to *Echscholtzia*, from which it is distinguished by its single peltate four-angled stigma, by its ten-ribbed pod-like seed-vessel, and by the absence of a disk-like receptacle. *H. fennaria*, the only species, is a native of Mexico; it grows to the height of two or three feet, with glaucous leaves resembling those of the fumitories, and bears large solitary terminal flowers like those of *Echscholtzia*. [O. A. J.]

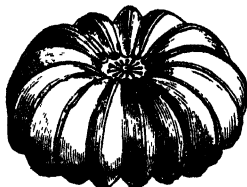
HUNTERIA. A genus of dogbanes, having a funnel-shaped corolla with a border of five oblique divisions; five stamens attached to the upper part of the tube of the corolla; and a fruit consisting of twin berries with two seeds. The species are natives of Asia, and attain considerable size; the leaves are in pairs or threes, entire and smooth; and the flowers are small in terminal or axillary clusters. [G. D.]

HUNTLEYA. A small genus of epiphytal orchids of tropical America, related to *Zygopetalum*, from which, according to Dr. Lindley, there is nothing to distinguish them except the excessively enlarged column, and the union of the sepals at the base as in *Maxillaria*. *H. violacea*, from Demerara, has large flowers, of an intense violet colour, which is not at all usual amongst orchids. The plant consists of a short stem with a few wiry roots, a tuft of strap-shaped leaves, and one-flowered drooping stalks from the axils of the lower leaves. The sepals and petals are oblong and crisped, the lip kidney-shaped, with a naked brown grooved crest, and the column boat-shaped as large as the lip. *Bollen violacea* is another name for it. *H. Melegaris* is of somewhat similar habit, but with an erect flower-stalk, pointed sepals and petals of a pale yellow at the base and claret-coloured towards the apex, and a nearly white lip. This plant is called *Batemannia Melegaris* by Reichenbach. [A. A. B.]

HUNTSMAN'S CUP. *Sarracenia purpurea*.

HURA. A genus of the spurge-wort family, differing from all others in the man-celled ovary, and the peculiar structure of the sterile flowers. *H. crepitans*, the Sand-box tree, indigenous in tropical America, known as Javilla in Panama, Acupa and Habillo in New Granada, and commonly cultivated in most tropical countries, is the only species. It is a branching tree of thirty to forty feet high, often planted for the sake of its shade, for which it is well adapted, having a great abundance of glossy poplar-like leaves. The reddish inconspicuous flowers are sterile, and fertile on different plants; the former in stalked catkin-like heads, each flower with a cup-shaped calyx, and a central column around which are one or many rows of scale-like bodies, each supporting on its concave face a stamen; the latter, solitary and stalked in the axils of the leaves, with a like calyx and a rounded ovary terminated by a singularly long trumpet-shaped style, the terminal cup-like portion of which a reflexed many-toothed border. The curious, rounded, hard-shelled fruits are about the size of an orange, and have as many deep furrows as there are cells, each cell containing a single flattened seed. When the fruit is ripe and exposed to the action of a dry atmosphere, it bursts with great force, accompanied by a loud sharp crack like the report of a pistol, for which reason it is often called the Monk's Dinner-bell. The seeds are emetic, in 1

green state violently purgative, but when dry, according to Lunan, they lose this



Hura crepitans.

property. An oil is extracted from them and sometimes used as a purgative, about twenty drops of it being equal in action to a table-spoonful of castor-oil, and less nauseous. A venomous milky juice is abundant in all parts of the plant, and if it be applied to the eye causes almost immediate blindness. The wood is extremely brittle, and the hollowed trunks are said to be used in the West Indies as vats for containing cane juice. [A. A. B.]

HURDA, HURRAH, or HURITUKEE. Indian names for the *Myrobalans*, *Terminalia Chebula*, and *citrina*.

HUREEK. An Indian name for *Paspalum scrobiculatum*.

HURRBURR. *Arctium Lappa*.

HURRYALEE. *Cynodon Dactylon*.

HURSINGHOR. An Indian name for the flowers of *Nyctanthus arbor-tristis*.

HURSTBEECH. *Carpinus Betulus*.

HURTLEBERRY. *Vaccinium Myrtillus*.

HURTSICKLE. *Centaurea Cyanus*.

HUSSEIA. A curious genus of puff-balls, named after the late Mrs. Hussey, distinguished by a cylindrical stem, supporting a globose peridium with a plicate terminal mouth, clothed with a gelatinous veil, which ultimately is turned back from the pileus and top of the stem. The only species grows on the naked soil, and has hitherto been found nowhere except in Ceylon. [M. J. B.]

HUTOHINSIA. A genus of *Cruciferae*, allied to *Lepidium*, but differing in having two seeds in each cell of the pouch, which is elliptical, with compound keeled valves without any ring or notch at the summit. They are small annuals with pinnately parted leaves, and small white flowers. One species, *H. petraea*, occurs in the western part of England. [J. T. S.]

HUTTIA conspicua, a small rush-like plant with numerous branches, but without leaves, or with the leaves reduced to very minute scales, is the only species of this genus of *Dilleniaceae*; a native of the sandy plains lying between the Hutt and

Murchison rivers on the western coast of Australia. The flowers have five egg-shaped sepals, five roundish petals with their bases contracted into short claws, and stamens arranged in two series with their bases united, the inner consisting of two broad ones, and the outer of ten, seven only of which bear anthers. They have two single-celled free ovaries crowned by thread-like styles. [A. B.]

HYACINTH. *Hyacinthus*. — of Peru. *Scilla peruviana*. —, CAPE. *Scilla corymbosa*, and *brachyphylla*. —, FETTERED. *Muscari comosum monastrum*. —, GRAPE. *Muscari*. —, LILY. *Scilla Lilio-Hyacinthus*. —, MISSOURI. *Hesperocordum*. —, SPANISH. *Hyacinthus amethystinus*. —, STARCH. *Muscari racemosum*. —, TASSEL. *Muscari comosum*. —, WILD. *Hyacinthus non scriptus*. —, of America. *Cumassia esculenta*. —, STAR. *Scilla amara*.

HYACINTHORCHIS variabilis. The name of a pretty terrestrial Japanese orchid, having one or two lance-shaped ribbed radical leaves a foot in length, and a flower scape exceeding the leaves and bearing a number of narrow-petaled pink blossoms, each about an inch long. This seems almost identical with the *Crematista Wallichiana* of the Himalaya. [A. B.]

HYACINTHUS. A well-known genus of very handsome liliaceous bulbs, of which large numbers of garden varieties are grown in Holland for exportation. The original of the common *Hyacinth*, *H. orientalis*, is a native of the East about Aleppo, Bagdad, &c., and is a stout bulb with fleshy linear oblong leaves, and a loose spike of drooping flowers, of which the perianth is bell-shaped with a six-parted regular limb of oblong nearly equal recurved segments, and encloses six equal stamens, and a subglobose three-celled ovary, crowned by a short erect style, and a three-cornered obtuse stigma. From this the various coloured, full-spiked single and double varieties of the garden *Hyacinth* have been produced. A smaller flowered species, *H. amethystinus*, found in the south of Europe, has the flowers of a bright blue, and is exceedingly pretty. [T. M.]

HYÆNA POISON. *Hyenanchis capensis*.

HYÆNANCHE. A genus of *Euphorbiaceae*, containing only one species, *H. capensis*, a native of the Cape of Good Hope, where it is called Wolveboom by the Dutch and *Hyæna-poison* by the English. It is a tree-like shrub, with smooth, leathery leaves arranged in whorls, and the small flowers of separate sexes on the same plant. This shrub has acquired the name of *Hyæna-poison* bush from its fruits, which are exceedingly poisonous, being used to destroy those animals, the powder being sprinkled upon raw flesh, which is left in places frequented by them. Dr. Pappe supposes it to contain *strychnine*. [A. S.]

HYA HYA. *Tabernaemontana utilis*, one

of the innocuous milky plants called Cow trees in South America.

HYALINE. Transparent, or nearly so.

HYALIS. A genus belonging to the *Mutisia* group of the composite family, differing from its allies in the smooth style, the nature of the pappus, and the ten-ribbed achenes. *H. argentea*, the only species, is found on the salt plains of North Patagonia, where, according to Tweedie, it grows in patches to the extent of acres, and to the exclusion of almost everything else. It is a perennial stiff-branched plant, covered with short white hairs, the stems clothed with grassy leaves, and terminating in corymbs of small white flower-heads. The pappus hairs are white, rough, and in three series. [A. A. B.]

HYALISMA. A small slender leafless annual, a native of Ceylon, forming a genus of the curious little order or tribe *Triuridaceæ*.

HYALOLEPIS. The generic name of a pigmy annual found in South and West Australia, and belonging to the cudweed group of the composite family. It has very short stems, with grassy leaves surrounding a sessile cluster of small white flower-heads, each head containing a single floret, and the whole surrounded by a common involucre of very thin scales so as to form a compound head. The generic name has reference to the hyaline scales, and the specific *rhizocephala* to the heads which arise from the collar of the plant in close proximity to the root. [A. A. B.]

HYALOSTEMMA. The name of an Indian shrub of the anonaceous family, now referred to the genus *Mitras* by Drs. Hooker and Thomson. [M. T. M.]

HYAWABALLI. The Zebra wood of Guiana.

HYBERNACULUM. The same as *Hibernaculum*.

HYBERNAL. Of or belonging to winter.

HYBRIDS, HYBRIDÆ. Plants obtained by applying the pollen of one species to the stigma of another.

HYDNEI. A natural order of hymenomycetous *Fungi*, distinguished by the hymenium being broken up into flat teeth, or variously fashioned into spines, tubercles, granules, &c. *Pyrex*, which has flat teeth, is sometimes with difficulty distinguished from certain states of *Polygones*, but in the more genuine members of the order which on the other side is confluent with *Articularium*, the peculiar characters are at once evident. *Hydnum gelatinosum* has the substance and nearly the structure of *Tremella*, and is now named by Mr. Currey *Hydnoglaum*. The species are mostly inhabitants of the northern hemisphere, though a few have been found in Australia and the southern regions. [M. J. B.]

HYDNOCARPUS. One of the four genera belonging to the poisonous order *Pan-*

glaceæ. It consists of six species, all of which are trees, sometimes attaining a large size, and natives of India. The leaves are alternate, oblong lance-shaped, generally somewhat unequal-sided; and the flowers are of separate sexes borne on distinct trees: in both having five sepals and five petals, with an equal number of scales opposite them. The fruit is one-celled, with a hard corky rind, and contains numerous irregularly angled seeds, with thick roughish shells, lying in pulp.

H. venenata (or *H. inebrians*, as it is sometimes called) is a large tree, native of Ceylon (where it is called Makooloo) and of the Malabar coast of India. Its fruit, which is about the size of an apple and covered with a brown velvety down, is very poisonous, and is used by the Singalese for intoxicating fish, but the fish taken thus are not fit for human food. The seeds contain a quantity of fatty oil, which is expressed and used by the native Indian doctors as a cure for leprosy and other cutaneous complaints, for which purpose it is greatly esteemed. [A. B.]

HYDNOPHYTUM. A genus of cinchonaceous shrubs, inhabiting the Molucca Islands. They are described as being of parasitic habit and frequently dilated at the base, so as to form a cavity, made use of by ants as a nest. The flowers have an inferior calyx with an undivided margin, a four-lobed corolla, with a short tube, into the throat of which the stamens are inserted. The fruit is fleshy with two one-seeded stones. [M. T. M.]

HYDNORA. A genus of curious fungus-like leafless plants of the order *Cytinaceæ*, found in South Africa, parasitical on the roots of succulent euphorbias and other plants. *H. africana*, called Jackal's kost, is said to smell like decaying roast-beef or some fungus, and to be eaten, when roasted, by the African savages. The plant consists of a large succulent hermaphrodite solitary, tubulose, trifid flower, borne on a creeping rhizome; and this flower is succeeded by a globose, baccate, many-seeded fruit. The plant may be compared with *Geaster*, or some such half-buried fungus. [T. M.]

HYDNUM. A genus of hymenomycetous *Fungi*, varying greatly in substance, but distinguished by the hymenium consisting of prickles projecting from the pileus. These differ very much in length. Occasionally they are variously cleft or lacinate. Many of the species are of a large size, and supported by a central stem, or much branched with the divisions connate, so as to make a kind of coarse network. *H. repandum*, which is common in woods, where it sometimes occurs in scattered patches, and sometimes in large rings, affords an excellent article of food if carefully dressed, and is scarcely exceeded in delicacy by any fungus. The specimens must be quite fresh and free from insects, and after being sliced into hot water, and gently pressed, should either be care-

fully stewed or rubbed down into a purée. Other species are occasionally eaten abroad. *H. auriscalpium* is one of our most elegant *Fungi*, not uncommon on fir cones. The spongy and corky species are only slightly represented in Great Britain, but of the resupinate forms we have many good examples. *H. aurantiacum* and one or two more have been lately added to our Flora. [M. J. B.]

HYDRANGEACEÆ. (*Hydrangea*, *Bou-eraceæ*.) A natural order of Calycifloral Dicotyledons, included in Lindley's Saxifragal alliance of perigynous Exogens, and referred by Bentham and Hooker to *Saxifragaceæ*. Shrubs with opposite simple exstipulate leaves. Flowers in cymes, the central ones complete, the outer ones with large sepals and often barren; calyx adherent, four to six-toothed; petals four to six, deciduous; stamens eight to twelve in two rows, or numerous; ovary of two to five carpels united; ovules numerous, anatropal; styles two to five with kidney-shaped stigmas. Fruit a capsule crowned by the persistent styles, two to five-celled; seeds albuminous, minute. Natives of the temperate part of Asia and America. About one half are found in China and Japan. Some species of *Hydrangea* are used for tea. There are ten genera and nearly fifty species. [J. H. B.]

HYDRANGÆA. Showy shrubs, referred by some to the *Saxifragaceæ*, by others to *Hydrangeaceæ*. The distinctive characters are: calyx superior five-toothed; petals five; stamens five; pistils two; capsule two-beaked, two-celled, opening by a hole between the beaks. The best known species is *H. hortensis*, introduced from China by Sir Joseph Banks in 1790. It is distinguished by its broad, smooth, strongly veined leaves, which are toothed, and taper to a point, and yet more strongly marked by its almost globular clusters of large flowers, the colour of which varies in the same plant, from white to blue or pink, according to the soil in which it is grown. The part of the flower which appears to be the corolla, is not so in reality, but a monstrous expansion of the calyx leaves, the rest of the flower being generally abortive. The similarity between the balls of flowers of this plant and those of the guelder rose is obvious; and it is worthy of remark that the resemblance is owing to precisely the same irregularity in each—an undue development of the floral envelope to the detriment of the essential parts of the flower—stamens and pistils. These organs are found only in a few flowers, which of course are the only ones that can produce seeds. [O. A. J.]

HYDRANGELLE. (Fr.) *Hydrangea*.

HYDRANTHELIUM. A genus of *Scrophulariaceæ*, consisting of small aquatic annuals, with the habit of *Callitriche* or of *Elatine*. The leaves are opposite and cuneate or obovate, the flowers very minute and axillary, with a three-cleft corolla, and three stamens. There are two species, natives of the mountainous districts of

tropical America, one of which has also been found in tropical Africa.

HYDRASTIS canadensis is the only species of a genus of *Ranunculaceæ*, found in damp places in woods, in the Northern United States and Canada, where it is called Yellow Puccoon, Orange root, or Canadian Yellow root. It is an herbaceous perennial, with a thick knotty yellow underground stem, or root as it is more frequently called, which in early spring sends up a simple stem, about a foot high, bearing near the top two (or rarely three) rounded hand-shaped leaves, the upper leaf growing close upon the stem, while the lower one has a longish stalk. At the top of the stem is a solitary small greenish-white inconspicuous flower, entirely destitute of petals; the three-leaved calyx quickly falls away, leaving only the stamens and pistils. The fruit is about the size of and greatly resembles a raspberry in its appearance, having juicy flesh of a bright crimson colour. The yellow root of this plant was formerly employed by the American aborigines for dyeing a bright yellow colour, and it is occasionally employed for the same purpose at the present day. It has a strong narcotic odour, with a bitter pungent taste, and possesses tonic properties, on which account it is sometimes used medicinally; it was at one time supposed to be a remedy for cancer. [A. S.]

HYDRILLA. A genus of *Hydrocharidaceæ*, allied to *Anacharis*. A slender-stemmed aquatic herb, with whorled sessile leaves, growing in the rivers of India, China, and America. The spathes are axillary and single-flowered, with a six-cleft reflexed perianth, and three stamens which become detached and float on the surface. The female, with a spreading perianth, has a long thread-like tube adhering to the ovary, permitting the stigmas to reach the top of the water. [J. T. S.]

HYDROCERA. A genus of *Balsaminaceæ*, consisting of aquatic Indian herbs, with alternate linear or lanceolate glaucous leaves, and solitary axillary two or three-flowered peduncles, the pedicels longer than the common peduncle. They have a calyx of five coloured unequal sepals, the two lateral smaller, and the lowest larger and gibbous at the base, unequal petals, and five stamens, with the filaments united at the apex. The fruit is a drupe, with a five-celled hard interior, each cell containing one seed. [J. T. S.]

HYDROCHARIDACEÆ. (*Vallisneriaceæ*, *Anacharideæ*, *Hydrocharads*, *Frophiæ*.) A natural order of epigynous monocotyledons belonging to Lindley's hydral alliance of Endogens. Aquatic plants with flowers in spathes, often incomplete; perianth of six leaves, the three inner petaloid; ovary one-celled, or spuriously three to nine-celled; stigmas three to nine; placentas parietal. Fruit dry or fleshy, and opening; seeds albuminous; embryo straight, orthotropal. Natives chiefly of Europe, Asia, and North America,

and growing generally in fresh water. Movements of granules may be seen in the cells of many of the plants. *Vallisneria spiralis* is found in the south of Europe. Two species of this genus occur in New Holland. The leaves of *Hydrocharis morsus ranae* are mucilaginous and astringent. *Anacharis Alismastrum* has become naturalised in many parts of Britain. There are nineteen genera, and about thirty-six species. Examples: *Udora*, *Vallisneria*, *Stratiotes*, *Hydrocharis*. [J. H. B.]

HYDROCHARIS. A small floating aquatic, giving name to the order *Hydrocharidaceae*, and distinguished by the following characters: ovary six-celled; stigmas six, wedge-shaped, two-cleft; stamens six to nine. *H. morsus ranae*, or Frogbit, is an elegant little plant, inhabiting ditches, ponds, and the still back waters of rivers. It increases by floating horizontal runners which shoot out to a considerable length; from the joints descend tufts of long, scarcely branched roots, which penetrate deep into the mud. From the same points issue pendulous leaf-buds, supported on long footstalks; each of these buds is composed of two leaf-like scales, folded together and curiously enveloping the embryo leaves of the future plant. The leaves are stalked, kidney-shaped, entire; the flowers of three delicate white petals, rise several in succession, from a pellucid membranous sheath, and bear the stamens and pistils on separate plants. This is one of the most desirable plants for the freshwater aquarium. French, *Morene*; German, *Froschbiss*. [C. A. J.]

HYDROCHLOA. A genus of grasses belonging to the *Oryzæ*. *H. carolinensis*, with *Zizania aquatica*, the Canada rice, constitute the genus *Hydrophyrum*. The name is also given to another group of grasses synonymous with *Glyceria*. [D. M.]

HYDROLEIS. A genus of aquatic plants, belonging to the *Rutonaceæ*, growing in tropical America. They have the leaves all radical, cordate ovate. The flowers are on simple scapes, large, yellow, with the three inner perianth segments petaloid and deciduous; the three outer green and persistent; they have numerous stamens, and from six to nine carpels. *Limncharis*, as now restricted to *L. Plumieri*, differs in having fifteen to twenty carpels, and an umbel of flowers. [J. T. S.]

HYDROCOTYLE. An extensive genus of umbelliferous plants, mostly herbaceous and of humble growth, but some approaching shrubs in habit, difficult of discrimination, and possessing little interest except for the scientific botanist. The only native species, *H. vulgaris*, common Pennywort, is one of the few British plants which have peltate leaves. The plant bears an ill name from being considered, in conjunction with two or three other bog plants, the fruitful cause of rot in sheep, an unfounded accusation, for it possesses no noxious properties, and sheep more-

over refuse to eat it. German, *Wasser-nabel*. [C. A. J.]

HYDRODICTYÆ, HYDRODICTYON. An order and genus of green-spored *Alge*, remarkable at once for beauty and singularity of structure. The plant, when full-grown, resembles a long purse, consisting of a beautiful regular network of threads. These threads contain a mass of endochrome which is ultimately resolved into minute zoospores; these arrange themselves, within the articulation which gave them birth, into polygons, in such a way as, when united, to form a network, which gradually increases till it resembles the parent plant; each joint, therefore, of the network gives rise to a new individual. This singular mode of development is without example in other orders. The other genera usually ascribed to this order are probably related to *Anadyomene*. *Hydrodictyon utriculatum* is found in fresh water, though rarely, in several parts of Europe, and has long been known as growing every year in the pond in the Old Botanic Gardens at Cambridge. It has also been found in the United States. [M. J. B.]

HYDROGLOSSUM. A genus of climbing ferns of the *Schizæa* group, the exact analogues of *Lygodium* in habit and fructification, but differing therefrom in having netted instead of free veins, the venules anastomosing in from two to four series of unequal obliquely-elongated hexagonal areoles. The species are but few, and are found in the Pacific Isles, Madagascar, and Mexico. [T. M.]

HYDROLEACEÆ. A name given by Brown to the plants now included in the order *Hydrophyllaceæ*. [J. H. B.]

HYDROLEA. A genus of *Hydrophyllaceæ*, containing several species common in America, and rare in Asia and Africa. They are marsh plants, often armed with axillary spines, and bearing alternate entire leaves, and axillary or terminal blue flowers, which have a calyx of five persistent sepals, a rotate campanulate corolla, five stamens inserted in the tube of the corolla, and a two-celled ovary with many anatropal ovules, attached to fungous placenta. The capsule is two-celled with numerous small striated seeds. The leaves of *H. zeylanica* are bitter; in India they are beaten into pulp, and applied as a poultice to ill-conditioned sores with a beneficial effect. [W. C.]

HYDROGERA VASA. The spiral threads inside a spiral vessel; formerly supposed to be tubes conveying fluid.

HYDROPELTIS. A genus deriving its name of Water-buckler from the shape of the leaves. It is included among the *Cabombaceæ*, and differs from *Cabomba* in the numerous thread-like stamens, and the equally numerous whorled, somewhat fleshy carpels. *H. purpurea*, called also *Brasenia peltata*, is a curious little water plant, with floating peltate oval leaves, and purple flowers, on the end of some-

what thickened flower-stalks. The submerged portions are covered with a mucilaginous substance, formed by the rapid formation and rupture of the cells on the outer surface of the plant. The wide distribution of this plant is hardly less remarkable than its structure, for it has been found in the United States, Canada, Australia, and the Himalaya mountains. In America it is esteemed nutritious, possibly from the large-grained starch it contains. The leaves are somewhat astringent, and have been employed in phthisis and dysentery. [M. T. M.]

HYDROPHYLLAX. A genus of *Cinchonaceae*, represented by a creeping herb, native of the sandy sea-shores of India. The corolla, like the leaves, is somewhat fleshy, bell-shaped, with a hairy throat into which the four stamens are inserted. Fruit succulent, four-cornered, with a single seed in each of its two compartments. *H. maritima* is used for dyeing purposes. [M. T. M.]

HYDROPHYLLACEÆ. (*Hydroleaceæ*.) A natural order of corollifloral dicotyledons belonging to Lindley's cortical alliance of perigynous Euxogens. Herbs or small trees, usually with alternate and lobed hispid leaves. Calyx five-cleft, persistent; corolla regular, somewhat bell-shaped; stamens five, alternating with the corolla lobes; ovary superior with two parietal placentas; styles two. Fruit a two-valved one-celled or spuriously two-celled capsule, filled with a large placenta; seeds reticulated; embryo small, in hard albumen. Natives chiefly of the temperate and cold portions of America. A few are found in the East Indies, and some at the Cape of Good Hope; some are cultivated on account of their showy flowers. *Hydrolea* has bitter qualities. There are eighteen known genera, and about eighty species. Examples: *Hydrophyllum*, *Nemophila*, *Eutoca*, *Phacelia*, *Hydrolea*, *Whitlavia*. [J. H. B.]

HYDROPHYLLUM. A genus of American herbaceous perennials, giving name to the order *Hydrophyllaceæ*. The corolla is five-cleft and furnished with as many corolline scales, which are attached by the back, but free at the margins and point; the stamens exceed in length the tube of the corolla, and the stigma is two-cleft. The flowers of these plants resemble those of the borage tribe, not only in the structure of the corolla, but in their curled arrangement while in bud; but the seeds are enclosed in a single one-celled or half-two-celled capsule, and the leaves are always more or less divided. The species grow among moist shady rocks, and derive their name (which means Water-leaf) from their having in the spring a small quantity of water in the cavity of each leaf. In North America the leaves of *H. virginicum* are eaten under the name of Shawanese salad. French, *Hydrophyllé*; German, *Wasserblatt*. [C. A. J.]

HYDROPIPER. *Polygonum Hydro-piper*; also *Elatine Hydro-piper*.

HYDROPYRUM. A genus of aquatic grasses, distinguished by the spikelets being monœceous, the male and female flowers in the same panicle. Male flowers without glumes; pales two, membranous, the lower acute and mucronate, five-nerved, concave, the upper three-nerved; stamens six. Females with rudiments of glumes; pales two, membranous, the lower three-nerved, ending in a long awn; styles two, short and spreading. *H. esculentum*, the Canada Rice, is a well-known plant of North America, where the large seeds yield a considerable amount of food to the wandering tribes of Indians, and feed immense flocks of wild swans, and other aquatic birds. It grows well in Britain when it is once established, but it is liable to die away if not cared for. [D. M.]

HYDROSTACHYS. Aquatic herbs, natives of Madagascar, constituting a genus of *Podostemaceæ*. They are of little general interest, but are known by their unisexual naked flowers, and by their fruit, which consists of two carpels, forming a single cavity, and bursting by two pieces or valves. [M. T. M.]

HYDROTÆNIA. A genus of bulbous *Tradaceæ* allied very closely to *Steyriachium*, from which it differs in having the anthers opposite the sepaline divisions; it has, moreover, quite a different habit, imitating rather the Illiaceous genus *Fritillaria*. The perianth is bell-shaped with the parts almost isomericous, the petaline divisions clawed, and marked above the claw with a triangular zone which glitters as if constructed of rock crystal; there are three monadelphous stamens, and a trifold style whose branches divide into three erect stigmas of a remarkable character, each parting into two arms which are rolled up as if to form a gutter, and bear a dense mass of bright papillæ at the end, and a single tooth on the inner edge, while between the arms stands a short mucro free from glands, and forming a minute horn. The name refers to the glittering dewy or watery band on the petaline segments. *H. Meleagris*, the only species, is a native of Mexico, and has a single plaited ensiform leaf, and fræcacious campanulate purple flowers, pendulous on slender footstalks. [T. M.]

HYEMAL. Of or belonging to winter. Usually applied to plants that bloom in winter.

HYGROPHILA. A genus of *Acanthaceæ*, containing about two dozen species, which are widely distributed over the tropical and sub-tropical regions of the world. They are erect or decumbent herbs, growing in moist localities. The flowers are in sessile axillary clusters, and have a calyx of five or rarely four sepals; a two-lipped corolla, with the upper lip notched, and the lower three-lobed, the lobes contorted in the bud; and four didynamous stamens. The oblong or linear capsule has seeds along its whole length. [W. C.]

HYGROPHORUS. A genus of *Fungi*,

separated from *Agaricus* on account of their peculiar habit, their waxy not membranaceous gills, and granular intermediate substance. Though the characters seem rather indefinite, there is no difficulty in recognizing the genus at the first glance. Many of the species are extremely beautiful and exhibit the most brilliant colours, but these are often not characteristic, the same species presenting frequently very different hues. A great many of them grow in open pastures, and abound in the fields in autumn, the woodland species generally exhibiting a different type. All of them readily imbibe and part with their moisture, and several are covered all over with a glutinous coat. Few, if any, are admitted into our kitchens, though no doubt some are wholesome. *H. conicus*, one of the commonest, exhibits every shade between yellow and scarlet, and may always be known by its turning black when bruised. *H. psittacinus* presents various tints even in the same specimen, its colours vying with those of parrots. The genus is little known out of Europe and the United States; Ceylon has, however, afforded some beautiful species in this as in other genera of *Agaricus*, in which the island is peculiarly rich. [M. J. B.]

HYGRORYZA. A genus of Grasses belonging to the tribe *Oryzæ*, distinguished by the spikelets being hermaphrodite, one-flowered; glumes two, the lower terminating in a tail-like bristle, the upper acute; pales slender, toothed at the apex; stamens three; styles one. *H. aristata* is a native of the West Indies. [D. M.]

HYGROSCOPICITY. The property of extending or shrinking upon the application or removal of water.

HYLAS. *Myriophyllum*.

HYMEN. In Greek compounds = a membrane, or membranous.

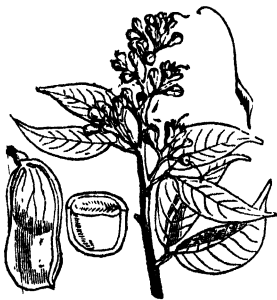
HYMENACHNE. A small group of South American grasses, proposed as a separate genus by Nees ab Esenbeck, but now referred to *Panicum*. They are represented by the *P. Myurus* of Lamarck, and consist of some three or four species in which the panicle of flowers is simply branched, and the spikelets are disposed either in a spike or racemose manner. [T. M.]

HYMENANTHE. A synonym of *Viscaria*, one of the subdivisions of *Lychnis*.

HYMENÆA. A genus of leguminous plants of the section *Cæsalpinia*, so named from Hymen, the god of marriage, in consequence of the leaves being composed of a pair of leaflets. Its flowers have a woody tubular calyx with two bracts at its base, and divided into five deciduous segments, the two lower of which are sometimes joined together; and five unequal petals, inserted along with the ten distinct stamens into the summit of the calyx tube. The fruit is a pod with a hard woody shell containing several seeds imbedded in a fibrous pulpy substance, which eventually becomes dry and mealy, and is commonly eaten by Indians.

H. Courbaril, the common West Indian

Locust tree, called *Algarroba* in Panama, *Jatal* in Brazil, and *Simiri* in Guiana, is a common tree in most parts of tropical South America. It grows to an enormous size, and, according to some calculations, lives to a very great age, some of the trees at present existing in the forests of Brazil being supposed to have been of considerable size at the commencement of the Christian era. Most of these old trees are supported at the base by immense buttresses, and at this part some have been measured no less than eighty-four feet in circumference, while even at the top of



Hymenæa Courbaril.

the buttresses, where the trunk assumes the usual cylindrical form, the circumference is as much as sixty feet. The timber is of a fine brown colour, hard and close-grained; it is used for building and other purposes in South America, and is occasionally exported to this country. It is covered with a very thick but light bark, which is used by the Indians for making canoes. A valuable resin, resembling the anime of Africa, exudes from the trunk, and large lumps of it are found about the roots of old trees. [A. S.]

HYMENANDRA. A genus of *Myrsinaceæ*, consisting of a single species found in the Silhet district of India, and differing from the other genera in the anthers being united to each other by their margins, and in the ovaries containing numerous ovules. *H. Wallichii* is a stout evergreen shrub often cultivated in plant stoves for the sake of its handsome leathery and glossy leaves, which are shortly stalked, and in form and size a good deal like the leaflet of a horse-chestnut. The pretty pink flowers are disposed in compound lateral umbels have wheel-shaped five-parted corollas half an inch across. The fruit is a berry about the size of a pea. [A. A. B.]

HYMENANTHERA. A genus of Australian shrubs, belonging to the violet family. The leaves have no stipules; the flowers are regular; the five short stamens are alternate with the petals, the anthers being

connected by the long crest which surmounts their lobes. The fruit is succulent, surrounded by the persistent outer whorls of the flower, either one or two-celled. From other genera this differs in its nearly regular flowers, and in its five stamens which are united into a tube, having at their base scale-like appendages prolonged beyond the anthers. [M. T. M.]

HYMENIDIUM. A genus of umbellifers, distinguished chiefly by each half of the fruit being provided with five ridges prolonged into wing-like membranes. The genus comprehends herbaceous plants natives of Kashmir, having the leaves much divided, and membranous bracts longer than the flowers. [G. D.]

HYMENIUM. The fructifying surface in *Fungi*, more properly applied where the spores are naked, but used also to express the same condition in such genera as *Helvella* and *Peziza*. It is not used where the fructifying cells are contained in a distinct perithecium, the word *nucleus* being then more generally substituted. [M. J. B.]

HYMENOCALLIS. A genus of beautiful paucicarpiform *Amaryllidaceae*, consisting of bulbous plants, with usually persistent lorate leaves and flattened two-angled solid scapes, bearing an umbel of from one to a score of flowers, which are white and very fragrant. The perianth has a straight elongated tube scarcely widened at the throat, a six-parted limb of subequal linear segments, a funnel-shaped or rotate spreading coronet on the edge of which the six stamens are developed, and a long flaccid declinate style with a roundish minutely fimbriated stigma. There are some score or more of species inhabiting the West Indies and South America. [T. M.]

HYMENOCARDIA. A genus of the order *Stilaginaceae*, differing from the others in having samaras (somewhat maple-like) fruits. Of four known species three belong to West Africa, and one to the Malay peninsula. They are deciduous shrubs or small trees, with ovate oblong or elliptical leaves covered with glandular dots underneath, and minute reddish flowers, the sterile and fertile borne on different plants, the former in short axillary spikes, the latter solitary or in racemes. These are succeeded by two-celled two-winged fruits. *Samaropsis* is the name applied to the Malayan species by Miquel. [A. A. B.]

HYMENOCYSTIS. *Woodsia fragilis*.

HYMENODES. Membranous in texture.

HYMENODICTYON. Indian trees closely related to *Cinchona*, distinguished by the projecting style, terminated by a lobed, somewhat club-shaped stigma; and the fruit, which is not surmounted by a limb of the calyx, forming a capsule, bursting by two valves. The seeds are numerous, surrounded by a membranous netted wing, whence the name. *H. excelsum* a native of Ceylon and the peninsula of India, and *H. utile* a native of Malabar, have soft mahogany-coloured

wood. The bark of the first-named is very astringent, as much so as that of the true cinchonas. This bark is used for tanning purposes. [M. T. M.]

HYMENODIUM. The principal species of this genus of acrostichoid ferns is a coarse simple-fronded West Indian plant, with large oblong-ovate fronds, sprinkled over rather thickly with long black hairs. The fertile fronds are of the same form, but smaller, and entirely covered with spore-cases on the under surface. The veins are uniformly reticulated in coarse hexagonal or elongated meshes, without free veinlets. Also called *Dictyoglossum*. [T. M.]

HYMENOGLOSSUM. A name proposed by Presl for the *Hymenophyllum cruenum* of Chili.

HYMENOLENA. A genus of umbellifers, having the fruit ovate or oblong, each half with five nearly equal winged ribs, and two oil-cells in the commissure. The species are smooth perennial herbs, natives of Nepal, having much-divided leaves, and terminal many-rayed umbels, each surrounded by a many-leaved involucre, the pieces of which are membranous, often toothed or cut. [G. D.]

HYMENOLEPIS. A small and well-marked genus of polypodiaceous ferns, referable to the tribe *Pleurogrammeae*. The fronds are simple opaque and linear lanceolate or lorate, with the apex very much contracted, usually spike-like and fertile, so much contracted, indeed, that the continuous line of spore-cases which lies on each side the costa is in the early stages covered by the revolute margin, as in the fertile parts of *Lomaria*. The veins are compoundly anastomosing, forming crowded irregular areoles, in which occur variously directed free veinlets. The species are found in India and the islands of the Pacific and Indian Oceans. [T. M.]

HYMENOMYCETES. The highest of the six great divisions of *Fungi*, containing those naked-spored genera, in which the fructifying surface or hymenium is at length completely exposed. In a few of the agarics and boleti, there is at first a common wrapper (*voiva*), or a partial veil covering the hymenium, but in far the greater part it is exposed even in infancy. The hymenium literally applies to the fruit-bearing stratum only, the organs on which it is spread being called the hymenophorum, but in general it is applied to the whole apparatus, whether consisting of gills, wrinkles, tubes or pores, spines or tubercles, or if all inequalities in the surface cease and it becomes perfectly even. In the higher species, the hymenium is horizontal and turned away from the light, but in those of an inferior dignity it is often resupinate, though in such cases there is frequently a tendency to attain the usual position by the turning over of the border. In a few rare cases, on the contrary, amongst agarics, where a species was in the first instance stipitate,

the pileus is at length turned over, the stem becoming gradually lateral, while it ceases to increase in length; and in a little species from Borneo, the stem is completely torn off, and remains like a little style in the centre.

The *Hymenomyces* are for the most part either soft and fleshy, or by various transitions hard and compact, but a few species are gelatinous, and some of these when dried up recover their form on the application of moisture. They pass by almost imperceptible degrees into *Hyphomyces*, by means of *Typhula* and *Isaria*; into *Gasteromyces*, by means of *Agaricus* and *Montagnites*; and into *Contomyces* by means of *Tremella* and *Podisma*. The transition into the sporidiferous fungi is not so acutely marked, the relation of *Clavaria* to *Geoglossum* being rather one of analogy than affinity. They are fungi of great importance as containing the greater number of the larger species, and supplying an immense quantity of excellent food, besides answering other domestic ends. In the organised world their use is to decompose more rapidly such structures as have answered their immediate purpose. The largest trees, when once attacked, soon acquire a condition which is favourable to other causes of decay.

The hymenium being the prominent element in these plants affords the readiest mode of their classification. The following natural orders depend, therefore, on its conformation:—

Agaricini: those which bear gills or gill-like wrinkles.

Polyporei: those with pores or tubes.

Hydnei: those with spines or tubercles

Auricularini: those destitute of inequalities.

Clavariet: pileus club-shaped.

Tremellini: substance gelatinous.

The *Hymenomyces* occur in all parts of the world, extending southwards as far as Campbell's Island, and northwards to Spitzbergen. They abound, however, most in warm and moist temperate regions, as in Sweden, which is perhaps the richest and most prolific country in the world for these fungi. There are no certain traces of them in any geological formation older than ancient peat mosses. [M. J. B.]

HYMENOPAPPUS. A genus of annual or perennial North American herbs of the composite family, with angular stems, pinnately lobed or cut leaves, usually clothed with lax white wool, and white or yellow flower-heads in corymbs at the ends of the branches. From its allies the genus differs in the florets being all tubular and perfect, and in the involucrel scales being white and petal-like at the tips, thus giving the heads a ragged appearance. [A. A. B.]

HYMENOPHORUM. The cellular or filamentous structure in hymenomycetous Fungi, on which the hymenium or fructifying surface is spread like wax upon a mould. In the *Agaricini* and *Polyporei*, it is identical with what is called the trama or

inner substance of the gills or partitions of the pores. [M. J. B.]

HYMENOPHYLLUM. A genus of film ferns, of which one or two species occur in Britain, and many others are scattered over the hot damp forests of the tropics, both insular and continental, as well as the moist ravines of New Zealand and Chili. The fronds vary greatly in size and character, some being minute and others of considerable size and length, some simple and others decomposed; but all, or nearly all of them, filmy pellucid in substance, and with creeping thread-like rhizomes. The spore-cases are collected around free projecting hooks formed of the ends of the veins which traverse the fronds, and are contained within oblong or suborbicular two-valved marginal cysts. *Hymenophyllum* differs from *Trichomanes*, the other principal genus of film ferns, by the two valves of the involucre being separate, and not blended into a cup. [T. M.]

HYMENOPHYSA. A genus of *Cruciferae* closely related to *Lepidium*, and differing chiefly in the little fruits—the size of mustard seed—being globular instead of compressed. There are two species known, *H. fenestrata*, found in Persia, and *H. pubescens*, in the Altai. The latter is a perennial branching, leafy-stemmed herb, whose branches terminate in racemes of numerous small white flowers. [A. A. B.]

HYMENOPYRAMIS brachiata, the only species of the genus, is a scandent East Indian shrub of the *Verberna* family, with quadrangular stems, opposite entire ovate leaves, hoary underneath, and terminal leafy panicles of very minute flowers, with tubular corollas, having four-toothed borders. The calyx, at first of four minute teeth, enlarges when the flowers wither, and encloses the small ripe hairy nut, in the form of a four-winged bladder. This character serves to distinguish the genus from its allies. [A. A. B.]

HYMENOXYS. A genus belonging to the corymbiferous tribe of compound flowers. The scales of the involucre are in two rows, the inner largest, all rigid and pressed close to the flower; the receptacle is chaffy, and furnished with small glands; and the fruit is downy with chaffy pappus. *H. californica*, an annual species, grows a foot high, with slender branched stems, pinnatifid leaves, and yellow flowers. [C. A. J.]

HYMENULUM A disk or shield containing a cell, but without excipulum.

HYOBANCHE. A genus of fleshy and woolly plants, parasitical on various roots, found in the flat lands of the Cape of Good Hope. The stem is closely covered with ovate appressed scales. The flowers are in a dense ovate spike, and have an unequally five-cleft calyx, a clavate corolla slightly curved and vaulted, with a very narrow oblique mouth, and obsolete limb, four stamens of nearly equal length, the anthers by abortion one-celled, and a more or less completely two-celled ovary. The capsule

is sub-globose, fleshy, containing numerous minute round seeds. The habit and structure of this genus seem to place it in *Orobanchaceae*, where it would, without doubt, remain, but for its two-celled ovary, and axile placentae, characteristics of the *Scrophulariaceae*. [W. C.]

HYOPHORBE. Palms inhabiting the island of Bourbon and Mauritius, and having tall cylindrical stems marked with circular scars, and a crown of graceful pinnate leaves. The male and female flowers grow on distinct trees, or a few males are occasionally interspersed among the females, the flower-spikes being simply branched and growing out from beneath the leaves, with a single spathe at their base. Both sexes have a three-sided three-lobed bell-shaped calyx, and a three-parted corolla. The fruit has a fibrous fleshy rind, and contains a single seed.

H. Commeraoniana, frequently called *H. indica*, or *Areca lutescens* in English gardens, a native of Bourbon, has a smooth trunk thirty or forty feet high, and from four to six inches in diameter, almost cylindrical, except at the base where it swells out to nearly double its usual diameter. Its leaflets are about two feet long, and two inches wide, divided at the top into two sharp points. It has a nearly round fruit covered with rough tubercles. *H. amaricaudis*, a native of the Mauritius, much resembles this, but is taller, and its leaflets are narrower, and more densely covered with chaffy scales; its fruit, also, is smooth and olive-shaped. [A. S.]

HYOSCYAMUS. This name is the Latinised version of the ancient Greek name for the common Henbane, and literally signifies hog-bean. It is applied to a genus of *Atropaceae* or *Solanaceae*, characterised especially by the corolla, which is funnel-shaped, and by the fruit which is enclosed within the persistent calyx, and consists of a capsule which opens by means of a transverse valve, like the lid of a tankard or pix.

The most interesting species of this genus is *H. niger*, the Henbane, an annual or biennial plant, widely distributed throughout Europe and Western Asia, frequently found by roadsides, or in other localities, whither it has most probably been brought by the agency of man, the plant having been long cultivated for its medicinal qualities. In this country the Henbane is found growing spontaneously in the vicinity of old ruins, on rubbish heaps, and not unfrequently by the seashore. The whole plant is densely covered with thickly woven hairs, and by a sticky heavy-smelling exudation. The stem attains a height of one to two feet, and has oblong sessile, irregularly lobed leaves, the upper ones clasping the stem. The flowers are borne on very short stalks in the axils of the leaves, and look all in the same direction; the calyx enlarges as the fruit ripens; the corolla is funnel-shaped, of a dull yellow colour, traversed by a network of purple veins. A variety sometimes oc-

curs in which the corolla is not marked with these veins, but the above-mentioned characteristics are amply sufficient for the determination of the plant. The leaves of this plant are employed in the form of extract, &c., for the purpose of tranquillising and allaying irritability of the nervous system, to alleviate pain and procure sleep. It is chiefly given in cases where circumstances render it undesirable to employ opium. Other species are grown in gardens or in greenhouses, all possessing more or less of the same properties as the common henbane. [M. T. M.]

HYOSERIS. A small genus of annual composite weeds, having the habit and foliage of *Taraxacum*. The flower-scape is thickened and club-shaped upwards, and bears a single yellow flower-head. From their near allies they differ in the achenes being of two sorts in each head; the outer corky and cylindrical, the inner with membranous wings, or *vice versa*. The pappus is biserial, and consists of narrow chaffy and unequal scales. The three known species are confined to the Mediterranean region. [A. A. B.]

HYOSPATHE. The only species belonging to this genus of palms, *H. elegans*, is a native of the forests in the vicinity of Pará, where it is called *Ubim* by the natives. It is one of the reed-like palms common in the underwood of tropical forests, its stem being about an inch in thickness, marked with rings, and growing five or six feet high. The leaves are from three to four feet long, nearly entire when young, having only a division at the point, but when full-grown they are more or less divided, and become irregularly pinnate. The flower-spikes are produced below the leaves, and bear both male and female flowers. The fruit contains a single seed and resembles an olive in shape, but is of a violet colour. The only part of the plant applied to a useful purpose is the leaves, which are used for thatching, their large size and entire form rendering them peculiarly suitable for that purpose. [A. G.]

HYPANTHIUM. The fleshy enlarged hollow of the end of a flower-stalk, such as occurs in the rose, apple, or myrtle. It was formerly regarded as the tube of a calyx.

HYPECOM. Small annual herbs of the order *Papaveraceae*, allied to *Chelidonium*, from which they are distinguished by their four stamens and two stigmas. As in *Chelidonium*, the seed-vessel simulates the pod of a cruciferous plant, and the juice, which is yellow, is said to have the same properties as opium. The root leaves are smooth glaucous and pinnate, and the stem leaves much divided; the flowers are small and yellow. The species occur in sandy places in the south of Europe and some parts of Asia. French, *Cumin cornu*; German, *Lappenblume*. [C. A. J.]

HYPERBÆNA. A genus of South American and Mexican plants, belonging to

the *Mentopernaceae*, and differing but little from *Coccolus* save by the anthers which are two-lobed, and originally four-celled, and by the styles which are cylindrical and hooked. [M. T. M.]

HYPERBOREAN. Inhabiting northern regions.

HYPERICACEÆ. (*Eucryphiae*, *Tutsons*.) A natural order of thalamifloral dicotyledons, belonging to Lindley's guttiferall alliance of hypogynous Exogens. Herbs, shrubs, or trees with a resinous juice, opposite entire exstipulate leaves, usually with transparent dots and blackish glands, and regular flowers. Sepals four to five, persistent, two outer often smaller; petals four to five, unequal-sided, twisted in bud, often bordered with black dots; stamens generally numerous and polyadelphous; carpels three to five, partially united. Fruit a capsule opening at the septa; seeds numerous and exalbuminous. The plants of the order are generally distributed over the world, both in temperate and warm climates. Many species of *Hypericum* yield a yellow juice, and an essential oil. Some of the plants are purgative, others tonic and astringent. Some species of *Vismia* yield a gum resin similar to gamboge. There are 19 genera, and nearly 300 species. Examples: *Hypericum*, *Etoidea*, *Vismia*, *Cratogeomys*. [J. H. B.]

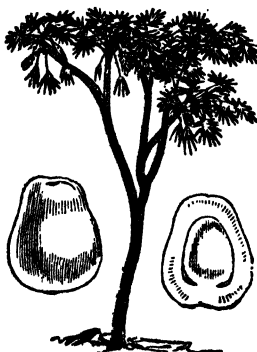
HYPERICUM. An extensive genus of herbaceous or shrubby plants giving name to the order *Hypericaceae*. The sepals and petals are each five in number; stamens collected into three to five bundles; styles three to five; seeds without wings, in a dry capsule. The best known example of the genus is *H. calycinum*, a somewhat shrubby plant one to two feet high, with large almost evergreen leaves, which, like those of most others in the genus, are curiously sprinkled with pellucid dots. The flowers are very large, terminal, solitary. This is commonly planted in shrubberies or extensive rockeries, where it is valued not only on account of its handsome flowers, but because it affords excellent shelter for game. *H. Androsæmum* (by some authors made a distinct genus on account of its berry-like capsules) is in the west of England a common hedge or woodland plant, growing to the height of one and a half feet. The stem is two-edged, the leaves large glaucous, ovate, sessile, with a strong resinous smell; the flowers, which grow in terminal corymbs, are yellow, but less conspicuous than the elliptical capsules, which as they ripen turn red and finally black. The leaves were formerly applied to fresh wounds, which they were supposed to heal; hence the plant was called in French *toute saine*, corrupted into *Tutsan*, its common English name. The pellucid dots and black glands in all the species contain an essential oil. *H. pulchrum* is the badge of the M'Kinnons, French, *Millepertuis*; German, *Johanniskraut*. [C. A. J.]

HYPERTROPHIA. An excessive de-

velopment of one part of a plant to the deterioration of others. Where parts of plants possess valuable properties, art steps in to produce an hypertrophy of those parts, as in the turnip, radish, &c. Sometimes the vegetative powers of a plant are so strong as to prevent the formation of flower-buds and fruit. This is called rankness, and is to be suppressed by the withdrawal of nutriment and by root-pruning. Galls produce hypertrophy on every part of plants. The roots of melons are sometimes gouty from the attacks of a minute vibrio. The disease called clubbing, which is a form of hypertrophy, has been already noticed. Some curious transformations of plants, a few of which are encouraged by gardeners, are also referable to the same category. [M. J. B.]

HYPHA. The mycelium, or spawn of certain fungals; also the filamentous fleshy watery thallus of certain fungoid plants.

HYPHÆNE. A small genus of African palms confined to and widely distributed throughout that continent, more particularly upon the eastern side, extending from Egypt as far south as Natal. The genus is remarkable for having the stem branched, a peculiarity not frequent among palms, each branch terminating in a tuft of large fan-shaped leaves, from amongst which the branching catkin-like spikes of flowers are produced, the different sexes being borne on separate trees. The fruit is about the size of an apple, and has a thick mealy fibrous rind with a smooth polished skin, enclosing a single hollow seed of a horny consistence.



Hyphæne thebaica.

H. thebaica, the Doom or Doom Palm, or Gingerbread tree of Egypt, grows also in Nubia, Abyssinia and Arabia. It seldom exceeds twenty-five or thirty feet in height, and its stem is frequently three or four times forked or branched in old trees,



HYPHAE NE OR DOUM PALM IN UPPER EGYPT

though when young it is always simple. The fruits, which are produced in long clusters, each containing between one and two hundred, are beautifully polished, of a rich yellowish-brown colour, and of irregular form. In Upper Egypt they form part of the food of the poorer classes of inhabitants, the part eaten being the fibrous mealy husk, which tastes almost exactly like gingerbread, but its dry husky nature renders it unpalatable. The hard tough wood is used for making various domestic utensils; and rosaries are cut out of the horny seed. See Plate 18. [A. S.]

HYPHASMIA. A name applied to the mycelium of moulds, as subiculum is often given to the same growth in *Sphaeria*. In neither case is it absolutely necessary, though, like many other needless terms, consecrated by habit. [M. J. B.]

HYPHOMYCETES. One of the great divisions of *Fungi*, containing those species which have naked spores borne on free or only fasciculate threads. In the two first divisions only are the threads at all compacted, and it is by these that they are connected with *Hymenomycetes*. Care must be taken not to confound them with the vesicular moulds which have a similar habit. As they are plants of an extremely simple structure, it is not surprising that some conditions of more compound forms should occasionally exhibit their characters, exactly as the organs of which phanogams are composed have their analogues amongst the simpler cryptogams. Accordingly the early stage of certain species of *Hypoxylon* and *Sphaeria* cannot be distinguished from them, and the young of *Erysiphe* exhibits all the characters of *Oidium*. A few, moreover, either produce a second subsidiary fruit, as some species of *Aspergillus* or *Peronospora*, but whether they should be removed into the sporidiferous series is at present matter of doubt. A great portion of the moulds which act so prominent a part in the decomposition of organised bodies belong to this section, and some of them, as *Peronospora infestans*, are of immense importance as affecting substances of extensive use to man. As objects of interest for the observer of nature, they exhibit an endless variety of forms, which are frequently most attractive. Most of them, however, require the assistance of the microscope, even for the inspection of their outward form, and they are difficult to observe when moistened on account of their retaining so much air about them. They occur in all parts of the world, and in the shape of yeast some of them perform a most important part in domestic economy. A few have been detected in amber. Like many other fungi they have immense powers of penetration, and accordingly they are found in situations apparently removed from all external access. They occur in the most deep-seated tissues, occasionally producing fruit though removed from the direct influence of light and air, and this not only in the vegetable kingdom. Amongst animals they are the

source of many cutaneous disorders, and sometimes, as in the case of silkworms, they produce death. A case is even mentioned by Mr. Beale, as reported in the *Lancet* of January 1861, in which a few threads seemed to have formed the nucleus of a large calculus. They occur in all climates where there is sufficient moisture, and some of the more common species appear to be complete cosmopolites. The following natural orders have been proposed to include the species:—*Isariacei*: stem compound; spores dry, easily dispersed.

Stilbacei: stem compound; spores forming a diffuent gelatinous mass.

Dematiacei: fertile threads more or less carbonised; spores often compound.

Mucedineae: fertile threads hyaline or coloured; spores mostly simple.

Sepedonei: fertile threads scarcely distinct from the spawn; spores very abundant.

These latter pass evidently into *Contomyces*. [M. J. B.]

HYPHOSTROMA. The mycelium or spawn of fungi.

HYPNÆI. A natural order of pleurocarpous mosses, with a nodding capsule, elongated footstalk, and mostly cylindrical stems, with imbricated leaves; and distinguished from *Leucodontei* by the cernuous not erect capsules. In a very few species the stem is flat, and the leaves two-ranked. The species for the most part creep over trees, rocks, or shady banks, though sometimes growing in exposed pastures, forming frequently thick tufts. A few are pinate, but are easily distinguished from *Neckera* by their nodding capsules. *Hypnum* is the principal genus; it is now, however, broken up into numerous genera or subgenera. [M. J. B.]

HYPNUM. One of the largest genera of mosses which have lateral fruit, numbering above ninety species in Great Britain alone. It has been divided into various genera dependent on slight differences of habit and condition of the leaf-cells, but if capable of accurate discrimination, they are rather to be considered as subgenera. The peristome in all is double, consisting of an outer row of sixteen equidistant lanceolate acuminate teeth, the inner of a membrane divided halfway down into sixteen keeled, often perforated processes, alternating with the outer teeth, with intermediate cilia which are either solitary or two or three together. The capsule is more or less curved or irregular. It differs from *Leskea* in the nodding capsule and the cilia of the inner peristome, and from *Isothecium* in the curved not straight and symmetrical capsule, and straggling not dendroid habit. Many of the species are very large and ornamental. They occur in all parts of the world. *H. tumariacium* is much used by the makers of artificial flowers in the construction of moss roses. [M. J. B.]

HYPO. In Greek compounds = under.

HYPOBLASTUS. The flat dorsal cotyledon of a grass.

HYPOCALYMMMA. A genus of myrtaceous shrubs, indigenous at the Swan River. The leaves are narrow with a sharp spine at their extremity; and the flowers are rose-coloured, in heads, the tube of the calyx bell-shaped, the petals five with short stalks, and the stamens numerous attached like the petals to the throat of the calyx. [M. T. M.]

HYPOCALYPTUS. A South African genus of *Leguminosae*, consisting of a single species, *H. obcordatus*, a handsome bush or small tree with angular stems, trifoliate leaves, having obversely heart-shaped leaflets, and stiff erect racemes of numerous purple pea-flowers terminating the twigs. The standard, which has a white spot at its base, is longer than the keel; and the narrow and smooth many-seeded pod is about two inches long. The two latter characters distinguish it from *Loddigesia* and its other allies. [A. A. B.]

HYPOCHÆRIS. A genus of herbaceous plants belonging to the elchoreaceous division of compound flowers. The characters of the genus are: pappus feathery; receptacle with chaffy scales; involucre unequally imbricated; fruit striated, often beaked. *H. radicata*, the long-rooted Cat's-ear, is a very common weed in pastures, rising to about the height of the crop among which it grows; the leaves are runcinate and very rough, and the stems generally bear several large yellow flower-heads, which are sometimes so abundant as to give a tint to the field in which it grows. It is a weed of no interest, rather mischievous than otherwise, from usurping the places of more nutritious fodder. *H. maculata*, a more robust plant found on the magnesian rocks of the Lizard Point, on the limestone of Ormeshead, and a few other places on chalk, generally bears a single very large flower-head. French, *Porcelle*; German, *Saukraut*. [C. A. J.]

HYPOCHIL, HYPOCHILIUM. The lower part of the lip of certain orchids.

HYPOCRATERIFORM. Having a long slender tube and a flat limb; as in the flower of the primrose.

HYPOCYRTA. A genus of *Gesneraceae*, containing a few species, natives of South America. They are procumbent, sometimes erect, undershrubs, throwing out roots from below the origin of the opposite and fleshy leaves. The flowers are axillary, and solitary or several together, with a deeply five-parted calyx, and an urn-shaped corolla gibbous behind at the base, the limb unequally five-lobed or five-toothed; there are four stamens, and the ovary is surrounded by a disk which swells on one side into a gland. The fruit is a one-celled berry. [W. G.]

HYPODEMATIUM. *Lastrea*.

HYPODERMIS. The inner layer of the spore-case of an urn-moss.

HYPODERRIS. A genus of polypodiaceous ferns, allied to *Woodia*, with which

it agrees in having globose involucre sori, and in the involucre being membranaceous, calyciform, and fringed at the edge. It is, however, at once distinguished by its compoundly anastomosing venation. In its aspect, moreover, it is quite dissimilar to *Woodia*, the only species, *H. Brownii*, being a West Indian plant with simple or three-lobed coarse-looking fronds, having much more the appearance of some *Aspidium*. The venal areoles enclose free divaricate sterile veinlets; and the sori are compital, i.e. seated at the points where several veins meet. [T. M.]

HYPODISCUS. A genus of *Rasticeae* with both the male and female flowers in spikes. The female flower is solitary with a stalked ovary having an hypogynous or perigynous disk. The species are natives of the Cape of Good Hope. [M. T. M.]

HYPOESTES. A considerable genus of *Acanthaceae*, dispersed over Africa, tropical Asia, and Australia, and remarkably abundant in Madagascar. They are shrubs or small trees with entire or dentate leaves, and large purple or rose-coloured flowers in axillary clusters or short spikes, often numerous and forming a terminal leafy thyrses. The flowers are contained in a calyx-like involucre of four more or less united bracts; the calyx is five-lobed; the corolla is two-lipped, with the upper lip entire or notched and the lower three-lobed; there are two stamens with one-celled anthers; and the capsule is compressed and seedless below, but towards the apex enlarged and two-celled, containing four tuberculated seeds. Nearly forty species have been described. [W. G.]

HYPOGÆI. A natural order of gastro-mycetous *Fungi*, distinguished by their hymenium resembling the crumb of bread, and by their subterranean habit. Some have a distinct peridium, while others are totally destitute of any covering, and depart from the characters of the tribe to which they belong. They differ from real truffles in the fruit consisting of naked spores. The genera and species are numerous, and confined to temperate regions. Australia and North America produce two or three species. *Melanogaster ambiguus* is used as a substitute for truffles, and is sold in the market at Bath. Several have an extremely offensive smell. These and other fungi of a similar habit have been most exquisitely illustrated in a separate work by the Messrs. Tulasne. [M. J. B.]

HYPOGÆOUS. Growing under the earth.

HYPOGYNOUS. Growing from below the base of the ovary.

HYPOLENIA. A genus of *Rasticeae*, the species of which are natives of South Australia and of South Africa. The male flowers are like those of *Rastia*; while the females resemble those of *Wildemovia*, but have a sessile fruit, destitute of disk. [M. T. M.]

HYPOLEPIS. A genus of polypodiaceous ferns, belonging to the *Cheilanthes*, and not very well distinguished technically from *Cheilanthes* itself, though obviously distinct in habit and aspect, in the large herbaceous fronds and long creeping rhizomes, and also generally distinguishable by the axillary position of the sori in respect to the segments of the fronds. The fronds are twice, thrice, or four times pinnated, with free veins, and punctiform sori at the apex of the veins, covered by reflexed marginal, sometimes herbaceous, indusia. The species are widely dispersed, being found in New Zealand and the Pacific Isles, India, Bourbon, and Mauritius, South Africa, South America, and the West Indies. [T. M.]

HYPOLYTRUM. A genus of cyperaceous plants, characteristic of the tribe *Hypolytræ*. It is distinguished by the inflorescence being in fascicled or corymbose roundish panicles, which are many-flowered. Scales imbricated on all sides, none of the lower without flowers; proper scales two, keeled and compressed, the exterior one largest; calyx none; stamens two to three; styles cleft. The majority of the species are natives of Brazil and the West Indies, but some occur in the East Indies. [D. M.]

HYPOMENOUS. Free, not adherent; arising from below an organ, without adhering to it.

HYPOPHYLLIUM. A small abortive leaf, like a scale, placed below a cluster of leaf-like branches, or leaves.

HYPOPHYLLOUS. Growing on the under side of a leaf.

HYPOPITHYS. A genus of fir-rapes, distinguished by having the calyx three to five-parted, and the style slender and hollow, ending in a round stigma, bearded at the margin. The species are parasites, on firs and beeches, with leaves in the form of scales, the entire plant pale in colour, and often with an odour of musk. [G. D.]

HYPOPODIUM. The stalk of the carpels.

HYPOPTERIES. A wing growing from below anything, as the seed of a fir-tree.

HYPOPTERATE. Having a wing produced at the base or below.

HYOPTERYGEL. An order of pleurocarpous mosses, with three-ranked leaves, the third row being mostly smaller than the others. The accessory leaves remind one of the appendages in *Jungermanniaceæ*. The capsules are mostly lateral, beneath the proper leaves, but sometimes axillary. The genera of this order belong principally to warm temperate regions in either hemisphere. [M. J. B.]

HYPOSATHRIA. A condition assumed by the tissues of certain fruits, commonly called bletting. It is a partial decomposition, accompanied by the formation of sugar, and is sometimes promoted artificially

with a view to improve the flavour of harsh fruits, and, indeed, to render them eatable as medlars, services, &c. [M. J. B.]

HYOSPORANGIUM. The indusium of ferns, when it grows from below the sporocases.

HYPOSTASIS. The suspensor of an embryo.

HYPOSTROMA. The mycelium of certain fungi.

HYPOTHALLUS. Delicate filaments which constitute the vegetation of conomycetous fungi. The inferior stratum of the thallus of lichens.

HYPOTHECIUM. The cellular stratum below the thalamium of lichens.

HYPOXIDACEÆ. (Hypoxizæ.) A natural order of epigynous monocotyledons belonging to Lindley's narcissal alliance of Endogens. Herbs with a tuberous or fibrous perennial root, radical linear dry leaves, and trimerous flowers on scapes. Perianth petaloid, adherent to the ovary, six-parted; stamens six, attached to the perianth, the anthers introrse; ovary three-celled; ovules numerous, attached to a central placenta. Fruit dry or berried, one to two or three celled, not opening, with a lateral hilum, and a peculiar beak-like appendage. Natives of the Cape of Good Hope, the East Indies, New Holland, and the tropical parts of America. The roots of some of them are bitter and aromatic, and the tubers of a few are eaten. There are five genera, and upwards of sixty species. Examples: *Hypoxis*, *Curculigo*. [J. H. B.]

HYPOXIS. A genus of herbaceous plants, forming the type of the *Hypoxidaceæ*. They are known by their six stamens being inserted into a disk surmounting the ovary, by the style being detached from the corolla, and by the three-celled capsular fruit. These plants are, for the most part, natives of the Cape of Good Hope, and have much of the appearance of some amaryllidaceous plants, but they are not bulbous: several are in cultivation. *H. erecta*, a North American species, is used as an application to ulcers. [M. T. M.]

HYPOXYLON. An important genus of sphaericeous *Fungi*, distinguished by the stroma, in which the perithecia or fruit-bearing cysts are sunk, being free from the wood on which it grows. They are found in all parts of the world. *H. concentricum*, which is common in this country on ash-trees, looking like lumps of cobbler's wax, is a perfect cosmopolite, assuming several forms. The allied *H. verticillatum*, which, though marked like the last with concentric layers within, is loosely cellular, is eaten by the inhabitants of Bhutan. [M. J. B.]

HYPSEOCHARIS. A genus referred to *Geraniaceæ*, and found on the Andes at above 10,000 feet elevation. The plant has root leaves resembling those of *Pimpinella Sazifraga*, and axillary peduncles, with

three or four subsessile flowers, fifteen united stamens, and a five-lobed ovary, with several ovules in each cell. [J. T. S.]

HYPTIS. A genus of labiates, having the calyx with five nearly equal teeth, which are very acute; and the corolla about as long as the calyx, the upper lip with four entire lobes, the lower undivided. The species are herbs or undershrubs, varying much in general aspect; they are chiefly natives of the warmer parts of South America. [G. D.]

HYSSOP. *Hyssopus officinalis.* — of Scripture, *Cupparis spinosa.* —, BASTARD. *Teucrium Pseudo-hyssopus.* —, HEDGE. *Gratiola officinalis.*

HYSSOPUS. A genus of Labiateæ, consisting of small bushy herbs, with lance-shaped leaves, rolled under at the margin, a calyx marked with fifteen ribs, and four fertile diverging stamens. *H. officinalis*, the common Hyssop, of Southern Europe, was once much employed as a carminative in flatulence and hysterical complaints, but is now seldom employed. [M. T. M.]

HYSTERANTHIOUS. When leaves appear after flowers; as in the almond.

HYSTERIA. *Corymbis.*

HYSTERIUM. A genus of pyrenomycetous Fungi, distinguished by a hard more or less linear dark peritheciæ, opening by an elongated narrow aperture. The species grow on naked wood, bark, leaves, &c., and are sometimes so similar to lichens that it is difficult to distinguish them when the crust is worn away or obsolete. *H. Frazini* and *Rosa* are to be found commonly on fallen twigs of ash and rose. The species are numerous, and occur in all parts of the world. [M. J. B.]

IANTHE. A genus of *Scrophulariaceæ* closely allied to *Verbascum*, and only differing from the *Blattaria* section of that genus by the stamens, of which two only bear anthers, two being reduced to barren filaments, and there being no rudiment of the fifth. *I. bugulisfolia*, the only known species, grows in the neighbourhood of Constantinople. It has the habit of the more glabrous species of *Verbascum* or *Celsia*, with the leaves chiefly radical, and greenish-yellow flowers, remarkable for their almost metallic appearance when fresh.

IANTHINE. Pure blue stained with red, so as to be intermediate between the two colours.

IBERIDE DE PERSE. (Fr.) *Iberis semperflorens.*

IBERIDELLA. A genus of *Cruciferae*, allied to *Hutchinsia*, differing principally in the truncate pouch, with a long slender style. They are small undershrubs, with white or rose-coloured flowers. [J. T. S.]

IBERIA. A genus of *Cruciferae*, containing numerous species from Europe, Eastern Asia, and Northern Africa. They are

easily known from most of their allies, by their flat corymbs of flowers with the two exterior petals larger than the others, so that the inflorescence is radiant. These Candytufts are nearly smooth anials, or small undershrubs, with oblong or linear leaves (pinnatifid in many of the annual kinds), and white pink or purple flowers, fragrant in some of the species. The seed-pouch is oval or roundish, flattened so that the partition is in the narrowest diameter, and the valves compressed, with an expanded wing on the keel. The seed is solitary in each of the two cells, with the radicle bent over the edges of the flat cotyledons, on one side. The most common species is *I. amara*, which is found wild in the south of England as a weed in cultivated grounds, and many of the other species are common in gardens. [J. T. S.]

ICACINACEÆ. (*Iceacineæ.*) A natural order of thalamifloral dicotyledons, consisting of evergreen trees and shrubs, allied to *Olacaceæ*, and differing from that order in the calyx not enlarging with the fruit; in the stamens being alternate with the petals; in the ovary being normally many-celled, with axile placentation, and one-celled only by abortion; and in the ovules being suspended below the summit of the cell. The plants are chiefly tropical, and there are about thirteen genera and seventy known species. Nothing is known regarding their properties. Bentham makes them a tribe of *Olacineæ*. Lindley places the order under his berberal alliance of hypogynous *Exogens*. [J. H. B.]

ICACINA. A genus of *Iceacineæ*, with shrubby ascending or twining branches, smooth leaves, panicled flowers, and scarlet fruit. Calyx small, five-cleft; petals five, valvate villous; stamens five, alternate with petals, hypogynous; ovary one-celled, with two pendulous ovules. Fruit indehiscent, the seed pendulous with a prominent raphe. There are three or four known species, natives of the western parts of tropical Africa. [J. H. B.]

ICACO. *Chrysobalanus Icaco.*

ICE-PLANT. *Meembryanthemum crystallinum.*

JOHNANTHUS. A genus of grasses, belonging to the tribe *Panicæe*, and now generally included in *Panicum*. The only species described, *I. panicoides*, is a native of Brazil and Guiana. [D. M.]

ICHNOCARPUS. A genus of dogbanes, having the stamens five in number, their anthers distinct from the stigma, which is ovate acuminate; and the seed-vessels very slender. The name is indicative of the slender capsules. *I. frutescens* is an ornamental stove shrub, a native of the East Indies, with oval lanceolate leaves, and small flowers. [G. D.]

ICICA. A genus of *Amyridaceæ* (*Burseraceæ*), found chiefly in the tropics of the western hemisphere, only two or three of the twenty species occurring in the eastern.

They are mostly large trees, sometimes a hundred feet in height, and nearly all abound in balsamic or resinous juice. Their leaves are either pinnate with a terminal leaflet, or ternate, the leaflets being of a leathery texture, and without the dots usual in some plants of the same order. The flowers are small, usually white or yellowish-green, and borne in racemes or crowded heads at the angles of the leaves; they have a small four or five-toothed calyx, and an equal number of petals, which, along with the eight or ten stamens, are inserted under the cup-shaped fleshy disk. The fruit is a berry containing from one to five hard stones covered with pulp, and containing one seed each.

I. altissima, attaining, in the forests of Guiana, a height of one hundred feet, is preferred by the Indians for making their canoes, not only from its large size but on account of its durability and the facility with which it is worked. It is called Cedar-wood in consequence of its fragrant odour, and is used for the inside fittings of houses, for book-cases, &c., its odour preserving books from injury by insects. The balsam obtained from the trunks of many of the species is highly odoriferous, and is commonly used as a perfume in South America. That of *I. heptaphylla*, called Hyawa in Guiana, is used as a remedy against dysentery, and also for coughs. Balsam of Acouchi, yielded by *I. heterophylla*, is employed as a vulnerary. These balsams remain fluid for a considerable time, but ultimately harden, and are then commonly used for burning as incense in churches. So highly charged with resin are the trees, that the branches of one species are used in British Guiana for torches; and the wood of *I. heptaphylla* is called Incense wood. [A. S.]

ICONES. Pictorial representations of plants.

ICOS. In Greek compounds = twenty.

ICOSAËDRAL. Having twenty sides; as the pollen of *Tragopogon*.

ICTERUS. A name given to the yellow condition assumed by wheat and some other plants, under the influence of prolonged wet and cold. More genial weather generally improves the condition of the plants. The disease is, therefore, distinct from chlorosis, which is more frequently constitutional, and, in consequence, past cure. Vine leaves become yellow from their roots being placed under unfavourable circumstances; the remedy, therefore, must be directed to the point from whence the evil is derived. Yellowness is sometimes produced by *Fungi*, and is then irremediable. The golden hues of autumn belong clearly to another category. [M. J. B.]

IDES, or IDEUS. In terminating Greek compounds = similar: as *petaloides*, like a petal.

IDIOGYNOUS. Not having a pistil.

IDIOTHALAMUS. Having a different colour or texture from the thallus; a term used among lichens.

IDOTHEA. A genus of *Liliaceæ*, from the Cape of Good Hope, allied to *Drimys*, but differing in the perianth being deciduous. It is also near *Uropetalum* and *Urginea*, but is distinguished from the former by the sepals being united at the base, forming a bell-shaped tube, and from the latter by the deciduous one-nerved perianth segments. They are herbs with scaly or more rarely coated bulbs. [J. T. S.]

IF (Fr.) *Taxus baccata* — NUCIFÈRE. *Podocarpus nucifer*

IFE. An Indian name for *Sansevieria cylindrica*.

IGNAME. (Fr.) *Dioscorea sativa*.

IGNATIA. A genus described by the younger Linnaeus as belonging to the *Strychnos* family, but since suppressed by Mr Bentham, who has shown it to be composed of the leaves and flowers of a species of *Posoqueria*, and the fruits of a *Strychnos*, the former a plant of Guiana, the latter from the Philippines. The seeds are called by old writers, St. Ignatius' Beans, and are held up by them as a remedy against cholera. They are supposed to belong to *Strychnos multiflora*, but are quite unknown to modern botanists. [A. A. B.]

IGNEUS. Very lively scarlet, fiery red.

ILEODICTYON. A genus of phalloid *Gasteromycetes*, nearly allied to *Clathrus*, but distinguished from it by the hollow branches of the receptacle, which are, moreover, not porous. The gelatinous volva of *I. cibarium* was formerly eaten in New Zealand, before the English habits had gained ground, and was known by a name equivalent to Thunder-dirt. [M. J. B.]

ILEX. A genus of shrubs and trees belonging to the *Aquifoliaceæ*, inhabiting Europe, Asia, and America, and characterised by having an inferior calyx with small teeth; a corolla which is monopetalous but scarcely so, it being divided into deep spreading concave segments; stamens inserted upon the corolla and alternate with its segments; a four or five-celled ovary, with nearly sessile stigmas; and a berried fruit containing one-seeded nuts, the parts being all in fours or fives. The species are very numerous. *I. Aquifolium*, common Holly, employed so much for purposes of decoration at Christmas, and *I. paraguayensis*, Paraguay Tea, are the most remarkable.

I. Aquifolium is distinguished from other species by its peculiar smooth, wavy, shining, spinous leaves, and its short axillary many-flowered peduncles. The leaves are stated on good authority to be equal to

fevers. The root and bark are said to be deobstruent, expectorant, and diuretic, agreeably to which Haller recommends the juice of the leaves in jaundice. The berries

are purgative and emetic, six or eight being sufficient, it is said, to produce the latter effect. The beautiful white wood is much used for inlaying, and birdlime is obtained from the bark. It has been stated recently by M. J. Pierre, that the young stems are gathered in Morbihan by the peasants, and made use of as a cattle-food from the end of November to April with great success. The stems are dried, and having been bruised are given as food to cows three times a day. They are found to be very wholesome and very productive of good milk, and the butter made from it is excellent. The common Holly is the badge of the Drummonds.

I. paraguayensis is characterised as a species by its perfectly smooth, ovate, lanceolate unequally-serrated leaves, and by having much-branched racemes of flowers, the subdivisions of which are somewhat umbellate, and by its slightly hairy calyx. The leaves of the Maté, the name by which it is known in South America, are from four to five inches long. The Maté occupies the same important position in the domestic economy of South America, as the Chinese tea does in this country, and it is calculated that it is consumed in that country to the extent of about 8,000,000 lbs. annually. It has been in use for about a century and a half, the practice having been adopted from the aboriginal people. The leaves are prepared by drying and roasting, not in the manner of Chinese teas, but large branches are cut off the plants and placed on hurdles over a wood fire until sufficiently roasted; the

roasting; and the Caa-Guaza or Yerva de Palos of the Spaniards, the whole leaf with the petioles and small branches roasted. It is prepared for drinking by putting a small quantity, about a teaspoonful, into a gourd or cup, with a little sugar; the drinking tube is then inserted, and boiling water poured on the Maté; when sufficiently cool, the infusion is sucked up through the tube. It has an agreeable, slightly aromatic odour, is rather bitter to the taste, and very refreshing and restorative to the human frame after enduring great fatigue. It is almost impossible for those accustomed to it to leave it off. It acts in some degree as an aperient and diuretic, and if taken in over-doses, it occasions diseases similar to those produced by strong liquors. It contains the same active principle as tea and coffee, called theine, but not their volatile and empyreumatic oils.

It is stated that *I. Gongonha* and *I. thezans* are also employed in Brazil as tea, and they are described in common with *I. paraguayensis* as being valuable diuretics and diaphoretics. The leaves of *I. paraguayensis* and several others are used by dyers; the unripe fruits of *I. Macoucoua* abound in tannin, and, bruised in a ferruginous mud, are used in dyeing cotton, acting something like galls. [B. C.]

ILLAIREA. A genus of *Loasaceae* from central America, of which the only species *I. canarinoides* is a climber, with much the habit and aspect of *Calophora lateritia*, but having the ovate oblong keeled petals so arranged as to form a bell-shaped flower, bearing considerable resemblance to that of *Canarina*. The leaves are cordate or fiddle-shaped, deeply pinnatifid with toothed lobes, and furnished, as are the stems, with virulent stinging hairs; the flowers are nodding, borne on long axillary peduncles, and of a cinnamon or brick-red colour, with blue stamens. There are five concave half-boat-shaped nectary scales alternating with the petals, bearing on their back a couple of setae, and standing in front of the petals, two before each, long filiform staminodia, converging in a cone over the style, which has five hemispherical corpuscles at its base. Beyond this there is little besides the campanulate form of the corolla to separate *Illairea* from *Calophora*. [T. M.]

ILLECEBRACEÆ. (*Paronychia*, *Herniaria*, *Knotwort*.) A natural order of dicotyledons belonging to Lindley's alien alliance of hypogynous Exogens. Herbaceous or somewhat shrubby plants with opposite or alternate often clustered sessile stipuled leaves, and minute flowers; sepals three to five, distinct or ovuled; petals small, sometimes none; stamens opposite the sepals, if equal to them in number; ovary superior; styles two to five; seeds either numerous and attached to a free central placenta, or solitary and pendulous from a cord attached to a basal placenta; embryo curved in albumen. Natives of barren places chiefly in Europe and the north of Africa. Their properties



Ilex paraguayensis.

branches are then placed on a hard floor and beaten with sticks; the dried leaves are thus knocked off and reduced to a powder, which is collected, made into packages, and is ready for use. There are three sorts known in the South American markets: the Caa-Cuys, which is the half-expanded leaf-buds; the Caa-Miri, the leaf torn from its midrib and veins, without

are astringent. There are thirty-one known genera, and about one hundred and twenty-five species. Examples: *Illecebrum*, *Paronychia*, *Spergula*. [J. H. B.]

ILLECEBRUM. A genus of *Illecebraceae* containing a single species, *I. verticillatum*, found over the greater part of Europe, though very rare in Britain, and only occurring in the extreme south-west. It is a small branched prostrate smooth annual, with ascending branches, crowded with pairs of obovate leaves, and bearing axillary clusters of flowers forming false whorls; these are small, white, and shining, from the dry white thickened calyx segments. [J. T. S.]

ILLICIUM. A limited genus of *Magnoliaceae*, found in the south-eastern parts of the United States, Japan, Southern China, and the Khasia mountains. They are ever-green shrubs or low trees, with smooth entire leaves, exhaling when bruised a strong odour of aniseed, owing to the volatile oil contained in minute pellucid dots, which may be seen by means of a lens. Their flowers are borne singly or in threes from the sides of the branches, usually of a yellowish colour, except in one species where they are dark purple; they have a calyx of three or six sepals, coloured in the same manner as, and scarcely distinguishable from, the petals, which vary in number from nine to thirty, and are arranged in several series, the innermost ones being the smallest; the stamens are numerous, and the ovaries, varying from six to eighteen, are crowded together in a circle. The fruit resembles a star, consisting of a variable number of one-seeded flattened cells arranged round a central axis.



Illicium anisatum.

I. anisatum, the Star or Chinese Anise, the Badiane of the French, is a shrub growing eight or ten feet high. It is found in China, and derives its name of Star Anise from the stellate form and odour of its fruit, which is about an inch in diameter. This fruit forms a considerable article of commerce amongst Asiatic

nations, and is likewise sent to Europe, though not in very large quantities. In China, Japan, India, and elsewhere in Asia, it is commonly used by cooks as a condiment in the preparation of food, and it is also chewed in small quantities after each meal, both for the purpose of sweetening the breath and as a promoter of digestion, while the native physicians prescribe it as a stomachic and carminative. In France it is reputed to be employed as the flavouring ingredient of *Anisette de Bordenauz*. Its pungent aromatic flavour and odour, which bear a strong resemblance to those of the common anise but rather sweeter and softer, is due to the presence of a volatile oil, which is obtained from it by distillation, and is said to be substituted for genuine oil of anise.

I. religiosum, a Japanese species, was formerly confounded with the Chinese. It is a small tree about the size of a cherry tree, and is held sacred by the Japanese, who form wreaths of it with which to decorate the tombs of their deceased friends, and they also burn the fragrant bark as incense before their deities. Their watchmen likewise use the powdered bark for burning in graduated tubes in order to mark the time, the bark consuming slowly and uniformly. The leaves are said to possess poisonous properties; while in Alabama those of *I. floridatum* have the same reputation, and the plant has hence acquired the name of Poison-bay. [A. S.]

ILLIGERA. An apetalous genus of *Exogens*, regarding the station of which there is much difference of opinion. It consists of climbing shrubs, natives of Java, having alternate coriaceous leaves which are ternate, and one tropical African species in which they are quinquefoliate. The flowers are hermaphrodite in axillary panicles; the calyx superior, coloured, ten-lobed, the lobes being disposed in two rows; the stamens five, opposite the outer row, having glands at their bases; the anthers open by valves which turn upwards; and the ovary is one-celled. The fruit is four-sided with four unequal wings at the angles, and the single pendulous seed has the cotyledons spirally twisted together. The nearest affinity of this genus is with *Gyrocarpus*, from which it differs in its climbing stem, and in having wings on the sides of its fruit. These two genera have been considered as the type of a distinct family under the name of *Illigerae* or *Gyrocarpeae*, but are very near both *Combretaceae* and *Lauraceae*, with the former of which they have been combined. [B. G.]

ILLIGEREA. A small order of *Exogens*, or suborder of *Combretaceae*, from which latter the plants referred to it are distinguished mainly by their recurved anther valves, in which respect they resemble *laurels*. Also called *Gyrocarpeae*. [J. H. B.]

ILLERPIE or **ILLIPE.** *Bauhinia longifolia*.

IMANTOPHYLLUM. This name, under the form of *Imatophyllum*, subsequently changed by Sprengel to *Himantophyllum*,

was originally applied to the amaryllidaceous plant called *Otitia*, which latter name has superseded it; and its author, Sir W. J. Hooker, has since transferred it to a related Natal plant of great beauty, which he calls *I. minutum*. This plant forms a stemless herb, with thick fleshy roots, simple distichous lorate leaves embracing each other at the base, and a tall plano-convex scape bearing an umbel of many large showy flowers of a bright orange-tinted vermillion. These consist of a six-leaved perianth, with a very short tube and broad obovate-lanceolate nearly equal segments, spreading into a broadly campanulate form; there are six stamens with thickish subulate filaments, and a thick slightly decurved style with a trifid stigma. The seeds are bulbiform, about the size of a horsebean. [T. M.]

IMBERBIS. Having no hairs.

IMBRICATED. When bodies overlap each other like tiles on a roof.

IMBRICARIA. A genus of sapotaceous trees natives of Bourbon, Mauritius, &c. The flowers have eight sepals in two rows; a corolla divided into several segments, arranged in three rows; sixteen stamens, eight of them fertile and eight sterile; and a fleshy fruit, with eight one-seeded cells. The fruits of *I. malabarica* and *I. maxima* are edible. [M. T. M.]

IMHOFFIA. A genus of *Amaryllidaceæ*, allied to *Brunsvigia*, and consisting of Cape bulbs characterised by the flowers having a very short straight tube and a spreading or reflexed limb of six nearly equal segments, six stamens with equal filaments enlarged at the base, and a straight style with an obtuse three-cornered stigma. They have filiform leaves, and a solid scape bearing at top a many-flowered umbel of white flowers, often marked with red. The name was originally intended for *Amaryllis marginata*, a plant which is now referred to *Nerina*. [T. M.]

IMMARGINATE. Having no rim or edge.

IMMEDIATE. Proceeding directly from a part, without the intervention of any other part; as the flower-stalks of a raceme.

IMMOBILE, IMMOBILIS. Immoveable; that is to say, not having a free motion on the part which bears it; as many anthers.

IMMORTAL FLOWER. A name applied to the various common species of *Helichrysum*, *Antennaria*, *Gnaphalium*, &c.

IMMORTELLE (Fr.) *Xeranthemum*; also *Helipterum* and *Helichrysum*, especially *H. orientale*; also the wood of *Erythrina glauca*. — **BLANCHE** or **DE VIRGINIE.** *Antennaria margaritacea*. — **DE LA MAL-MAISON.** *Helichrysum bracteatum*. — **JAUNE.** *Helichrysum orientale*. — **VIOLETTE.** *Gomphrena globosa*.

IMPARIPINNATE. When the petiole

of a pinnate leaf is terminated by a single leaflet.

IMPATIENS. A genus of *Balsaminaceæ*, chiefly found in India, though a few species occur in Europe and North America. They are generally glabrous herbs with thick succulent stems enlarged at the joints, where the alternate undivided leaves are given off. The flowers are axillary, often handsome, and so very irregular that considerable difference of opinion exists as to which parts belong to the calyx and which to the corolla. The view taken by Kunth is by far the most probable, namely, that two outer small scale-like leaves, a large hood-shaped and spurred coloured lower sepal, and an upper coloured portion composed of two united together so as to appear but one, form an irregular imbricated calyx of five sepals. Within this there are two pairs of petals, unequally cleft nearly to the base. The stamens are five in number, with the filaments united above; and in the centre is the five-celled ovary with a sessile lobed stigma. The capsule is oblong, subcylindrical, or with five blunt angles. The valves separate and roll up when touched after the seeds are ripe. *I. Balsamina* is the much-cultivated Garden Balsam, which readily becomes double, and of which the flowers are very variable in colour, a native of India. *I. Noli-tangere*, the Touch-me-not, is found apparently wild in Britain, and is frequent in Europe; the flowers in this species are yellow. [J. T. S.]

IMPERATORIA. *Peucedanum*.

IMPÉRIALE (Fr.) *Fritillaria imperialis*.

IMPLEXOUS. Entangled, interlaced.

IMPREGNATION. The fertilisation of the ovule by the pollen-tubes.

IMPUBERA (ÆTAS). The period of maturity in fruit anterior to the fertilisation of the ovules.

INÆQUALIS. Of unequal or dissimilar size.

INÆQUILATERAL, INÆQUILATERUS. When the two sides of a figure are not symmetrical; as the leaf of a *Begonia*.

INANIS. Empty, not containing anything; or merely filled with a loose spongy substance.

INANTHERATE. Bearing no anther; applied to sterile filaments or abortive stamens.

INAPERTOUS. Not opened, although its habit is to open.

INCANESCENT. Having a hoary or grey aspect, because of the presence of hairs upon the surface.

INCANUS. The same as Canus; hoary.

INCARNATUS. The same as Carneus.

INCARVILLEA. A genus of *Bignoniaceæ* containing now only a single species

the plants formerly referred to it being placed in new or neighbouring genera. It is an erect glabrous herb from China, having the habit of *Argyria*, with alternate bipinnatisect leaves, and large scarlet flowers in terminal racemes. [W. C.]

INCENSE. Frankincense, the modern Olibanum.

INCENSE TREE. *Ikica guianensis*.

INCENSE WOOD. *Ikica heptaphylla*.

INCISED, INCISUS. Regularly divided by deep incisions. Hence *inciso-serratus*, having deep slashed serratures; *inciso-dentatus*, having slashed toothings, &c.

INCLINING. Falling back considerably from the horizontal line.

INCLUDED. Enclosed in anything.

INCOMPLETE. Deficient in some of its parts, as a flower without corolla, or a calyx with only a part of its sepals.

INCONSPICUOUS. Small in size, not readily observed.

INCRASSATE. Thicker than usual in proportion to its area; as the leaves of the houseleek.

INCRUSTATE. A term applied to seeds which grow so firmly to their pericarp as to appear to have but one integument. Also coated with earthy matter.

INCUBOUS. A name employed in descriptions of *Jungermanniaceæ* in contradistinction to succubous, to indicate that the leaves are imbricated over each other from the base towards the apex, whereas in succubous leaves they are imbricated in a contrary direction. [M. J. B.]

INCUMBENT. Said of an embryo when its radicle is folded down upon the back of the cotyledons.

INCURVED, INCURVUS, INCURVATE. Curved inwards.

INDEHISCENT. Not splitting in a definite manner when ripe.

INDIAN HEART. *Cardiospermum Corindum*.

INDIAN SHOT. *Canna*.

INDIA-RUBBER. The inspissated juice of *Ficus elastica*, *Euphorbia elastica*, *Hevea*, and other plants: see CAOUTCHOUC.

INDIGO. A blue dye yielded by several plants, as *Indigofera tinctoria* and *argentea*, *Wrightia tinctoria*, *Marsdenia tinctoria*, *Gymnema tingens*. —, **BASTARD.** *Amorpha fruticosa*. —, **CHINESE.** *Isatis indigotica*. —, **EGYPTIAN.** *Tephrosia Apollinea*. —, **FALSE.** An American name for *Baptisia*. —, **INDIAN.** *Indigofera tinctoria*. —, **NATIVE.** *Isatis tinctoria*. —, **WEST INDIAN.** *Indigofera Anil*. —, **WILD.** *Baptisia tinctoria*.

INDIGO-BERRY. *Randia latifolia*.

INDIGOFERA. A very extensive tropical or subtropical genus of leguminous

plants, valuable on account of the blue colouring material, called Indigo, afforded by several of the species, of which upwards of two hundred are described, the greater number belonging to the African continent, but abounding also in both America and Asia, and a few extending to Australia. They are either annual or perennial herbaceous plants or shrubs, and have pinnate leaves, which, however, are occasionally reduced to three or one leaflet only. The flowers are usually of a rose-purplish or bluish colour or white, and are borne in racemes from the angles of the leaves; they have a broad five-toothed calyx, a papilionaceous corolla having the upper petal curved backwards; and ten stamens, one of which is free. The fruit is a cylindrical or four-sided, straight or curved pod, containing numerous (rarely one or two) angular seeds.

I. tinctoria, the species most commonly cultivated, is a native of the East Indies and other parts of Asia, but it has been introduced into and become naturalised in Africa and America. It is a shrubby plant growing about three or four feet high, having oval or inversely egg-shaped leaflets, and long narrow pods. *I. Anil*, the



Indigofera tinctoria.

West Indian Indigo, is a larger plant, attaining a height of five or six feet, and is a native of the West Indies and America, from Carolina to Brazil, but has become naturalised in Asia and Africa. Its leaflets are of a spatulate form, and its pods short and thick.

The use of Indigo as a dye is of great antiquity. It is mentioned by Dioscorides and by Pliny, and is supposed to have been employed by the ancient Egyptians. It was not, however, much used in Europe till about three centuries ago, and for a long time it experienced considerable opposition on account of its interference with the domestic manufacture of wool (see ISATIS), and in several European countries

edicts were issued prohibiting its use by dyers, and stigmatising it as the devil's dye. As met with in commerce at the present day, Indigo usually consists of cubical cakes, measuring between two and three inches. It is prepared by throwing bundles of the fresh-cut plants into shallow vats and covering them with water, care being taken to keep them under the surface. After steeping for ten or twelve hours the liquid is run off into another vat and beaten with sticks or bamboos from one and a half to three hours, in order to promote the formation of the blue colouring matter, which does not exist ready formed in the tissues of the plant, but is formed by the oxidation of other substances contained in them. The colouring matter is then allowed to settle, the precipitation being accelerated by the addition of a small quantity of clean cold water or lime-water, and the supernatant liquor drawn off and thrown away, while the deposited matter is put into a boiler and kept at the boiling point for five or six hours. After this it is spread upon frames covered with cloth, and allowed to drain for twelve or fourteen hours, and when it is sufficiently solid it is pressed, cut into cubes, stamped and dried for the market. Our imports of Indigo average about 68,000 cwt. annually, the greatest part coming from the East Indies, but a large portion is re-exported to various European countries, the consumption in the United Kingdom not being more than about 13,000 cwt. per annum. [A. S.]

INDIGOTICUS. The deepest blue.

INDIGOTIER. (Fr.) *Indigofera*.

INDIVISUS. Not separated into other parts.

INDRAJAW, INDURJAW. Indian names for the bitter seeds of *Wrightia antidysenterica*.

INDUGA. An Indian name for the Clearing-nut, *Strychnos potatorum*.

INDUMENTUM. The hairy covering of plants, of whatever kind.

INDUPLICATE, INDOPLICATIVE. Having the margins bent abruptly inwards, and the external face of these edges applied to each other without any twisting.

INDURASCENT. Hardening by degrees, as the permanent petioles of a tragacanth bush.

INDUSIUM. A name given to the immediate covering of the tuft of capsules or sporangia in ferns. Sometimes the sori are quite naked, the cuticle being simply ruptured by the protrusion of the young fruit. Sometimes, however, the cuticle is lifted up, and forms a covering of various shapes, being sometimes lateral, sometimes target-shaped, sometimes spherical, &c. In other cases the indusium appears to be a distinct growth arising from the tip or side of a vein. The border is either entire or ciliate. The indusium may be variously

seated even in the same genus, or again it may be almost obsolete, or, as in *Hypolepis tenuifolia*, be quite membranous or herbaceous, and in the latter case partaking more of the nature of the frond itself. In *Pleopeltis*, the indusium is replaced by a number of peltate scales, which, however, have no real relation to a true indusium. In genera like *Hymenophyllum*, where the fruit is produced at the tip of the protruding costa, the bivalvate or cup-shaped indusium is either formed of the frond itself, or springs from the excurrent costa. Sometimes the sori are covered, not only with an indusium, but with a portion of the turned-up edge of the leaf. The annulus of some fungals also bears the same name. [M. J. B.]

INDUVIÆ (adj. **INDUVIATE**). Withered leaves remaining upon a stem, and clothing it.

INENCHYMA. Fibro-cellular tissue, that is to say, cells having the appearance of spiral vessels.

INERMIS. Destitute of any kind of spines or prickles.

INFERIOR. Growing below some other organ; thus, an inferior calyx grows below the ovary, whilst an inferior ovary grows, or seems to grow, below a calyx.

INFLATED. Thin, membranous, slightly transparent, swelling equally, as if inflated with air.

INFLORESCENCE. The manner in which the flowers are arranged.

INFOSSOUS. Sunk in anything, as veins in some leaves, leaving a channel, however.

INFRACTOUS. Curved inwards.

INFUNDIBULAR, INFUNDIBULIFORM. Funnel-shaped.

INFUNDIBULI-CAMPANULATE. Between funnel-shaped and bell-shaped.

INGA. A very extensive genus of leguminous plants, of the section *Mimoseæ*, comprising nearly one hundred and fifty species, all of which are natives of the warmer parts of South America, principally of Brazil and Guiana. They form large shrubs or trees, sometimes growing fifty or sixty feet high, and have pinnate leaves composed of from two to five or six pairs of largish leaflets, bearing a gland on the stalk between each pair, the stalk being frequently winged or leaf-like. The flowers are usually white or yellowish, and borne in variously shaped spikes or in nearly globular heads, growing singly or in clusters from the angles of the leaves. They are generally all perfect, and have a tubular calyx, and a tubular or funnel-shaped corolla, enclosing an indefinite number of stamens, which are twice or several times the length of the corolla, and joined together at the bottom. The pods are flattened or roundish, with thickened

edges, and the seeds are enveloped in a sweet, generally white pulp.

J. Feuillei, a native of Peru, is cultivated in the gardens about Lima, where the inhabitants call it Pacay, and commonly eat the white pulp of its pods. Its leaves have winged stalks, and are composed of three or four pairs of oval-oblong leaflets, which are smooth, and tapered towards both ends. Its pods are sometimes as much as two feet long.

J. spectabilis is a large showy tree, called Guavo real in the Isthmus of Panama, where it is commonly cultivated on account of its eatable pods, as it also is in some parts of New Grenada. The leaves consist of two pairs of smooth and shining, egg-shaped, pointed leaflets, the upper pair being much the largest. The flowers are pure white, succeeded by numerous large pods, two or more feet long, and three inches broad, which, in consequence of their weight, are pendulous from the branches. The white pulp surrounding the seeds in the pods of this and other species of the genus, has a pleasant sweet flavour, and is much eaten by the inhabitants of Panama.

J. vera, a West Indian tree, common in Jamaica and Trinidad, has leaves with winged stalks, and four or five pairs of elliptical lance-shaped leaflets. Its pods are curved like a reaper's sickle, and measure about six inches long; the pulp contained in these is sweet, but like that of several other species, it possesses purgative properties. [A. S.]

INGENHOUSIA. A name applied to a Mexican shrub, described as being like a *Gossypium*, and with yellow flowers, passing into red, and numerous stamens in one parcel. (It is imperfectly known. Bentham and Hooker suggest its identity with *Thurbergia*: which see.) [M. T. M.]

INK-BERRY. An American name for *Prinos glaber*.

INNATE. Adhering to the apex of a thing, as the anther to the apex of a filament.

INNOVATIONS. A name given to the new branches of mosses, which are produced after the fructification has been perfected, or after the first complete growth where the plants remain barren. A difference of habit may arise from their suppression or peculiar growth. In *Bryum*, for example, the innovations are produced from the floral apex, but in *Leptobryum* none are produced. The little bud-like tufts which bear the male organs in some species of *Hypnum* and *Dicranum*, which are attached very slightly to the stem, must be distinguished from true innovations. [M. J. B.]

INOCARPUS. This genus consists of three species, large trees, natives of the islands of the Pacific and Indian Archipelago, with alternate unifoliate leaves, and yellow flowers in axillary spikes. They have a tubular calyx, arched at the back, and bifid; five petals united to form a

short tube; ten stamens in two rows, the upper attached to the mouth of the corolla tube and the lower to its base; and a one-celled ovary with a nearly sessile stigma. The fruit is a fibrous pod with one seed. The genus was for some time referred to the daphnaceous family, its petals being regarded as a calyx, but it is now known to belong to *Casalpinieae*, a section of the leguminous family. The seeds of *J. edulis* are much prized by the natives of the Indian Archipelago, and in Machian they almost live upon them. They are, however, not palatable food, but when boiled or roasted in ashes are sweet. They are less agreeable than the chestnut, and are not suited to weak stomachs. [B. C.]

INOCULATION. An ancient term for the operation of budding.

INSECT FUNGI. Many animals are subject to attacks of fungi, but none more so than insects, whether in a perfect state or in the condition of caterpillar or chrysalis. Some of these fungi are very minute, and often of little interest except from the ravages they commit amongst bees, silkworms, &c.; but others, on the contrary, are large and sometimes brilliantly coloured, and attract notice from the proportion which they bear to the insect on which they grow. These belong to the genus *Cordyceps*, to which head we refer for particulars. Amongst them one of the most remarkable is the species which is so often brought home from New Zealand, where it is produced in abundance on the caterpillar of *Heptalus virescens*. The white mould which oozes out as it were between the abdominal rings of flies in autumn, is in all probability a form of one of the curious productions which we shall notice under *Saprolegnia*. [M. J. B.]

INSERTION. The manner in which one part is inserted into or adheres to, or originates from another.

INTEGER. Properly speaking, this means having no kind of marginal or other division; but sometimes it has been used to indicate not pinnatifid, and also nearly destitute of marginal division.

INTEGERRIMUS. Perfectly free from division of the margin or other part.

INTEGRA VAGINA. A sheathing petiole which forms a continuous tube, not slit on one side, as in sedges.

INTEGUMENTA FLORALIA. The calyx and corolla.

INTER. In composition = between: as *interfoliaceus*, placed between leaves.

INTERCELLULAR. Anything interposed between the cells or tubes of tissue.

INTERMEDIUS. Standing between two bodies in a different row, as petals which they alternate with sepals. Also half-way between one thing and another.

INTERNODE. The space which intervenes between two nodes

INTERRUPTED. When any symmetrical arrangement is destroyed by local causes; a leaf is interruptedly pinnated when some of the pinnae are much smaller than the others, or wholly wanting.

INTERVENIUM. The space of parenchyma between the veins.

INTEXINE. That coating of the pollen which is next the extine or outer crust, and above the intine or inner lining.

INTINE. The innermost lining of the shell of a pollen grain.

INTORTUS. Twisted upon itself.

INTRA. Placed within anything; as *intrafoliaceus*, placed within the axil of a leaf.

INTRARIUS. Turned inwards; that is to say, towards the centre of a flower.

INTRAVALVULAR. Placed within valves, as the dissepiments of many crucifers.

INTRICATE. Entangled.

INTROCURVUS, INTROFLEXUS, INTROFLEXED. Curved inwards.

INTRORSE. Turned towards the axis to which it appertains; as an anther when its valves face the centre of a flower.

INTROVENIUM. Hidden-veined; when veins are so much buried in parenchyma that they are not visible on external inspection.

INTRUSUS. Pushed inwards; as when the base of a fruit is so concave as to seem as if pushed inwards by the peduncle.

INULA. A genus of composite plants, having the outer or ray florets strap-shaped and containing pistils only, while the central florets are tubular and contain both pistils and stamens; the anthers have two bristles at their base; the pappus consists of rather rough hairs, arranged in a single row; and the involucre consists of numerous overlapping scales, but the receptacle is devoid of scales. The species are numerous and occur throughout Europe and central Asia. *I. Helentium*, Elecampane, occurs spontaneously in this country, but having long been cultivated in herb gardens, it is considered that it may originally have been derived from such a source. It is a perennial plant with a stem from three to five feet high; large saw-toothed leaves tapering to a stalk, the upper ones smaller, and embracing the stem; and large heads of yellow flowers. The root has an aromatic camphor-like taste, due to the presence of a crystalline substance called helenin, allied in chemical constitution to crocote. It also contains a quantity of starchy material, called inulin, which differs from ordinary starch in being coloured yellow by iodine. Elecampane was formerly much used as an aromatic tonic, and as a stimulant of all the secreting organs, likewise in coughs, dyspepsia, &c. *I. Compa*, a common hedge plant in some

parts of England, grows to the height of two to three feet, and has rough leaves, and numerous small flower-heads disposed in a corymb. This plant, called Ploughman's Spikenard, has a somewhat aromatic odour. Its leaves are occasionally gathered in place of those of *Digitalis*, from which they may be distinguished by their roughness and their smell. [M. T. M.]

INUNCANS. Said of surfaces covered with little hooked hairs, as the leaves of some species of *Gallium*.

INUNDATE. Flooded. Sometimes covered with water, sometimes dry

INUS. A termination expressing the quality of resemblance, as *calycinus*, like a calyx in position, in colour, &c.; it also expresses augmentation, as *calycinus*, having a large calyx.

INVERTED. Having the apex in an opposite direction to that of some other thing; as many seeds.

INVERTENTIA FOLIA. Leaflets which in their sleep hang downwards, but touch by their upper surfaces.

INVOLUCEL, INVOLUCELLUM. A diminutive involucre; a secondary involucre usually not containing more than one or two flowers.

INVOLUCRAL. Of or belonging to an involucre.

INVOLUCRATE. Having an involucre.

INVOLUCRE, INVOLUCRUM. A ring or rings of bracts surrounding several flowers. Also the peridium, volva, or annulus of some fungi. Also the cup-formed external indusium of some ferns.

INVOLUCRARIA. A genus of *Cucurbitaceae*, consisting chiefly of Indian species, nearly allied to *Trichosanthes*, but having the segments of the corolla entire, and the bracts of the racemes of male flowers large, leafy, concealing the flowers before their expansion. [M. T. M.]

INVOLUTE, INVOLUTIVE. When edges are rolled inwards on each side, as the leaf of the apple.

IOCHROMA. A genus of South American shrubs belonging to the *Solanaceae*, deriving its name from the handsome violet or purple-coloured flowers. The calyx is tubular, somewhat distended, with five unequal teeth, and becomes larger as the fruit ripens. The corolla is tubular, much longer than the calyx, and conceals the stamens. The fruit is succulent, two-celled, many-seeded, enclosed in the bladderly calyx. *I. tubulosum* and *I. lanceolatum* are greenhouse shrubs. [M. T. M.]

IODINA. A genus of *Claosone* [or *Santaceae*, according to Bentham and Hooker], a South American shrub with rhomboid leathery leaves, spinous at the angles and apex, and subsessile flowers in axillary glomerules, having a five-cleft calyx, five petals on a

fleshy disk, five stamens, and a two-celled ovary immersed in the disk. [J. T. S.]

IONE. A genus of epiphytal orchids from the Himalayas, numbering seven species. They are tufted plants, three to nine inches high, with pseudobulbs bearing a single coriaceous leaf, and a radical flower-scape ending in a spike of small white or violet flowers. The lip is narrow like the sepals, and there are four pollen-masses attached to two distinct glands. Dr. Lindley remarks that with the habit of *Bolbophyllum*, this genus unites the glands and pollen-masses of *Angraecum*. Its long membranous two-lipped calyx, dwarf petals, and large lip with fleshy axis usually extended into a dagger-shaped point, are very unlike anything belonging to the neighbouring genera. He also notes that it forms a transition from *Vanda* to *Malacidea*. [A. A. B.]

IONIDIUM. An extensive genus of *Violaceae*, whose species are natives for the most part of subtropical America. Their flowers are characterised by the sepals not being extended at the base; by the five unequal petals, one of which is much larger than the rest; and by the detached stamens. The roots of some of the species contain emetin, and may be used, therefore, instead of *Ipecacuanha*. What is called White *Ipecacuanha* consists of the roots of *I. Ipecacuanha*. Another species, famed in Peru for the cure of tubercular elephantiasis, is *I. microphyllum*, whose roots act powerfully as emetics and purgatives. The root of *I. suffruticosum*, an Indian plant, is likewise used medicinally in diseases of the urinary organs, and the leaves as external applications. [M. T. M.]

IONOPSIDIUM. A genus of *Cruciferae*, containing extremely small Portuguese and Algerian annual plants, with scarcely any stem, numerous long-stalked small roundish root leaves, and scape-like flower-stalks, each bearing a small white or purplish flower. The pouch is roundish, laterally compressed, slightly notched at the apex, with keeled wingless valves more turgid than is usual among the genera, in which the partition is in the narrowest diameter of the pouch, whence the plant used to be placed in *Cochlearia* though really allied to *Capsella*. [J. T. S.]

IONOPSIS. A small genus of elegant little epiphytal orchids of tropical America. They are stemless plants, having small pseudobulbs emitting wiry roots, a few lance-shaped leaves, and an erect slender flower-scape, ending in a panicle of numerous small pink or white flowers, resembling those of a violet in form—whence the generic name. The sepals and petals are small and connivent; the lip large, fan-shaped, two-lobed at the apex, and slightly spurred at the base; and there are two pollen-masses attached to the end of a linear caudicle with an oblong gland at the base. Their delicate flowers remain for a long time expanded without fading. [A. A. B.]

IPÉBRANCO. *Palagonula guianensis*.

IPECAC, AMERICAN. *Gillenia stipulacea*. —, **WILD.** *Euphorbia Ipecacuanha*.

IPECACUANHA. The root of *Cephaelis Ipecacuanha*. —, **BASTARD.** *Asclepias curassavica*. —, **BLACK, or PERUVIAN.** *Psychotria emetica*. —, **FALSE BRAZILIAN.** *Ionidium Ipecacuanha*. —, **GUIANA.** *Boerhaavia decumbens*. —, **STRIPED.** *Psychotria emetica*. —, **UNDULATED.** *Richardsonia scabra*. —, **VENEZUELA.** *Sarcostemma glaucum*. —, **WHITE.** *Ionidium Ipecacuanha*; also *Richardsonia scabra*. —, **WILD.** *Asclepias curassavica*.

IPECACUANHA DES ALLEMANS. (Fr.) *Vincetoxicum officinale*.

IPE-TABACCO, or IPEUNA. Names given to certain hard-wooded species of *Bignonia*, in Brazil.

IPHIGENIA. A genus of *Liliaceae* from India, with the habit of the Australian genus *Angulularia*, from which it differs by its introrse anthers, and styles united at the base. They are glaucous herbs, with coated bulbs, erect leafy stems, and a three-flowered or racemose inflorescence; the perianth deciduous coloured with linear divisions spreading like a star, the filaments hairy, the style with three stigmas. [J. T. S.]

IPIE. *Bassia latifolia*.

IPO. A Malay name for the Upas poison.

IPOMEEA. A large genus of *Convolvulaceae*, widely distributed over all warm climates, with a few species extending into North America, and into extratropical Africa and Australia. They are twining prostrate creeping or rarely low and erect



Ipomoea batatoides.

herbs, occasionally woody at the base, very rarely shrubby, with entire, lobed, or divided leaves, and generally large and showy flowers in the axils of the leaves, in small cymes, rarely solitary. The flowers have a calyx of five sepals; a campanulate or tubular corolla with a spreading entire or angular limb, rarely deeply lobed; five

included stamens; a two or three-celled ovary with two ovules in each cell; and a slender style with a bilobed stigma, the lobes capitate.

Ipomœa is frequently cultivated as an ornamental plant because of its showy flowers, but it derives its chief importance from the medicinal properties which many of its species possess. These depend chiefly on an acrid juice which abounds in their roots, and which has a strongly purgative quality arising from the presence of a peculiar resin. Sometimes sugar and starch replace the resin, and a valuable edible root is obtained; this is remarkably the case in the allied genus *Batatas*, the root of one species of which is the sweet potato. Although the best jalap is obtained from *Exogonum Purga*, yet many species of *Ipomœa* supply it, though of an inferior quality. *I. Turpethum*, a native of India and the islands of the Pacific Ocean, is employed by the natives as a common purgative, and although the resin is more diluted than in the true jalap, it is free from the nauseous taste and smell of that drug. The Mechameck of the North American Indians is *I. pandurata*. Its powdered root acts like rhubarb, and has also some reputation as a diuretic. The root of the South American *I. batatoides* has sufficient of the purgative resin to cause it to be employed. Scammony, it is said, can be obtained from *I. tuberosa*, the Spanish Harbour Vine of Jamaica. *I. sensitiva* is remarkable for the irritability of its corolla. [W. C.]

IPOMOPSIS. A subgenus of *Gilia*, comprising those species which have alternate divided leaves, flowers solitary or somewhat clustered, and a corolla tube very much longer than the calyx. See *GILIA*. [C. A. J.]

IPRESINE. A genus of *Amaranthaceæ*, natives of tropical and subtropical America (a single species reaching as far north as Ohio), and also of Australia. They are herbs with opposite stalked leaves, and small scarious white flowers in lax panicles, or dense heads, or spikes. The flowers are often polygamous, or dioecious by abortion. The fruit is a globular indehiscent utricle. [J. T. S.]

IRIARTEA. A genus of palms, from which have recently been separated *Socratea*, *Iriartella*, *Cubatiastus*, &c. The wax palm (*Ceroxylon*), which has been combined with it by some botanists, is here kept distinct. As now defined, *Iriartea* consists of five species, one of which is a native of Peru, and the others of the banks of the Amazon river. All of them are tall-growing plants, some of them attaining a height of sixty or eighty feet, or even higher, and they are frequently elevated above the conical mass of cylindrical roots, which gives them a most remarkable appearance. The stems are smooth, and marked with distant circular scars, generally almost cylindrical, but occasionally swollen or bulged out towards the top. They bear a

crown of large pinnate leaves, the lower part of the stalks of which form a cylindrical sheath round the top of the stem; the leaflets are somewhat trapezoid in form, and jagged on one side. The flower-spikes are pendulous from below the leaves, and have several spathe, the innermost of which completely encloses them while young, but eventually splits open; both sexes of flowers are borne on the same spike. The fruit is roundish or egg-shaped, and contains a single seed.

I. coralliza, the Pashiuba or Pashiuba palm of Brazil, is the tallest-growing species, and its cone of roots is sometimes so high that a man can stand in the centre, with the tall tree above his head. These aerial roots, being covered with little asperities, are commonly used by the Indians as graters, whilst the hard outer wood of the stem is employed for various portions of their houses, and likewise exported to the United States for making umbrella handles. [A. S.]

IRIARTELLA. A small South American palm, formerly called *Iriartea setigera*. It differs greatly in general appearance from the *Iriarteas*, which are all tall stout-growing palms, whilst this seldom grows higher than eighteen or twenty feet, and has a perfectly straight cylindrical trunk scarcely more than an inch thick. The flowers also differ in the males having a small rudimentary pistil in the centre of the fifteen stamens, whilst the females have no steric stamens, containing only a three-celled ovary. The Indians on the Amazon and Rio Negro, where this palm grows in the underwood of the forests, use its slender stems for making their gravatmas, or blow-pipes, the weapon commonly employed by them in the pursuit of game, and through which they blow small poisoned arrows with unerring accuracy and to a considerable distance. These gravatmas are usually from eight to twelve feet long, and have a bore of about a quarter of an inch. The stems, being soft and spongy in the centre, are easily bored by pushing a rod of hard wood through them, but in order to have the bore perfectly smooth, the Indians prefer splitting them in halves and carefully working a groove in each half, afterwards neatly reuniting and binding them round with the smooth shiving bark of a creeping plant. [A. S.]

IRIDACEÆ. (Ensatæ, Iridæ.) A natural order of monocotyledonous plants, belonging to Lindley's narcissal alliance of Endogens. Herbs with corms, rhizomes, or fibrous roots, and mostly with equitant leaves, and flowers in sheaths. Perianth six-parted, in two rows, sometimes irregular; stamens three, inserted at the base of the outer row of the perianth; anthers imbricate, opening on the back; style dividing into three petal-like portions, which bear the stigmas. Capsular fruit three-celled, three-valved, opening in a loculicidal manner; seeds with hard albumen. The plants are found both in warm and temperate regions; they abound at the Cape of Good

Hope. They have fragrant, stimulant, and acid qualities. The stigmatic processes of *Orocus sativus* yield saffron; the rhizomes of *Iris florentina* have the odour of violets. Upwards of 500 species in some fifty genera are known. Examples: *Iris*, *Gladiolus*, *Crocus*, *Ixia*. [J. H. B.]

IRIDÆA. A genus of the rose-spored *Algae*, belonging to the natural order *Cryptonemiaceæ*, distinguished by its flat frond, which is simple or loosely divided, bearing compound capsules, immersed in its substance. It is closely allied to *Gigartina*, and distinguished principally by the different position of the capsules, and the frond being less regularly cleft. *I. edulis*, which is easily known by its tough obovate dark-red frond, wedge-shaped at the base, is sometimes eaten like the common dulse, *Rhodomenia palmata*, and has been employed in the preparation of a dye, which is probably fugitive. The genus contains many species, most of which inhabit the Southern seas. [M. J. B.]

IRIDINE. (Fr.) *Vieusseuxia*.

IRIO. *Sisymbrium Irio*.

IRIS. A beautiful and extensive genus of perennial plants, with sword-shaped leaves, giving its name to the order *Iridacææ*. They are very common in gardens, and one or two rank amongst our native wild flowers. The greater part have fleshy prostrate rhizomes, but some few are tufted, with fibrous roots, and a few others, as the English and Spanish *Iris* (see *Kurzon, Supp.*), are



Iris florentina.

bulbous. The flowers are often large and very showy, being of bright or well-contrasted colours. The perianth is six-parted, with a short tube, but of the six segments the three outer are reflexed, and very frequently bearded at the base, and the three inner erect and very frequently smaller than the outer; there are three stamens inserted at the base of the outer segments, and having the anthers turned outwards; and

a triquetrous style with three petaloid dilated stigmas, each opposite the stamens, keeled above, and hollow beneath, having a transverse fold towards the front. The capsule is three or six-angled, and three-celled, containing numerous seeds. The species are found chiefly in the south of Europe and north of Asia, a few extending to North America and North Africa. Orris root, which has the odour of violets, and so much used for perfumery powders, &c., is the rhizome of *I. florentina*, a species with large white flowers. The root possesses cathartic and emetic properties; it is also sometime, chewed by persons who have offensive breath. The common native species, *I. Pseud-acorus*, found by the margins of ponds and streams, possesses astringent properties, and it is said that it may be used as a substitute for galls in making ink, as well as for dyeing black. Another species, *I. versicolor*, has purgative rhizomes. As garden flowers, the species of *Iris* rank amongst the most ornamental of hardy perennials. [T. M.]

IRIS, PEACOCK. *Vieusseuxia*. — **SCORPION.** *Iris alata*. — **SNAKESHEAD.** *Hermiodactylus tuberosus*.

IRIS. (Fr.) The Fleur-de-lis, the emblem of France — **D'ALLEMAGNE.** *Iris germanica*. — **DES MARAIS.** *Iris Pseud-acorus*. — **DES PRÉS.** *Iris sibirica*. — **DEUIL.** *Iris austriaca*. — **GIGOT.** *Iris fastidissima*. — **JAUNE.** *Iris Pseud-acorus*. — **NAINE.** *Iris pumila*. — **PLU-NEUSE.** — *Moræa virgata*. — **TIGRÉE.** *Moræa sinensis*.

IRIS-ROOT. The same as Orris-root.

IRONBARK-TREE. *Eucalyptus resinifera*, and *Sideroxylon*.

IRONHEADS. *Centaurea nigra*.

IRON-TREE. *Siderodendron*.

IRON-WEED. *Vernonia*.

IRONWOOD. *Sideroxylon*; also the timber of several species of *Diospyros*, and of *Metrosideros vera*. — of Bourbon. *Cupania Sideroxylon*. — of Dutch East India. *Eusideroxylon Zuageri*; also *Namia vera*, *Intsia amboinensis*, *Cassia florida*, *Meme-cylon ferreum*, *Stadmannia Sideroxylon*, *Dodonæa Waitziana*, and *Strophia Sideroxylon*. — of Morocco. *Argania Sideroxylon*. — of New South Wales. *Argyrodendron trifoliatum*. — of Norfolk Island. *Notelæa longifolia*, and *Olea apetalæ*. — of North America. *Ostrya virginica*, and *Carpinus americana*. — of South Africa. *Olea undulata* and *capensis*. — of S. Sea Islands. *Casuarina equisetifolia*. — of Tasmania. *Notelæa ligustrina*. — **BASTARD.** *Xanthoxylon Pterota*. — **BLACK.** *Olea undulata*. — **JAMAICA.** *Erythroxylon areolatum*. — **WHITE.** *Vepria lanceolata*.

IRONWORT. *Sideritis*; also *Galeopsis Ladanum*. — **YELLOW.** *Galeopsis villosa*.

IRREGULAR. Having the parts which

constitute one series of a flower dissimilar in size or form.

IRUPÉ. *Victoria regia*.

IRVINGIA. A genus of *Simarubaceæ*, allied to *Soulamea* and *Amaroria*, but differing in habit, in the large disk under the ovary, and in several other characters. It consists of tropical African trees, entirely glabrous, with alternate entire leaves convolute in the bud, and leaving prominent rings on the branches as they fall off. The flowers are small and yellow, in terminal or axillary panicles. The drupaceous fruits of the two species known are edible, and much relished by monkeys; they are known under the name of Wild Mangos. *I. Bartschi* is called **Dika**: which see.

ISACANTHUS. A genus of *Acanthaceæ*, containing a single species from Africa. It is a branching shrub, with entire leaves, and white flowers in few-flowered terminal spikes. The calyx is five-parted, the corolla has a slender tube, and a limb consisting of a single unequally five-lobed lip, and there are four exserted stamens. [W. C.]

ISACHNE. A genus of grasses belonging to the tribe *Panicææ*, now included by Steudel in *Panicum*. [D. M.]

ISANTHERA. A genus of *Cyrtandraceæ*, containing a single species a native of India. It is an herbaceous plant, with an erect stem, obovato-cuneiform acute leaves, and flowers in axillary clusters. The flowers are polygamous. The hermaphrodite ones have a five-cleft calyx, a rotate corolla, four or five stamens, and one-celled ovary. The female flowers want the corolla. This genus has the flowers of *Platystemma* conjoined to the habit of *Cyrtandra*. [W. C.]

ISANTHUS. A genus of labiates, having the calyx bell-shaped, with five equal lobes, enlarging as the fruit ripens; and the corolla slightly longer than the calyx, with five nearly equal lobes. The only species, *I. cæruleus*, is a small annual, covered with clammy hairs, the flowers minute, pale blue. It is a native of the southern parts of the United States, and is called False Pennyroyal. [G. D.]

ISARIA. An important genus of filamentous moulds, connecting them very closely with the lower club-shaped *Hymenomyces*. The genus is divisible into two distinct groups, in one of which all the species grow upon insects, and principally upon *Hymenoptera*. It is, however, suspected that all of these are mere conditions of different species of *Cordiceps*. The species of the second group grow upon various vegetable substances, and a few of these must be considered as mere sporiferous forms of other fungi. Some good species, however, remain, which are known by their threads being compacted with a solid mass, which may be either simple or branched, the free tips of which bear the spores. The limits between some of these and *Pitillaria* are so indefinite, that it is not always possible to say posi-

tively to which genus a species should be referred. [M. J. B.]

ISARIERI. A natural order of filamentous moulds containing those genera in which the fertile threads are compacted, and have deciduous pulverulent spores at their free apices. It must be observed, however, that the order contains two sets of species which are connected on the one hand with *Mucedines*, and on the other hand with *Dematiæ*, in which order the threads are more or less dark and carbonised. Little is known of exotic species. *Ceratium*, however, which, from its texture, would perhaps be better referred to *Hymenomyces*, occurs in Ceylon, and we have one of the darker series in India. North America, as might be expected, has some in common with Europe, besides an admixture of distinct forms. [M. J. B.]

ISATIS. A genus of *Cruciferae*, consisting of erect annual or biennial plants, natives of Southern Europe and Western Asia, one being found in China. They have undivided leaves, with a bluish bloom, the lower stalked, the upper clasping the stem; and the small yellow flowers are borne in long loose erect terminal panicles, and produce flat pendulous pods of an elliptical form, with a strong rib along each side.

I. tinctoria, the Dyer's Woad, is said to have been originally a native of South-eastern Europe, from whence it has spread by means of cultivation and become naturalised in most parts of Europe as far north as Sweden, and also in some parts of Asia. It is a biennial, growing from eighteen inches to three or four feet high, with a smooth straight stem, branched towards the top, the root-leaves stalked, inversely egg-shaped or oblong, and coarsely toothed, the upper ones narrow lance-shaped, with prominent auricles at the base. The pods are rather more than half an inch long, broad, and very blunt at the top, but tapering to the base.

Before the use of indigo became common among European dyers, the blue colouring matter called Woad, obtained from this plant, was an article of great importance, and the plant was extensively cultivated; but the introduction of indigo has almost entirely superseded it, and it is now only grown to a limited extent, and used chiefly by woollen dyers for mixing with indigo, in order to excite fermentation. It is generally prepared by grinding the leaves into a paste, which is then carefully fermented in heaps, and afterwards made into balls or bricks for sale. Small quantities of these balls are annually imported from the continent, amounting in 1859 to 200 cwt. The use of woad as a dye dates from very early times. Dioscorides, Pliny, and others, mention its use for dyeing wool; and Cæsar relates that the ancient Britons used it for staining their bodies—the word Britain being derived from the Celtic *brith* or *brut*, 'painted,' in reference to this custom.

I. indigotica is cultivated as a tinctorial

plant in the north of China, where it is called Tsin-ching. It is a small half-shrubby plant, with a decumbent stem, bearing at its extremity several long drooping racemes of small yellow flowers, and smooth black saddle-shaped pods about half an inch long. The lower leaves are rather fleshy, on long stalks, oval, lance-shaped, and pointed, with the edges slightly toothed, the upper ones very much



Isatis indigotica.

narrower and smaller. In the north of China, this plant takes the place of the indigo of the south, and its colouring matter is obtained by a process closely analogous to that employed in the preparation of indigo, but instead of being thoroughly inspissated, so as to form solid cakes, it is used by the Chinese dyers in a semi-liquid or pasty state. It is commonly employed for dyeing cotton cloth, to which it imparts a dark-blue colour. [A. S.]

ISAXIS. A genus of Indian trees, belonging to the *Dipterocarpaceae*, and distinguished from *Vateria*, by the flowers being arranged in short axillary panicles, the segments of the calyx increasing in size as the fruit ripens, by the petals which are sickle-shaped and larger than the sepals; by the fifteen stamens, which have oblong anthers; and by the short style and club-shaped stigma. [M. T. M.]

ISCHÆMUM. A genus of grasses belonging to the tribe *Andropogoneae*, now included in *Andropogon*. [D. M.]

ISCHARUM. *Biarum*.

ISCHNIA. A genus of *Pedaliaceae*, containing a single species, a native of Mexico. It is an erect herb, with opposite petiolate ovate acute leaves, and pale violet flowers on long opposite and axillary peduncles, arranged in loose racemes. The calyx is five-toothed and persistent; the corolla tube slightly curved, and its spreading limb obscurely five-cleft. The nut-like fruit is indehiscent, and furnished with four long divaricate horns. This genus

has an herbaceous flower, but the fruit is that of *Pedaliaceae*.

ISERTIA. A genus of Central American shrubs or small trees, belonging to the *Cinchonaceae*. The flowers have a long tubular corolla, the limb of which is divided into six woolly segments; the anthers are six, sessile, concealed within the corolla; the ovary has six compartments, each containing several ovules. The species have handsome scarlet flowers. [M. T. M.]

ISIDIUM. A corolla-like elevation of the thallus of a lichen, bearing a globule at its end.

ISKEEL. *Scilla indica*.

ISMENE. A small genus of pancratiform *Amaryllidaceae*, consisting of bulbous plants of South America, mostly Peruvian. They have lanceolate leaves sheathing at the base, and tall scapes bearing at top an umbel of few or many flowers, the perianth of which has an elongated three-cornered tube curved in the upper part, and broader in the throat, a six-parted limb with narrow spreading segments, and a funnel-shaped six-lobed lacerately-toothed coronet, each lobe deeply cmarginate and having an antheriferous filament projected inwards from the sinus. The ovary is three-celled with two ovules in each cell, and supporting a filiform declinate style with a globose stigma; and the seeds are few, green, and bulb-like. *I. Amancas* is the Peruvian Daffodil, and the name of Sea Daffodil is given to *I. calathina*, both very beautiful plants. [T. M.]

ISNARDIA. A genus of aquatic or marsh herbs belonging to the order *Onagraceae*, of which the characters are: stamens four; calyx four-parted persistent; capsule not tapering to a point; seeds many, destitute of any feathery or hairy appendage. *I. palustris* is remarkable only for having been found growing in the south of England about the middle of the seventeenth century, and for having been subsequently lost sight of until it was rediscovered in 1827. It is frequent in the continent of Europe, in North America, and the temperate parts of Asia. [C. A. J.]

ISOBRIOUS, ISODYNAMOUS. Growing with equal force; two of the names of the dicotyledonous embryo.

ISOCARPHA. A genus of tropical American plants of the composite family, nearly related to *Ageratum*, but differing in the achenes being destitute of pappus, and having interspersed among them on the conical receptacle numerous chaffy scales like those composing the involucre. They are branching weeds, with lance-shaped or linear leaves, and solitary or corymbose flower-heads. [A. A. B.]

ISOCHILUS. A few epiphytal orchids of tropical America, usually with slender erect stems, twelve to eighteen inches long furnished with broadly linear two-ranked leaves, and terminating in a very short bracted spike of small dingy

purple or white flowers. The relationship of the genus is with *Epidendrum*, but the lip is free, not connate with the column. The sepals and petals are free, nearly equal, and connivent; the column semiterete with two or three horns, and the anthers four-celled, with four pollen-masses, each with a recurved caudicle. [A. A. B.]

ISOËTES. A genus of *Lycopodiaceæ*, with subulate fronds, a globose rhizome, the apex of which is sunk, so that the bases of the older leaves are higher than those of the younger. The axillary capsules are incorporated with the base of the leaves, producing either atheridia in the shape of small oblong spores, or larger four-sided spores, which germinate by cell-division of the apex in which archegonia are formed, from whence ultimately the new plant is produced. Most of the species are strictly aquatic, but *I. Hystrix*,* which has lately been found in the Channel Islands, grows in sandy places. The rhizome is often rough, with dark horny processes which are supposed to be abortive leaves, to which the name of phyllo-pods has been given. The leaves are studded with stomates, and the rhizome and roots contain annular vessels like those of *Equisetum*. The genus occurs in all the four quarters of the globe. [M. J. B.]

ISOËTOSIS. The generic name of an annual plant of the composite family found in South and West Australia. It gets this name from the great outward resemblance it bears to our common *Isœtes*. It has numerous small sessile flower-heads, arising from the crown of the plant, and surrounded by a few grassy leaves, whence the specific name *graminifolia*. [A. A. B.]

ISOGYRUS. Forming a complete spire.

ISOLEPIS. A genus of cyperaceous plants, belonging to the tribe *Scirpææ*. Distinguished by the inflorescence being in spikes, two or three together or solitary; scales imbricated on all sides, all floriferous, or more rarely the exterior scales empty; stamens three, rarely fewer; styles three. Steudel describes two hundred species, mostly natives of the warm temperate zones of both hemispheres. The British representatives are only two species, namely *I. setaceus*, and *I. Savii*, which with most British authors simply form a section of *Scirpus*. [D. M.]

ISOLOMA. *Lindæa*.

ISOMERIS. The name of a Californian shrub, forming a genus of *Capparidaceæ*. The flowers are yellow, with four equal sessile petals; stamens six, upon a fleshy receptacle which is prolonged into a narrow appendage; ovary stalked; capsule large, terminated by the short style. The plant has a disagreeable odour. [M. T. M.]

* The sculpture of the small spores or atheridia is not, however, precisely the same, but more like that of *I. Durantii*, in the only specimen we have seen. It may possibly, therefore, be a species distinct from either.

ISOMEROUS. Equal in number; an isomerous flower is one all whose parts are equal to each other in number.

ISONANDRA. The inspissated milky juice of one of the species of this genus of *Sapotaceæ* constitutes the well-known Gutta Percha, and ten other species are known. They are all inhabitants of Southern India, Ceylon, Malaya, and the adjacent islands, forming lofty forest trees. The leaves are entire and leathery. The flowers small and inconspicuous, produced in little clusters, either in the angles of the leaves or at the ends of the young branches. They have a four or six-parted calyx and corolla enclosing double as many stamens, which are all fertile. The ovary has four or six cells, and eventually becomes a fleshy fruit containing one or two oily seeds.

I. Gutta, the species which yields Gutta Percha, is a large forest tree growing sixty or seventy feet high, with a trunk two or three feet in diameter. Its leaves are inversely egg-shaped and entire, of a pale green on the upper side, but covered beneath with short reddish-brown shining down. The flowers grow in clusters of three or more in the axils of the leaves.

The Gutta Percha (or Gutta Taban) tree, and its now famous product, was first brought into notice about twenty years ago by Dr. Montgomery at Singapore,



Isonandra Gutta.

where the tree was then common, but the Malays having adopted the extravagant method of felling the trees in order to obtain the milky juice, it is now quite extinct in that island, though it fortunately exists in Borneo, Sumatra, and other eastern islands. The average quantity yielded by each tree is 20 lbs.; and as 18,503 cwt. were imported into this country in 1859, it follows that 104,120 trees would have to be sacrificed for the supply of the English market alone. The raw Gutta Percha arrives in this country in lumps weighing from five to six pounds, which are cut into slices, softened in hot water, then torn into shreds by rapidly revolving cylinders set with sharp teeth, and thrown

into cold water, when the impurities sink and the Gutta Percha floats on the surface. The shreds are then transferred to hot water, and are made into solid masses which are afterwards kneaded by machinery, in order to expel the extraneous moisture.

One of the first uses to which Gutta Percha was applied in this country was for the soles of boots, its imperviousness to water and great durability recommending it for such purposes. From its property of becoming plastic by heat, it is valuable for modelling and moulding, and it is used for making a variety of useful articles, such as door-handles, pipes, plates, buckets, ear-trumpets, &c.; but its most important use is owing to its being a non-conductor of electricity, which, combined with its indestructibility in seawater, renders it applicable for coating the wires employed for submarine telegraphs. Alkalies, vegetable acids, and weak mineral acids, also, do not act injuriously upon it, but strong sulphuric, nitric, and hydrochloric acids corrode it, and turpentine, benzole, chloroform, &c., completely dissolve it. [A. S.]

ISONEMA. A genus of dogbanes, having the corolla salver-shaped with a five-parted border, its tube without scales; the filaments of the anthers simple at the apex; and the base of the ovary without scales. *I. Smeathmanni* is the only species; it is a small hairy shrub, native of tropical Africa, with opposite leaves, and terminal clusters of flowers. [G. D.]

ISOPAPPUS. A genus of composite plants, found in Texas. The two known species are hirsute annual herbs, with numerous lance-shaped leaves, and an abundance of small yellow-rayed flower-heads, supported on slender stalks, and disposed in loose much-branched panicles. From *Stenotus*, and other allies, they differ in the narrow scales of the involucre, and in the pappus being composed of a single series of capillary nearly equal bristles: whence the name. [A. A. B.]

ISOPHOROUS. Transformable into something else. Thus, *Actinia* is an isophorous form of *Dendrobrum*, *Puzosia* of *Spathoglottis*, and, according to Morren, *Angulosa* and *Lycaste* of *Mazillaria*.

ISOPHYSIS. A genus of *Melanthaceae*, also called *Heurardia*. It consists of a single Tasmanian species, *I. tasmanica*, with dry rigid, distichous, equitant, narrow, sword-shaped leaves, and purple flowers on bracteated scapes, taller than the leaves. The perianth is six-leaved, spreading in a star-like form, the segments acuminate; there are three stamens, with short broadly subulate filaments; and a pyramidal, bluntly three-cornered, three-celled, many-seeded ovary, with a short style, and three thick recurved stigmas. The spathe which terminate the scapes are one or two-flowered. [T. M.]

ISOPLEXIS. A genus of *Scrophulariaceae*,

consisting of two species, formerly included under *Diggallia*, but distinguished by Lindley on account of their shrubby habit, and their corolla, of which the upper lobes are reflexed. Both the *I. Sceptum*, from Madeira, and *I. canariensis*, from the Canary Islands, have been in cultivation in our greenhouses; they are handsome plants, with terminal racemes of showy yellow or orange-coloured flowers.

ISOPOGON. An extensive genus of *Proteaceae*, forming large shrubs or small trees, natives of the extra-tropical parts of Australia, principally in the south-west portions of it. The foliage is harsh and rigid, the leaves being of various forms, simple or much divided. They are filiform and sharp-pointed in *I. petrophiloides*, *I. teretifolius*, &c.; lanceolate and leathery in texture in *I. attenuatus*, *I. longifolius*, &c.; wedge-shaped and deeply toothed in *I. tripartitus*, *I. Baxteri*, &c.; and broadly ovate in *I. latifolius*. The flowers grow in globose, generally terminal heads, and have a regularly four-cleft calyx bearing on each of its concave segments a nearly sessile anther, a filiform style with a cylindrical or spindle-shaped stigma. The nut contains a single wingless seed. [L. H.]

ISOPTERYX. A genus of *Begoniaceae*, and the type of one of the sections of that order, according to Klotzsch. Its characters are: petals of staminate flowers, four, ciliate toothed at the apex; anther oval, short; filaments very long, not united; branches of the styles bipartitely multifid, and papillose, with slender somewhat terete lobes; fruit top-shaped, of a somewhat cartilaginous and papery consistence, three-horned above, attenuated at the base, shortly lengthened out at the apex. The horns are short cuspidate erect incurved. The one species referred hither is a native of New Grenada. [J. H. B.]

ISOPYRUM. A genus of *Ranunculaceae*, with the habit of *Thalictrum*, but really more nearly allied to *Helleborus*. They are natives of Europe and temperate Asia, and are slender herbs, with the leaves ternately divided, and with the leaflets again ternate or three-lobed. The flowers are stalked, without involucre, white, with five rather large petaloid sepals, and five or ten minute petals, tubular at the base, two-tipped; stamens ten or more; ovary of two to twenty carpels, which become follicles, containing several seeds each. *I. thalictroides* is not uncommon in central and southern Europe. [J. T. S.]

ISOS. In Greek compounds = equal. Placed before the name of an organ, it indicates that it is equal in number to that of some other which is understood: thus, *isostemonous* is said of plants the stamens of which are equal in number to the petals.

ISOTOMA. A genus of lobeliaceous herbs, distinguished principally by the salver-shaped corolla, the segments of which are spreading and nearly equal.

J. longiflora, a native of the West Indies, is a most venomous plant, producing dangerous cathartic symptoms. It proves fatal to horses that eat it. Others of the species are natives of Australia. [M. T. M.]

ISOTROPIS. The generic name of a few erect or decumbent leguminous herbs, found in South-west Australia. They mostly have slender rush-like stems six inches to a foot high, with alternate spatulate leaves about an inch long, usually bilobed at the apex; and solitary and long-stalked or racemed pea-flowers, the standard yellow with purple lines, and the keel and wings purple. The flowers are much like those of *Chorosema*, so often seen in greenhouses, and have a deeply four-cleft calyx, and orbicular bilobed standard, free stamens, and an oblong membranaceous pod. [A. A. B.]

ISOTYPUS. A genus of South American two-lipped composites. The present name supersedes *CALOSERIS*: which see.

ISPRUK. An Indian powder made from a species of *Delphinium*.

ISTHIA. One of the finest genera of *Diatomaceae*, distinguished by its trapezoid or rhomboid articulations, which are compressed and cellular, marked with a transverse zone, composed of smaller cells, and supported at one corner by a short stem. We have two native species which form most interesting objects for the microscope, and are very instructive as exhibiting, most distinctly, the peculiar mode in which cell-division takes place in these alga. The new frustules are either attached alternately as in *Diatoma*, or united to each other by means of a very short blunt stem, springing from one corner and fixed to different points of the older frustules. [M. J. B.]

ITAKA WOOD. A cabinet wood procured from *Macharium Schomburgkii*.

ITEA virginica, the only representative of this genus of *Escalloniaceae*, is a North American shrub, with clusters of white flowers, which open in summer. The calyx is bell-shaped; petals five, lance-shaped; stamens five, attached with the petals to the calyx; ovary with two compartments; fruit capsular, compressed. This shrub is frequently cultivated in shrubberies in this country, and derives its name from the Greek name for the willow, which it resembles in its mode of growth. [M. T. M.]

ITOUBOU. *Ionidium Ituba*.

IVA. The generic name of a few rank-growing annual or biennial weeds of the composite family, found in marshy or maritime places in North America. The stems have nettle or willow-like leaves, opposite below, and alternate above; and the greenish-white flower-heads, somewhat like those of *Artemisia*, are arranged in racemes, or placed singly in the axils of the upper leaves or bracts. The florets are all tubular, inconspicuous. [A. A. B.]

IVETTE. (Fr.) *Ajuga Chamapitya*. — **MUSQUÉE.** *Ajuga Iva*.

IVRAIE. (Fr.) *Lolium temulentum*.

IVORY, VEGETABLE. The hard albumen of the nuts of *Phytalephas macrocarpa*.

IVY. *Hedera Helix*. —, **AMERICAN.** *Ampelopsis hederacea*. —, **GERMAN.** A garden name for *Senecio mikanoides*. —, **GROUND.** *Nepeta Glechoma*. —, **POISON.** *Rhus Toxicodendron*.

IVYWORTS. Lindley's name for the *Araliaceae*.

IXERBA. A genus of *Breziaaceae*, represented by a single species, *I. brezioides*, which is an elegant evergreen tree of New Zealand, growing to the height of twenty feet, and having lance-shaped leaves, and terminal panicles of few large white flowers. The leaves are glossy, leathery, and toothed; and the flowers consist of five calyx leaves, five petals, five stamens, and a lobed disk surrounding a five-celled ovary. The name *Ixerba* is an anagram of *Brezia*. [A. A. B.]

IXIA. A genus of beautiful Cape Iridaceous bulb-tuberous plants, with narrow ensate leaves, and slender simple or slightly branched stems bearing spikes of large showy flowers, various in colour, and exceedingly attractive when fully expanded by sunshine. These flowers have a salver-shaped perianth, with a slender tube, and six-parted spreading equal limb, three stamens inserted in the throat, with filiform filaments and versatile anthers, and a three-celled ovary with numerous ovules, terminating in a filiform style, and three narrow linear conduplicate recurved stigmas. *I. viridiflora*, which has large sea-green flowers with black markings at the base of the segments, is a very singular-looking as well as beautiful plant. There are a great many species, and some garden varieties. [T. M.]

IXIANTHES retzioides is an erect South African shrub, with lanceolate whorled leaves, and very viscid flowers, growing singly or two or three together on axillary peduncles. It forms a genus of *Scrophulariaceae* of the tribe *Cheloneae*, distinguished by a two-lipped calyx, by the corolla which has a short broad tube, a short erect upper lip, and a longer three-lobed spreading lower lip, and by the stamens, of which two only bear anthers.

IXIANTHUS. A genus of the gentian family, represented by a perennial plant, native of Tenerife, with sticky leaves and yellow flowers. The calyx is provided with exterior triangular bracts; the corolla is wheel-shaped, with a four-cleft limb; there are four stamens; and the capsule is partly two-celled, two-valved. [M. T. M.]

IXIOLENA. A few annual Australian herbs compose this genus, which belongs to the same group of the composite family as the everlasting. They have glutinous smooth or woolly stems, six inches to 8

foot high, furnished with lance-shaped or linear leaves, and terminating in one or many white or yellow flower-heads about half an inch across. These contain numerous tubular and perfect florets, enclosed in an involucre of many narrow scales which are slightly bent out at the apex so as to resemble ray florets. From their allies they differ in the achenes being seated on a frilled receptacle, and crowned with a pappus of numerous long rough hairs, as well as in the nature of the involucre. [A. A. B.]

IXIOLIRION. The name of a few pretty bulbous amaryllidaceous plants of Asia Minor and Northern Asia. They have tunicated bulbs, and simple erect stems with



Ixiolirion montana.

leafy bracts, smaller upwards, and bearing a few flowers near the top. The leaves are narrow linear, channelled, glaucous, and sheathing at the base; and the flowers are erect long-stalked, blue or violet, with a six-parted funnel-shaped or subrotate perianth having narrow lanceolate divisions, six erect stamens, and a somewhat top-shaped ovary, with a filiform style and three narrow channelled stigmas. [T. M.]

IXONANTHER. A genus of the flax family, comprising five species which are found in the Malay peninsula and islands, and one in Hong Kong. They are smooth trees or bushes with obovate or elliptical leaves; and numerous small generally green flowers disposed in axillary forked corymbs usually longer than the leaves. The flowers have a calyx of five to six rounded sepals, a like number of rounded petals, ten to twenty long stamens, and an ovary which, when ripe, is a somewhat woody five-celled capsule. [A. A. B.]

IKODIA. A genus of *Compositæ*, comprising two erect glutinous herbs of Southeast Australia, with slightly-winged stems furnished with linear hyssop-like leaves, and numerous white flower-heads, disposed in corymbs at the ends of the twigs. They have much the appearance of *Achillea*, with this difference, that what gives the rayed appearance to the heads here is the

white tips of the involucreal scales, while in *milfolia* it is an outer row of strap-shaped florets. The achenes being destitute of pappus, each enveloped by a chaffy scale, distinguishes the genus from its near allies. [A. A. B.]

IXORA. A genus of Indian and tropical African shrubs, with corymbs of handsome flowers of a scarlet, pink, or white colour, and frequently having an agreeable fragrance. The corolla is salver-shaped with a long slender tube, into the throat of which the four or five anthers are inserted by means of very short filaments. The fruit is succulent, crowned by the calyx, containing two one-seeded stones.

Several of these fine *Cinchonaceae* shrubs are grown in stoves in this country. *I. coccinea* is used in India by the natives for various medicinal purposes. The name of the genus is supposed to be derived from the Hindoo deity, Iawarra, to whom the beautiful scarlet flowers of these plants are offered in the temples. [M. T. M.]

JABOROSA. A genus of South American herbs, belonging to the *Solanaceæ*, and differing from *Himeranthus*, principally in the funnel-shaped corolla, and the very short filaments of the stamens. [M. T. M.]

JABUTI. The edible fruit of *Psidium albidum*.

JACARANDA. A considerable genus of *Bignoniaceæ*, natives of tropical America, consisting of trees with opposite abruptly bipinnate leaves, the pinnae themselves imparipinnate. They have bluish flowers in terminal (rarely lateral) panicles. The calyx is five-toothed or five-parted; the corolla tubular at the base, dilated at the throat with an unequally five-lobed limb; there are four included didynamous stamens with a rudimentary fifth; and the capsule is roundish, compressed, two-celled, with many flattened winged seeds. Decandolle has divided the genus into two sections: *Monolobos*, characterised by having a single-celled anther and abruptly pinnate leaves; and *Dilobos*, with perfect two-celled anthers and imparipinnate leaves. Some species, especially *J. procera*, have the character of being useful in syphilitic affections. [W. C.]

JACA, or JACK-TREE. *Artocarpus integrifolia*.

JACÉE. (Fr.) *Lychnis dioica*. — **DES FRÉS.** *Centaurea Jacca*. — **DU MONTAGNE.** *Centaurea montana*.

JACINTH. Another name for the Hyacinth.

JACINTHE. (Fr.) *Hyacinthus*. — **DE SIENNE.** *Muscari monstrosum*. — **DES JARDINIERS.** — *Scilla italica*. — **DU PÉROU.** *Scilla peruviana*. — **ÉTOILÉE.** *Scilla amana*. — **MONSTRUEUX.** *Muscari monstrosum*. — **MUSQUÉE.** *Muscari moschatum*. **PANICULÉE.** *Muscari monstrosum*. **PETITE.** *Hyacinthus non-scriptus*.

JACKAL'S KOST. *Hydnora africana*.

JACK-BY-THE-HEDGE. *Sisymbrium*
Aitharia, or *Aitharia officinalis*.

JACK-IN-A-BOX. *Hernandia sonora*.

JACK-OF-THE-BUTTERY. *Sedum acre*.

JACKIA. The name of a tree of Southern India, forming a genus of *Cinchonaceae*. The flowers have an irregular calyx, divided into three segments; the corolla is funnel-shaped, with a slender tube and five-lobed limb; the anthers are sessile on the throat of the corolla; the style is very long, hairy in the middle; and the fruit is capsular, one-seeded, and surmounted by the three large sepals. [M. T. M.]

JACKSONIA. A genus of Australian undershrubs, belonging to that group of *Leguminosae* in which the ten stamens are free, and the pods two-seeded; and distinguished from *Daviesia* and other allies by the deeply and equally five-parted calyx, the absence of a carunculus or swollen excrecence to the seeds, and the want of stipules. Of upwards of thirty species a goodly proportion are leafless and have flattened stems which perform the functions of leaves; others have rush-like stems with juniper-like leaves; and some have the aspect of furze or broom bushes, with leaves like them, and branches often terminating in spiny points. The flowers are small and yellow. *J. scoparia*, the Dogwood of New South Wales, grows twelve or fifteen feet high, with a diameter of four to six inches, and furnishes a tolerably hard wood which takes a good polish, but is not applied to any particular purpose; when burning it emits an offensive smell, whence its local name. [A. A. B.]

JACKWOOD. A wood obtained from *Artocarpus integrifolia*.

JACOBÉE. (Fr.) *Senecio Jacobææ*.

JACOBINIA. A genus of *Acanthaceæ*, containing seven species, natives of Central America. They are erect shrubs with subcoriaceous leaves, and large flowers with a large herbaceous deeply five-cleft calyx, a ringent corolla with an erect oblong linear bidentate upper lip, and a three-cleft lower one, two stamens, a capitate two-lobed stigma, and a two-celled capsule. [W. C.]

JACOBS LADDER. *Polemonium cæruleum*.

JACQUEMONTIA. A small genus of *Ononitidaceæ* of tropical America, with a single species from Asia. They are mostly twining herbs, sometimes woody at the base, with entire or slightly lobed leaves, and rather small flowers in axillary pedunculate cymes, the corolla usually broadly campanulate, and angular or broadly five-lobed. The ovary is two-celled with two ovules in each cell. This genus, separated from *Ononitidaceæ*, is intermediate between that genus and *Ipomœa* in the shape of the oblong two-lobed stigma. [W. C.]

JACQUINIA. A genus of handsome evergreen bushes, of the *Myrsine* family, peculiar to America, where they range from Florida to Brazil, and are usually found near the coast. They have alternate entire glossy leaves, and terminal racemes or umbels of vermilion flowers, having a five-parted calyx, a bell-shaped corolla with a flat border, five stamens with five alternating scales, and a one-celled ovary. The fruits are bright yellow, containing from one to three seeds imbedded in a mucilaginous placenta, which feature chiefly serves to distinguish the genus from *Clavija* and *Theophrasta*. *J. arnularia* is known to French settlers in the West Indies as Bracelet-wood, it being their custom to string its shining brown and yellow seeds into bracelets. The genus bears the name of N. L. de Jacquin, an eminent botanist, once professor at Leyden. [A. A. B.]

JAGERY or JAGGERY. A coarse kind of sugar made from the juice of the Coconut, and other palms.

JAGONG. The Malay name for Maize.

JALAP. A well-known drug, of which the best kind is obtained from *Exogonium Purga*, but other species are also collected under the same name. —, INDIAN. *Ipomœa Turpethum*. —, MALE. *Ipomœa batatoides*.

JALAP-PLANT. *Mirabilis Jalapa*.

JALOUSIE. (Fr.) *Dianthus barbatus*; also *Amaranthus tricolor*.

JAMAICA-PEPPER. One of the names given to Allspice.

JAMALGHOTA. The Hindoo name for Creton oil and seed.

JAMBIRA. A Sanscrit name for the Lemon, *Citrus Limonum*.

JAMBOLAN-TREE. *Calyptanthus Jambolana*.

JAMBOLIER. (Fr.) *Cyminoëma*.

JAMBON DES JARDINIERS. (Fr.) *Oenothera biennis*.



Jambosa malaccensis.

JAMBOSA. A group of myrtaceous

plants, belonging to *Eugenia*, from which it is sometimes separated on account of the throat of the calyx being drawn out beyond the ovary, and by the latter being many-celled. They are Indian trees, with large edible fruit, the most esteemed being the Malay Apple, *J. malaccensis*, and the Rose Apple, *J. vulgaris*, also called *Eugenia Jambos*. [T. M.]

JAMBOSIER. (Fr.) *Eugenia* or *Jambosa*.

JAMESIA. A genus of the *Hydrangeaceae*, from the vicinity of the Rocky Mountains, consisting of a shrub with opposite serrated leaves, and small few-flowered axillary and terminal cymes, the flowers small, with a downy bell-shaped five-cleft calyx, and five petals. [J. T. S.]

JAMESTOWN-WEED. An American name for *Datura*.

JAMROSADE. The Rose Apple, *Eugenia Jambos* or *Jambosa vulgaris*.

JAN. (Fr.) *Ulex europæus*.

JANAPA. An Indian name for Sunn Hemp, *Crotalaria juncea*.

JANCA-TREE. *Amyris tozifera*.

JANGL. The Indian *Vallineria alternifolia*.

JANIPHA. A name sometimes applied to a genus of euphorbiaceous plants, otherwise called *Manihot*. *Janipha Manihot*, and *Jatropha Manihot*, are other names for *Manihot utilisima*, the Mandio plant, which yields cassava and tapioca.

JANOO. An Indian wood, *Lagerstræmia macrocarpa*.

JANSONIA. A genus of *Leguminosæ*, peculiar to Western Australia, and represented by a single species, *J. formosa*, an erect branching bush of myrtle-like habit, with opposite smooth ovate-oblong leaves, and nodding heads of (apparently) scarlet pea-flowers, terminating the lateral twigs. The heads are surrounded by four ovate bracts, clothed externally with silky hairs. The plant agrees with *Brachysema*, in the great length of the keeled petal, compared with the very short standard which is here almost wanting, but it differs in the capitate inflorescence, and the great length of the lower lip of the calyx with respect to the upper. On account of the small standard the plant has also been named *Cryptosema*. [A. A. B.]

JANTONG. The Malay name for a Plantain leaf.

JANUSIA. A genus of Brazilian *Malpighiaceæ*, mostly climbing shrubs, with flowers of two kinds (whence the name), as in *Gaudichaudia*, from which they differ principally in the fruit, consisting of three or fewer carpels, which have a dorsal wing thickened along one edge. [M. T. M.]

JAPAN LACQUE. A black hard varnish, obtained from *Rhus vernicifera*.

JAQUIER. (Fr.) *Artocarpus*.

JARAT. (Fr.) *Lathyrus Cicera*.

JARBÃO. *Stachytarpha jamaicensis*.

JAREE. An Indian name for the Jujube.

JAROO. *Lagerstræmia regina*.

JAROSSE. (Fr.) *Lathyrus Cicera*. — **D'AUVERGNE.** *Ervum monanthos*.

JARRAH. A durable West Australian wood, like mahogany, the produce of *Eucalyptus rostrata*.

JASIONE. A genus of dwarf herbaceous plants of the order *Campanulaceæ*, bearing their flowers in terminal heads, with much of the habit of the compound flowers, and yet more of the scabious family. The most obvious character of the flowers is that the anthers are united by their bases so as to form a ring, and contain blue or purplish pollen. The species inhabit mountainous and sandy places in various parts of Europe and the north of Africa. *J. montana*, Sheep's Scabious, the only British species, bears numerous tufted root leaves, which are oblong, and hairy simple stems which are almost leafless, each surmounted by a head of bright blue flowers, all enclosed by a whorl of bracts. It is abundant in many heathy and moorland districts of Britain, and appears to have derived its name from its resemblance to a scabious, and from its abundance in sheep-walks. [C. A. J.]

JASMIN. (Fr.) *Jasminum officinale*. — **BLANC.** *Jasminum officinale*. — **D'AFRIQUE.** *Lycium afrum*. — **D'AMÉRIQUE.** *Quamoclit coccinea*. — **D'ARABIE.** *Jasminum Sambac*. — **D'ESPAGNE.** *Jasminum grandiflorum*. — **D'ITALIE.** *Jasminum humile*. — **DE VIRGINIE.** *Bignonia radicans*. — **DU CAP.** *Gardenia florida*. — **JONQUILLE.** *Jasminum odoratissimum*. — **ODORANT DE LA CAROLINE.** *Gelsemium nitidum*. — **ROUGE DE L'INDE.** *Quamoclit coccinea*. — **TROMPETTE.** *Bignonia radicans*.

JASMINACEÆ. (*Jasminæ*, *Bolivaræ*, *Jasminiverts*.) A natural order of corollifloral dicotyledons, belonging to Lindley's echiol alliance of perigynous Exogens. Shrubs, often twining, with opposite or alternate, usually compound leaves; calyx and corolla regular, with five to eight divisions; stamens two, included within the salver-shaped corolla; ovary two-celled. Fruit a double berry or capsule; seeds with little or no albumen, and a straight embryo. Found chiefly in the tropical parts of India. The fragrant oil of jasmin is procured from several species of *Jasminum*. There are half a dozen genera, and above 100 species. Examples: *Jasminum*, *Nyctanthes*. [J. H. B.]

JASMINANTHES. A genus of *Asclepiadaceæ*, containing a single species from the Indian Archipelago. It is a twining shrub, with opposite oblong acuminate leaves, and yellowish flowers growing in few or many-flowered interpetiolar cymes.

The calyx is five-parted; the corolla is salver-shaped, with a long tube distended below, and a spreading five-cleft limb; and the staminal crown is wanting. [W. O.]

JASMINE. *Jasminum*. —, AMERICAN. *Quamoclit coccinea*. —, CAPE. *Gardenia florida*. —, CAROLINA. *Gelsemium nitidum*. —, GROUND. *Passerina Stelleri*. —, WHITE. *Jasminum officinale*. —, WILD, of Jamaica. A species of *Pavetta*.

JASMINOIDE. (Fr.) *Lycium barbarum*.

JASMINUM. A considerable genus of *Jasminaceae*, dispersed over the warmer regions of the Old World, and containing one or two South American species. They are shrubs or climbers, with pinnate leaves or apparently simple, consisting of one leaflet—when the petiole is articulate. The white or yellow flowers are in axillary or terminal panicles, and have a tubular five or eight-cleft calyx, a cylindrical corolla tube and spreading limb, two included stamens, and a two-lobed ovary. Jasmynes are of little economic value, but they are prized as ornamental shrubs, on account of the fragrance of their flowers. The most universally cultivated is *J. officinale*, common throughout the centre and south of Europe, where it is thoroughly acclimated, though certainly not native.

Some species are used medicinally. The bitter leaves of *J. floribundum* have a very powerful action, and are employed in Abyssinia against the tape-worm. The bitter root of *J. angustifolium*, ground small, and mixed with the powdered root of *Acorus Calamus*, is considered in India as a valuable external application for ring-worm. The fragrant essential oil of *Jasmin* is obtained from *J. officinale* and *grandiflorum*; and an inferior oil is produced from the flowers of other species, as *J. Sambac*, &c. [W. C.]

JASMINWORTS. Lindley's name for the *Jasminaceae*.

JASONIA. A small genus of erect, branching, perennial, often glutinous composite herbs, confined to the Mediterranean region, nearly allied to *Pulicaria*, and technically distinguished from it by the nature of the pappus, which consists of a double series of rough hairs, the outer row like the inner but shorter, not crown-like as in *Pulicaria*. The stems have linear or lance-shaped leaves, and small yellow flower-heads, solitary at the ends of the twigs. [A. A. B.]

JATAI. A Brazilian name for *Hymenoc Courbaril*.

JATAMANSI. An Indian name for *Spike-nard*, *Eardastachys Jatamansi*.

JATKE. The common Indian name for *Jasminum grandiflorum*.

JATROPHIZA. This genus of *Ment-spermeaceae*, so called on account of the root of one of the species which is used in medicine, is closely allied to *Cocculus*, but the flowers have concave petals, enclosing the six stamens, which have thick filaments,

ending in a large fleshy connective, separating the lobes of the anthers, these opening by transverse slits. In the female flowers are three ovaries, densely hairy externally, and placed on a short stalk; and a three-parted stigma, with reflected segments. The fruit is clothed with long glandular hairs.

J. palmata, or *Cocculus palmatus*, furnishes the root known as Calumba-root, so called from a false impression that it was supplied from Ceylon. The plant is now



Jatropha palmata.

known to be indigenous in the forests of Mozambique, and the roots to be imported from thence. This drug is much esteemed as a bitter tonic, where a stimulant or astringent effect is not required; it is hence frequently employed in cases of indigestion, dependent upon languor and want of tone in the stomach, and attended by nausea and flatulence. It has likewise the effect of alleviating vomiting. [M. T. M.]

JATIPATRI. An Eastern name for Mace.

JATIPHALI. A Sanscrit name for the Nutmeg.

JATROPHA. A genus of *Euphorbiaceae*, consisting of woody plants, with alternate



Jatropha podagrica.

stipulate leaves, and flowers in cymes, the central flower female, and the outer ones male. The males have a calyx with

five divisions, five petals, and ten stamens, five long and five short, with the anthers united together around a central disk; the females have ten barren stamens, and a three-celled ovary.

J. glauca, an East Indian plant, known also under the name of *J. glandulifera*, furnishes an oil which is obtained by crushing the seeds, and which is used as an external application in rheumatism, &c. *J. podagrica* is a curious gouty-stemmed plant. See CURCUM, CHIDOSCULUS, MANIHOT. [M. T. M.]

JAU, JO. Indian names for Barley.

JAUBERTIA. An Arabian spiny shrub, with very small leaves, forming a genus of *Cinchonaceae*. The segments of the calyx and corolla are hairy, the latter organ is funnel-shaped, with the stamens inserted into its throat; the ovary has two one-seeded compartments; and the style is terminated by two spoon-shaped stigmatic divisions. [M. T. M.]

JAUNDICE BERRY. *Berberis vulgaris*.

JAURSA. An Afghan name for *Alhagi Maurorum*.

JAWA-WUT. A Javanese name for *Panicum miliaceum*.

JAWATRI. An Indian name for Mace.

JEANNARETTIA. A genus of *Pandaneae*, figured in the *Voyage de la Bonite*, but not yet described.

JEANNETTE. (Fr.) *Narcissus poeticus*.

JEDWAR. *Curcuma Zedoaria*.

JEEAPOOTRA. An Indian name for the nuts of *Putranjiva Roxburghii*.

JEERA. An Indian name for Cumin.

JEFFERSONIA. A genus of *Berberidaceae* with the habit of *Sanguinaria*, a small glabrous perennial North American herb, with a horizontal rhizome, a simple naked one-flowered scape, and long-stalked root-leaves divided into two half-ovate leaflets. The flowers are large white, with four petaloid sepals, eight oblong flat narrow petals, and eight stamens. The capsule is pear-shaped and one-celled. *J. diphylla*, the only species, occurs from New York to the mountains of the Southern States; it is called Rheumatism-root in some places. [J. T. S.]

JELLY-PLANT of Australia. *Eucheuma speciosum*.

JENEQUEN. A Mexican name for the *Agave*, from the fibres of which cordage, sacks, &c., are made.

JENKINSIA. A genus of polypodiaceous ferns, allied to the *Acrostiches* through *Pachopteris*, of which it is by some regarded as an abnormal form. The sori form linear submarginal patches, with an areolate instead of universal attachment, which is the principal feature to separate them from the *Acrostiches*. The receptacle consists usually of the three outer series of

arcuate venules with three excurrent veinlets, and are hence compound, from which artificial characters it has been referred to the *Platyneria*, though having no natural affinity with *Platynerium* itself. The plant is a native of India, with much the general character of *Pachopteris*. [T. M.]

Also a genus of *Oleaceae*, now referred to *Miquelia*, consisting of climbing or twining shrubs, with alternate leaves, and diocious five-petaled flowers collected into heads. The fruit is a drupe. There are two or three species, natives of tropical Asia. [J. H. B.]

JERCATCHREE. An Indian name for *Nux-vomica* seeds.

JERDONIA. A genus of *Cyrtandraceae*, containing a single species, a native of India, a small herbaceous stemless plant, with petiolate ovate leaves, and erect terminal scapes, terminating in a few-flowered umbel of funnel-shaped four-lobed flowers, with four stamens, all fertile, and an ovary surrounded at the base by a cup-shaped disk. [W. O.]

JERMAEE. An Indian name for *Cocculus indicus*.

JEROOGOO. *Caryota urens*.

JÉROSE. (Fr.) *Anastatica*.

JERSEY LIVELONG. *Gnaphalium luteo-album*.

JERUSALEM CROSS. *Lychnis chalcidonica*.

JERUSALEM STAR. *Tragopogon porrifolius*.

JESSAMINE. A popular corruption of Jasmine.

JESSENTIA. A solitary palm, inhabiting moist woods in New Grenada, and attaining a height of sixty feet, with a trunk a foot in diameter, bearing a spreading crown of pinnate leaves, each of which measures twenty-four feet in length, and has numerous opposite leaflets, about four feet long by six inches broad, whitish underneath. The flower-spikes hang down from amongst the leaves, and are enclosed within two spathes, the outer one being a foot and a half, and the inner five feet long, bursting open along the back at the time of flowering. The flowers are arranged in threes (two males and one female) upon the lower, and in pairs (both males) upon the upper, part of the spikes. The fruit is about the size of a pigeon's egg, violet-coloured, having a thin, oily, eatable flesh, surrounding a fibrous husk which encloses a single horny seed. It is named *Jessenia polycarpa*, on account of the large number of fruits produced by a single flower-spike. [A. S.]

JETEE. An Indian name for *Karandea tenacissima*, whose fibres are made into bowstrings.

JETERUS. A yellowness of the green parts. Vegetable jaundice.

JETTIMUD. An Indian name for *Liquorice* root.

JEWBUSH. *Pedilanthus tithymaloides*.

JEWEL-WEED. An American name for *Impatiens*.

JEW'S-EAR. The popular name of *Hir-noda* (or *Eradia*) *Auricula Judæ*, a tough but gelatinous fungus, belonging to the natural order *Tremellini*. The plant is cup-shaped, velvety without and wrinkled within, and more or less rufous. It was formerly in reputation as an ingredient in gargles, but its virtues probably rest on no better foundation than a certain resemblance which the hymenium bears to the fauces. It is still to be met with in the shops of the herbalists. It grows principally on elder, but occasionally on elm. It is sometimes called the Jew's Ear *Peziza*, but the whole structure is totally different from that of that genus [M. J. B.]

JEWUL, JINGUN. Indian names for the gum-resin of the bark of *Ocotea Woder*.

JIM CROW'S NOSE. A West Indian name for *Phyllocoma*.

JIPIJAPA. A South American name for *Calindobea palmata*.

JIQUILITE. The native name for the Indigo plant in Central America.

JIRA. The Indian name for Cumin.

JITO. A Brazilian purgative, supposed to be a species of *Guarea*.

JOAN SILVER PIN *Payson somniferum*.

JOAR, JOWAKREE, JONDIA. Indian names for *Sorophum uluace*.

JOE'S TEARS. *Coix Lacryma*.

JOCASTE. A genus of *Liliacea* from India, founded on *Smilacina purpurea*. It has a horizontal rhizome, a simple leafy stem, scattered leaves, and a terminal raceme of violet-purple flowers, with the perianth leaves elliptical united at the base, six stamens with awl-shaped filaments, and a three-celled ovary. [J. T. S.]

JOE-PYE WEED. An American name for *Eupatorium purpureum*.

JOHANNIS-BROD. A German name for the pod of the Carob tree.

JOHNSONIA. A genus of *Liliaceæ*, allied to *Aphyllanthes*, founded on a South Australian plant, with fibrous roots, two-ranked linear leaves, and a simple scape terminating in an oblong nodding spike, with imbricated coloured bracts, the lower ones small and sterile, the rest one-flowered. The flowers are small sessile, with a six-parted connivent perianth, three stamens, and a membranous capsule. [J. T. S.]

JOINTED. Falling in pieces at the joints, or separating readily there, or furnished with a distinct joint. Also applied to bodies having the appearance of being jointed, as the stem and leaves of *Juncus articulatus*.

JOINTWEED. An American name for *Polygonum articulatum*.

JOLI-BOIS. (Fr.) *Daphne Mezereum*.

JONC. (Fr.) *Juncus*. — À BALAIS. *Phragmites communis*. — DES CHAÎNIERS. *Scirpus lacustris*. — DES JARDINIERS. *Juncus glaucus*. — DES TONNELIERS. *Scirpus tig-ciostris*. — D'INDE. *Calamus*. — ITALI. *Juncus efusus*. — FLEURI. *Butomus umbellatus*. — MARIN. *Ulex europæus*. — ODORANT. *Andropogon Schœnanthus*.

JONCINELLE. (Fr.) *Etiocaulon*.

JONCIOLE. (Fr.) *Aphyllanthes*.

JONESTIA. The generic name of a few trees of the leguminous family, also known as *Suraca*, found in the Malayan peninsula and the adjacent islands. They are large shrubs or trees of twenty to forty feet in height, with the habit and leaves of *Brongnia*, to which they are nearly allied, but they differ from them and others in the flowers being destitute of petals. The glossy leaves, a foot or more long, are made up of three to six pairs of oblong or lance-shaped leaflets, and the bright scarlet flowers are in terminal rounded clusters, having much superficial resemblance to those of the scarlet *Ipœa*. Each flower consists of a tubular calyx supported by two rounded bracts, and having a four-parted petal-like border, and six to eight long protruding stamens. The ripe pod is cluster-shaped. The *Ushoka* of the Bengalese, *J. Asoca*, is very commonly planted throughout India, and is also cultivated in the Mauritius for the beauty of its flowers and foliage. Some Japanese species have flower clusters six to eight inches across. The genus bears the name of Sir William Jones, the eminent lawyer and scholar. [A. A. B.]

JONNA. An Indian name for grain.

JONQUIL. *Narcissus Jonquilla*. —, QUEENANNE'S. *Narcissus punicus plenus*.

JONQUILLE. (Fr.) *Narcissus Jonquilla*.

JORDANIA. A genus of *Caruophyllaceæ*, consisting of herbs from Asia Minor, with the habit of *Queria*, or of the aggregate-flowered *Aynaria*. The leaves are setaceous, united at the base; the flowers small, in dense cymes, with squarrose bracts, a tubular calyx of five united sepals with two bracts at the base, five petals, two styles, and four-valved capsules. [J. T. S.]

JOSEPHIA lanceolata, and latifolia, are the names given to two epiphytal vandean orchids of Malabar and Ceylon. They are stemless herbs, with a tuft of stalked, lance-shaped, coriaceous leaves, four to six inches in length, and slender scapes bearing panicles of minute flowers of a whitish colour, tinged with pink. The flowers are said to be renewed annually on the old scapes. The anther has four parallel club-shaped pollen-masses, attached to a dilated shield-like gland. Named after Dr. Joseph D. Hooker, a well-known English botanist. [A. A. B.]

JOSEPHINIA. A genus of *Pedalucaæ*,

containing a single species from New Holland and the East Indian Archipelago. It is an erect or diffuse herb, with sub-opposite petiolate elliptical or lanceolate leaves, and reddish, shortly-stalked, solitary, axillary flowers. The calyx is unequally five-parted and persistent; the corolla has a short tube, a large campanulate throat, and a spreading five-lobed limb; there are four didynamous stamens, with a rudimentary fifth; and the nut-like four to eight-celled fruit is covered with numerous simple spines. [W. C.]

JOSEPH'S COAT. An American name for *Amaranthus tricolor*.

JOSEPH'S-FLOWER. *Tragopogon pratensis*.

JOTTE. (Fr.) *Sinapis arvensis*.

JOUBARBE. (Fr.) *Sempervivum*.
DES TOITS. *Sempervivum tectorum*.

JOUTAY. *Outea guianensis*.

JOVELLANA. *Calceolaria*.

JOVE'S-BEARD. *Hydnum Barba Jovis*; also *Anthyllus Barba Jovis*.

JOVE'S-FRUIT. *Lindera melissæfolia*.

JOWAR, JOAR. Indian names for *Sorghum vulgare*.

JUANULLOA. A Peruvian shrub, with pendulous racemes of red flowers, constituting a genus of *Atropaceæ* (*Solanaceæ*), and distinguished by its distended coloured calyx, and its tubular corolla contracted at the throat, concealing the five stamens. The fruit is succulent, many-seeded, enclosed within the inflated calyx. *J. parastica* is in cultivation. [M. T. M.]

JUBA. A loose panicle, such as is often found in grasses.

JUBEA. The Coqui Palm of Chili, *J. spectabilis*, is the sole species of this genus of palms. It is very abundant in central Chili, between the latitudes of 33° and 35°, and is one of the most southern of American palms, existing only in a cultivated state in warmer latitudes. It has a tall straight trunk, bearing a crown of large pinnate leaves, and branching spikes of dark yellow distinct male and female flowers, enclosed in a double spathe. The fruit is roundish or egg-shaped, and has a thick fibrous husk, enclosing a hard one-seeded nut which has three small holes or pores at the bottom.

In Chili, a sweet syrup, called Miel de Palma, or Palm-honey, is prepared by boiling the sap of this tree to the consistency of treacle, and it forms a considerable article of trade, being much esteemed for domestic use as sugar. The sap is obtained by the very wasteful method of felling the trees, and cutting off the crown of leaves, when it immediately begins to flow, and continues for several months until the tree is exhausted, providing a thin slice is shaved off the top every morning, each tree yielding about ninety gallons. The nuts are used by the Chilian confectioners

in the preparation of sweetmeats, and by the boys as marbles. A quantity of them were brought to this country a few years ago, and sold under the name of Little Coker-nuts; they had a pleasant nutty taste. The leaves are used for thatching, and the trunks, being soft inside, and extremely hard towards the outside, are hollowed out, and converted into water-pipes, &c. [A. S.]

JUBELINA. A genus of *Malpighiaceæ*, consisting of three climbing shrubs of Guiana and Nicaragua. The flowers have a glandular calyx, ten stamens all fertile, and partly-unioned ovaries. The dorsal wing of the fruit hardly exceeds the lateral ones in size. [M. T. M.]

JUDAS-TREE. *Cercis*.

JUDIEGA. Inferior Spanish olives, used for making oil.

JUEPHUL. An Indian name for the Nutmeg.

JUGA. The ridges on the fruit of umbellifers.

JUGEOLINE. (Fr.) *Sesamum brasiliense*.

JUGLANDACEÆ. (*Juglands*.) An order of monochlamydeous dicotyledonous plants, belonging to Lindley's quernal alliance of diclinous Exogens. Trees with alternate pinnate stipulate leaves, and unisexual flowers. Male flowers in catkins; perianth two to three or six-parted, with a scaly bract; stamens three or more. Female flowers in terminal clusters, or in loose racemes, with distinct or united bracts; perianth adherent, three to five-parted; ovary two to four-celled at the base, one-celled at the apex; ovule solitary, orthotropical; styles one or two. Fruit drupaceous, with a stony and often two-valved endocarp; seed exalbuminous, two to four-lobed at the base. Chiefly natives of North America. *Juglans regia* is the common walnut. *Carya alba* yields the American hickory nut. There are five genera, and about thirty species. [J. H. B.]

JUGLANS. The typical genus of *Juglandaceæ*, composed of the Common Walnut, and two or three other species, all of which form noble trees, and are natives of the temperate regions of Asia and North America. They have deciduous pinnate leaves, and bear flowers of separate sexes upon the same tree, and appearing in early spring before the leaves. The male flowers have a calyx of five or six scales, surrounding from eighteen to thirty-six stamens; whilst the calyx of the females closely envelopes the ovary, which bears two or three fleshy stigmas. The fruit has a fleshy husk, which does not split into regular divisions when ripe, but bursts irregularly, allowing the escape of the hard-shelled two-valved nut.

J. regia, the common Walnut tree, serves various useful purposes. The wood, particularly that of old trees, is valued by cabinet-makers on account of its beautiful velvety and dark colour; and in conse-

quence of its strength, lightness, and elasticity, it is extensively employed for gun-stocks. In Circassia, sugar is made from the sap, in the same way that the Canadians prepare that from the sugar-maple. The leaves are used medicinally in domestic practice; and an infusion of them is recommended as a vehicle for the administration of cod-liver oil, in order to overcome its nauseous taste. The husk of the fruit yields a dark-brown dye; and the seeds a fine oil, which is suitable either for salad oil, or as a drying oil for painters. [A. S.]

It was said that in the golden age, when men lived upon acorns, the gods lived upon Walnuts, and hence the name of *Juglans*, *Jovis glans*, or Jupiter's nuts. The Romans called the walnut *Nux persica*, *Nux regia*, *Nux subæa*, *Jovis glans*, *Dijuglans*, *Juglans*. Greek authors mention it under the names of *Carya*, *Carya persica*, and *Carya bastilis*, or Royal Nut. We are not aware that the common English name of Walnut has been satisfactorily explained. On the contrary, we think an erroneous derivation has been given. Walnut, they say, is from Gaul-nut, presuming at the same time that the tree had been introduced from France into this country. But our ancestors, in their ordinary language, and that of the common people, did not use the classic name of Gaul in their designations of the things introduced from France in comparatively modern times. Walnut is doubtless of German derivation. In that language we find it is sometimes written *Walnuss*, sometimes *Wälschenuss*; the latter appears to have been the original. *Wälsch* simply means foreign; hence, *Wälschenuss*, a foreign nut, properly applied to the walnut, as regarded Germany, as well as the rest of the continent of Europe. In Dutch it is called *Walnoot*, and its English, Danish, and Swedish names are modifications of this and of the original German term.

According to Dr. Royle (*Illustrations of the Botany, &c. of the Himalayan Mountains*), *J. regia* extends from Greece and Asia Minor, over Lebanon and Persia, probably all along the Hindoo Koosh to the Himalayas. It is abundant in Kashmir, and is found in Sirmoor, Kumaon, and Nepal. The walnuts imported into the plains of India are chiefly from Kashmir. Dr. Hooker states that in the Sikkim Himalaya, the walnut inhabits the mountain slopes at 4,000 to 7,000 feet elevation. Professor Targioni says that it is a native of the mountains of Asia from the Caucasus almost to China. According to Pliny, it was introduced into Italy from Persia, and this must have been at an early date, for it is mentioned as existing in Italy by Varro, who was born B.C. 116. There is no certain account of the time it was brought into this country. Some say 1562, 300 years ago; but Gerard, writing only about thirty years later, mentions the walnut as being very common in the fields near common highways, and in orchards, and that being the case, its introduction in all probability had taken place at a much earlier period.

The nut, well known to every one, is covered with a green fleshy bark, which is very bitter, like the leaves. The tree grows to the height of forty or sixty feet, with a large spreading top, and thick massive stem. One accurately measured by Professor du Breuil, in Normandy, was upwards of twenty-three feet in circumference; and in some parts of France there are walnut trees 300 years old, with stems of much greater thickness. In the southern parts of England, the trees grow vigorously and bear abundantly, when not injured by late frosts in spring.

The timber of the walnut is light, a cubic foot, when dry, weighing about forty-seven pounds. Formerly, it was in much request for cabinet work, but since the introduction of mahogany it is less esteemed for that purpose. It is still, however, preferred to all other woods for gun-stocks, being light, yet tough and strong, and, with this desirable combination, it takes a good polish. The fruit is used for pickling in a green state, whilst the shell is still tender and can be easily pierced with a pin. The fruit becomes mature in the end of September, or in October; then, to bring it down, the trees are thrashed with poles, and many of the shoots are consequently broken; but an opinion has long been entertained, that this has the effect of making the trees more productive. It is, in fact, a rude mode of pruning.

Some varieties of the walnut are hard, and others tender-shelled. One of the latter is called the Titmouse Walnut (*Noyer mésange*), because the shell is so thin that birds, and especially the titmouse, can break it, and eat the kernel. Another variety, called the double walnut (*Noyer à biseau*), is large, of a square form, and when the shell is polished and hinged, it is fitted up so as to contain such presents as a pair of gloves, trinkets, &c. A variety called the Highflyer Walnut is considered the best English variety. In many parts, large quantities of oil are extracted from the fruit; indeed the walnut furnishes one-third of the oil made in France, and when well purified it is little inferior to olive oil; whilst, for some purposes in the arts, it is superior. Altogether, the Walnut is a tree of great importance—for its fruit as an edible product, for its oil, and for its timber. Trees of choice quality of wood have been sold for 900*l.* each. Its plantation, therefore, should not be neglected, but not too near dwellings, as some persons are affected by the powerful aroma of its foliage. [R. T.]

JUGUM. A pair of leaflets: thus, *uni-jugus* is one pair; *dijugus* two pairs, &c.

JUJUBE. *Elaeagnus vulgaris*, and *E. Jujuba*.

JUJUBIER. (Fr.) *Elaeagnus*.

JULIANIA. A genus consisting of two trees, one from Mexico, the other from Peru, which, as far as can be judged from the specimens known, appears to belong to the *Juglandaceæ*. The leaves are pin-

nate, the flowers dioecious; the males in short loose racemes very much like those of an oak; the females two or three together, imbedded in the summit of a broad flat peduncle having the appearance of a samara. The name of *Juliania* was also originally given by Liave to a Mexican shrub, which afterwards proved to be the *Chotaya* of Kanth.

JULIENNE. (Fr.) *Hesperis*. — DE MAHON. *Malcolmia maritima*. — DES JARDINS. *Hesperis matronalis*. — JAUNE. *Barbarea vulgaris*.

JULLALYA. An Indian name for hard wheat.

JULOCROTON. A genus of spurge-works, numbering about ten species, peculiar to tropical America, and ranging from Mexico to Buenos Ayres. They are branching undershrubs, having all their parts more or less clothed with white or rusty-coloured starry hairs, such as those seen in *Verbascum*. The alternate long-stalked leaves have ovate or heart-shaped blades; and the small green flowers are disposed in axillary or terminal bracted spikes, the lower flowers on which are fertile, the upper sterile. From *Croton* they differ in having irregular fertile flowers. [A. A. B.]

JULUS. The same as Amentum.

JULY-FLOWER. *Prosoptes juliflora*. Also sometimes applied to the Stock Gilliflower.

JUNCTURE. A joint or articulation; the place where a body spontaneously separates into two parts.

JUNCACEÆ. (*Junci*, *Kingiaceæ*, *Xerotides*, *Bushes*.) A natural order of petaloid monocotyledonous plants, belonging to Lindley's juncal alliance of Endogens. Herbs with fasciculate or fibrous roots, hollow or flat and grooved leaves, and glumaceous (sometimes petaloid) flowers in clusters, cymes, or heads. Perianth dry, greenish or brownish, six-parted; stamens six or three, perigynous; anthers introrse; ovary one to three-celled; ovules one to three, or many in each cell; style one; stigmas often three. Fruit a three-valved loculicidal capsule, or indehiscent and one-seeded; seeds with a thin testa, which often becomes gelatinous when moistened. Natives chiefly of temperate or cold regions. The leaves are used for mats and the bottoms of chairs; the central cellular tissue for wicks of candles. There are upwards of 200 species distributed in about eighteen genera, of which *Juncus*, *Luzula*, and *Narthecium* are examples. [J. H. B.]

JUNCAGINACEÆ. (*Potamogetonæ*, *Arrow-grasses*.) A natural order of petaloid monocotyledonous plants, belonging to Lindley's alismal alliance of Endogens. Marsh plants, with narrow radical leaves, and hermaphrodite flowers in spikes or racemes. Perianth greenish; stamens six; anthers introrse; carpels three to six, united or distinct; ovules one or two, erect. Fruit dry, one to two-seeded; albumen none; embryo straight, with a late-

ral cleft. Natives of temperate or cold regions. *Triglochin* and *Apamegeton* are examples of the few genera. [J. H. B.]

JUNCUS. The Rush, a very extensive and almost universally distributed genus of *Juncaceæ*, with a peculiar rigid habit, and small greenish or brown flowers, arranged in heads or panicles. The flowers have two bracts and a six-leaved perianth resembling in texture the glumes of *Cyperaceæ*; six (rarely three) stamens; and a three-celled capsule, with numerous seeds. The soft pith of the stems of several species is used to form candle-wicks, and the stems themselves are made into mats. These plants are generally found in bogs or wet places, especially in sandy soil, and the great majority of the species occur in the temperate and Arctic zones. Of these twenty are included in the British flora. Of those with the inflorescence apparently lateral from the lowest bract resembling a prolongation of the stem, and having many leaf-like barren stems, *J. acutus*, *effusus*, and *glauca* are examples; while of those with the inflorescence evidently terminal and without barren stems, *J. obtusiflorus*, *acutiflorus*, *diversiflorus*, and *squarrosus*, furnish illustrations. [J. T. S.]

JUNE-BERRY. An American name for *amelanchier*.

JUNERA. An Indian name for *Sorghum vulgare*.

JUNGERMANNIACEÆ. The principal division of the liverworts (*Hepaticæ*), distinguished by the solitary capsules which, for the most part, split into a definite number of valves, and are filled with a mass of spiral elaters and spores. A few have a horizontal frond without any distinct leaves, but the greater part have distinct leaves, which assume the most grotesque forms, and are often folded or furnished below with a curious lobe. The leaves are arranged on two separate planes, the upper edge either resting upon the hinder edge of the one which succeeds it, in which case they are called incubous, or placed beneath it, when they are styled succubous. The leaves are mostly two-ranked, and there are frequently stipules on the under-side of the stem. As in mosses, the base of the fruit is often surrounded with leaves of a different form from those on the stem, besides which there are one or more membranes immediately surrounding the peduncle. The elaters which accompany the spores are distinct spiral vessels, and the outer cells of the capsules often contain rings, while the walls of succeeding cells are studded with deep broad pits, like those in punctate tissue. The spores germinate like those of mosses, producing a mass of threads from which the plants grow. The archegonia, which are sometimes solitary, are produced upon the stems, and the young plant is developed exactly as in mosses.

This large group is divisible into two natural sections of very unequal size, the one of which contains those genera which

have a one or two-valved capsule, and in part of these it is threaded like a columella; the other comprises the multitudes of species in which the capsule opens with four equal valves. These again are divided into frondose and foliose sub-orders, while the foliose are arranged in two sets, according as the leaves are incubous or succubous. Very rarely the capsule opens irregularly as in *Stalophyllum Ralfsii*, and as rarely more than one capsule is developed within the same calyx, as in *Jungermannia emarginata*.

Jungermanniaceae are found in all parts of the world, and are quite as abundant in the south as in the northern hemisphere. None of them seem to be of any economical value. One or two incubous species are found in amber. [M. J. B.]

JUNGERMANNIA. Almost all the *Jungermanniaceae* were originally referred to this genus, which is now, however, restricted to such succubous species as have a free terminal perianth, plicate-angular above, and cleft. It is the only one of its peculiar group which has its maximum in Europe, neighbouring genera, which contain many of the finest species, resembling small film-ferns, occurring in New Zealand, where they incurate more perhaps than in any other country. [M. J. B.]

JUNGIA. A genus of erect or climbing perennial herbs, belonging to the *Nassuvieae*, a tribe of *Compositae*, and differing from its allies in the chaffy receptacle of the flower-heads, the uniseriate feathery or rough pappus, and the simple-lobed leaves. The ten known species are all South American. They have stalked five or seven-lobed leaves, usually clothed underneath with dense white or rusty down, and the twigs terminate in panicles or cymes of small white flower-heads of numerous perfect two lipped florets. [A. A. B.]

JUNGLE-BENDY. *Tetrameles*.

JUNGLE-NAIL. *Acacia tomentosa*.

JUNIPER. *Juniperus*; also applied in Nova Scotia to the Hackmatack Tamarack, or American Larch, *Abies pendula*.

JUNIPERUS. A genus of dicotyledons belonging to the *Gymnospermae*, and placed in the order *Coniferae*. The characters of the genus are:—Male flowers in catkins; anthers four to seven, one-celled, inserted on the lower edge or the scales. Female flowers few, in a small catkin, erect; scales of the catkin imbricate, lower ones barren; ovules three, surrounded by a three-cleft baccate involucre. The species have subulate leaves; and the fruit is berry-like, although in reality a reduced fleshy cone. There are forty or fifty known species. *J. communis* is the common Juniper; *J. Sabina*, the Savin; *J. bermudiana*, Pencil Cedar; *J. virginiana*, Red Cedar. The Juniper is the badge of the Murrays. One of the species is shown at Plate II b. [J. H. B.]

JUNO'S TEARS. *Verbeina officinalis*.

JUPITER'S BEARD. *Anthyllis Barba Jovis*; also *Sempervivum tectorum*.

JURINEA. A genus of perennial herbs belonging to the thistle group of the *Compositae*, numbering about forty species, found chiefly in south Europe and Asia Minor, extending north to Siberia and east to Persia. A goodly number are neat little stemless plants, with a rosette of pinnatifid or entire hoary leaves, lying close on the ground, and surrounding a sessile thistle-like flower-head, consisting of many purple florets. Others differ from these in having the flower-heads borne on long naked stalks; and a few are branching plants, with stem as well as root leaves, which are either pinnatifid with linear divisions, or oblong or lance-shaped; while the flowers are numerous, disposed in corymbes. From *Serratula*, and other allies, this genus differs in the four-sided, somewhat top-shaped achenes being crowned with a pappus of unequal rough hairs, which arises from within the minute cup-shaped and elevated border, and falls off in one piece, thus having the appearance of a painter's brush. [A. A. B.]

JURUMU. A Brazilian variety of Squash.

JUSQUIAME. (Fr.) *Hyoscyamus niger*.

JUSSIEA. An extensive genus of *Onagraceae*, consisting of herbs or more rarely shrubs, growing in marshes or ponds throughout the tropics, a few species reaching to sub-tropical regions. They have alternate leaves, and axillary yellow or rarely white, sessile or very shortly stalked flowers, with a persistent four-parted (rarely five to six-parted) calyx tube, as many petals, and twice as many stamens. Some of the species are astringent, as *J. villosa* from India, and *J. Caparossa* and *abra* from Brazil, where also occurs *J. drosa* which yields a yellow dye. *J. decurrens* reaches north to Virginia. [J. T. S.]

JUSTICIA. A genus of *Acanthaceae*, occurring in tropical and sub-tropical regions, chiefly in India and Southern Africa. They are herbs or shrubs with red flowers in terminal spikes, furnished with large acbraceous bracts, or opposite and solitary flowers with small subulate bracteoles. The small calyx consists of five sepals; the corolla has a long tube and is two-lipped, the upper lip being concave and entire or notched, and the lower three-lobed, convex, and veined or rugose in the centre; there are two stamens, and two ovules in each cell of the ovary; while the capsule is laterally compressed below the seed-bearing part. [W. C.]

JUTE. The fibre of *Corchorus capsularis* and *C. olitorius*.

JUVANEE. An Indian name for *Ptychotis Ajowan*.

JUVIA. The Brazil Nut, *Bertholletia excelsa*.

JUWANSA. The Camel's Thorn, *Alhagi Mukrorum*.

JUXTAPOSITION. The manner in which organs are placed with respect to each other.

JYNTEE. An Indian name for *Sesbania aegyptiaca*, from which gunpowder charcoal is made.

KABONG. A Malayan name for *Sapierus saccharifer*.

KADI-KANE. An Indian name for *Panicum mitaceum*.

KADSURA. A genus of dicotyledonous plants belonging to the *Schizandraceae*. They are climbing nucllaginous shrubs; with white or reddish unisexual flowers; sepals three; petals six to nine; stamens fifteen or more, the filaments distinct or united; ovaries numerous, the style lateral; carpels beiried, distinct, forming a globular capitulum. There are about half a dozen species, natives of tropical Asia. [J. H. B.]

KADUA. A genus of cinchonaceous undershrubs, natives of the Sandwich Islands. The flowers have a leathery salver-shaped corolla, with a long tube and a four-parted limb. The fruit is capsular and adherent below to the calyx which is sometimes fleshy, while at the upper part it is detached from it. [M. T. M.]

KÆMPFERIA. A genus of tropical East Indian herbs, included among the *Zingiberaceae*. The flowers have a tubular calyx; a corolla with a slender tube, narrow equal outer lobes of the limb, much larger inner ones, and a flat lip; the filament short, prolonged beyond the anther into a two-lobed crest; the style thread-like, with a cup-shaped stigma. The roots or stocks of some of these plants are purple on the exterior, white within, and have an aromatic fragrance. Those of *K. Galanga* are used medicinally in India, and also as a perfume; those of *K. rotunda* are used for similar purposes. The flowers are curious, appearing before the leaves, from a very short stem. [M. T. M.]

KAGENECKIA. A genus of the rose family, differing from most of the others in the unisexual flowers and winged seeds, and from its nearest allies in the calyx segments overlapping each other in the bud. Of three known species two are found in Chili, and one in the Andes of Peru. They are trees with alternate, often gummy, ovate or lance-shaped leaves, and white flowers, much like those of the hawthorn. *K. oblonga*, known in Chili as Lyday, furnishes a wood used for building purposes, while the leaves being very bitter are used by the inhabitants to cure intermittent fevers. [A. A. B.]

KAHOO. An East Indian name for the Lettuce.

KAIMALEE. *Rottlera tinctoria*.

KAJU GARU. A fragrant Malayan wood obtained from *Gonystylus Miqueliana*.

KAKATERRO. The New Zealand *Dacrydium taxifolium*.

KAKOON. An Indian name for *Setaria italica*.

KALADANA. *Pharbitis Nil*.

KALAF. A medicated water obtained from the male catkins of *Salix aegyptiaca*.

KALA KANGNEE. An Indian name for *Setaria italica*.

KALANCHOE. A Crassulaceous genus of robust erect herbs or shrubs, containing about thirty species, having its headquarters in tropical Africa, but also represented at the Cape, in tropical Asia, and in Brazil. It is distinguished from *Dryophyllum* and *Cotyledon*, by the quadripartite rarely quadrifid calyx. The flowers are rather large, usually in many-flowered paniculate cymes, yellow, purple, or scarlet. The leaves are fleshy, opposite, sessile or petiolate, entire crenate or pinnatifid. [J. Br.]

KALE. *Brassica oleracea acephala*, an open leaved variety of Cabbage. — **INDIAN.** *Caladium esculentum*. — **SEA.** *Crambe maritima*.

KALLYMENIA. A genus of rose-spored *Algae*, belonging to the order *Cryptomonadea*, distinguished by its compound capsule, and its flat nearly sessile indefinite frond, composed internally of threads sometimes combined with cells, and externally of cells. *K. reniformis* occurs on our southern coasts at extreme low-water mark, but is more common on the Atlantic coasts of France, though it occurs as high as Orkney. At first it forms a roundish or kidney-shaped frond with a very short stem; this becomes proliferous and produces from the edge a crop of similar expansions, which, however, are frequently torn by the waves, and as they grow after the laceration the ultimate appearance is very different from that of younger plants. Occasionally the fronds assume a longer outline. The species of the genus are at present ill-defined, and consequently their geographical distribution is doubtful. One, for instance, at the Cape, which was considered identical with our own, is now held by Agardh to be distinct. [M. J. B.]

KALMIA. A genus of heathworts, characterised by the border of the corolla having on the upper surface cavities in which the stamens are partly concealed. The name was given by Linnaeus in honour of Peter Kalm, a Swedish professor. The species are evergreen shrubs, natives of North America. Like many others of the heathwort order, they are deservedly favourites. In some species the flowers are in clusters more or less dense; in *K. hirsuta* they are solitary; in *K. latifolia* they are large and showy; in *K. angustifolia* smaller. The regular form of the corolla between wheel-shaped and bell-shaped, the depressions or small pouches in which the stamens lie, and the delicacy of texture and colour, render these plants objects of interest. In size of the whole plant there is considerable range, and even in the same species according to locality. *K. glauca* and *K. hirsuta* are shrubs of a foot in height; *K. latifolia*, in the more northern parts of the

United States varies from four to eight feet, while farther south it attains from ten to twenty feet, and when in full flower the dense thickets which it forms render it a prominent object. The flowers of this last species yield a honey said to be deleterious, and its leaves and shoots are certainly so to cattle; *K. angustifolia*, probably for the same reason, has received the name Gambkill. The powdered leaves of some are used as a local remedy in some skin diseases. The hard wood of *K. latifolia* is used in the manufacture of various useful articles. The Canadian partridge is said to become poisonous as human food after feeding on *Kalmia* berries. [G. D.]

KALOSANTHES. *Roehea*.

KALUMBA-ROOT. *Jateorhiza palmata*.

KAMALA. A down which covers the capsules of *Rottlera tinctoria*, and is used for dyeing orange.

KAMBOU. A name in the Kurile Islands for the *Fucus saccharinus*.

KAMMA. A Russian name for birch oil.

KANARI. The oil-producing Java Almond, *Canarium commune*.

KANDELIA. A Malabar tree, constituting a genus of *Rhizophoraceæ*. The flowers are remarkable for their five petals, which are inserted into a fleshy rim lining the interior of the tube of the calyx; they are divided beyond the middle into two segments, each of which is again broken up into a number of hair-like divisions; stamens indefinite; fruit one-celled, with only one seed. The species, like others of the mangrove family, present the curious phenomenon of the seed germinating within the fruit. The bark of *K. Rheedii* is used medicinally in India. [M. T. M.]

KANGAROO'S-FOOT PLANT. *Anigozanthus Manglesii*.

KANILIA. A genus of *Rhizophoraceæ*, [better combined with *Bruguiera*], consisting of trees and shrubs, natives of tropical Asia, the calyx of whose flowers have a limb divided into eight segments, shorter than the tube; and the eight two-lobed convolute petals are inserted into a disk lining the throat of the calyx, into which are likewise inserted sixteen stamens. The ovary is two to three-celled. [M. T. M.]

KANTEN. *Fucus cartilaginosus*.

KAPAS. An Eastern name for the Cotton plant.

KAPITIA. A resin obtained in Ceylon from *Croton lacciferum*.

KAPOK. An eastern name for the cottony down of *Bombax pentandrum*.

KARBI. An Indian name for *Sorghum vulgare*.

KARELINIA. A genus of *Compositæ*, represented by a single species, *K. caespica*, found in littoral places on the borders of the Caspian Sea, and in Siberia. It is a smooth

erect woody-stemmed herb, having oblong lanceolate entire leaves, and corymbs of cylindrical purple flower-heads terminating the twigs, each head containing numerous tubular florets, the outer ones with pistil only, and their achenes crowned with a single series of soft white hairs, while the inner ones are perfect and have many series of pappus hairs to their achenes, which are cylindrical—not one series of pappus hairs and flattened achenes as in *Conyza* to which this plant is most nearly related. The genus is named in honour of M. Karelin, a Russian botanist. [A. A. B.]

KARISHUTUR. An Afghan name for *Alhagi Maurorum*.

KAROO-VAILUM. An Indian name for the gum of *Acacia arabica*.

KARWINSKIA. A Mexican genus of the buckthorn family, containing two or three species which have much the aspect of *Rhamnus*, and chiefly differ from them in having two instead of one ovule in each cell of the ovary. *K. Humboldtiana*, the most common species, has the smooth leaves marked underneath with prominent parallel nerves, and the minute greenish flowers in clusters in their axils, succeeded by little black berries. [A. A. B.]

KASSOU-KHAYE. The Senegal name for *Khaya senegalensis*, African Mahogany.

KASSAB. An Arab name for the Sugar Cane.

KASSU. A kind of Catechu, prepared from *Areca Catechu*.

KAT, or KHÂT. *Catha edulis*.

KATHERINE'S-FLOWER. *Nigella damascena*.

KATUMBAR. A Malay name for Coriander.

KAUKOOR. *Cucumis utilisimus*.

KAULFUSSIA. A very distinct genus of marattiaceous ferns, found in India and Java, with thick rhizomes and coarse ternate fronds, but most remarkable for the structure of the sori, which are dorsal, sessile globose crenate fleshy coriaceous concave hemispherical bodies, consisting of ten or twelve spore-cases arranged in a single concrete cyclose series, each spore-case bursting on the inner face by a vertical oblong or obovate cleft. The veins are compoundly anastomosing, with free included veinlets, and compital receptacles. On the under surface of the fronds are found curious cavities which are supposed to be secreting organs. [T. M.]

KAYA, KAWA. Other names for *Ara, Macropiper methysticum*.

KAVAROO. The Tamil name for *Eleusine coracana*.

KAWRIE TREE. *Dammara australis*.

KAYEA. A genus of *Giustaceæ*, differing from most others in its one-celled ovary, and from its nearest ally, *Calophyllum*, in

having four ovules instead of one. *K. Nordstranda*, found in Sihat, is a large handsome evergreen tree, with opposite narrow laurel-like leaves, and terminal panicles of numerous white flowers tinged with pink; each flower consisting of four calyx leaves, four petals, numerous stamens, and a simple style four-cleft at top. The fruits are rounded yellow drupes. *K. stylosa*, from Ceylon, is said to yield a useful timber, and to have very fragrant flowers. The genus bears the name of Dr. R. Kaye Greville of Edinburgh. [A. A. B.]

KAYLA. A Hindoo name for the Banana.

KAYU-MANIS. A Malay name for *Cinnamomum seylanicum*.

KOKES, KECKSIES, KIXES. Country names for the dried fistulous stalks of cow parsley, hemlock, and various other wild umbellifers.

KEDLOCK. *Sinapis arvensis*.

KEELED. Formed in the manner of the keel of a boat; that is to say, with a sharp projecting ridge, arising from a flat or concave central plate, as the glumes of

KEESLIP. A Scotch name for *Galium*

KEFERSTEINIA. A small genus of epiphytal stemless bulbous orchids of New Grenada, with a few lance-shaped leaves, and from the lower axils solitary bracted peduncles, bearing a single flower at the apex. The sepals and petals are spreading, lance-shaped; the lip larger, fan-shaped, joined to the base of the column, which has a keeled crest, extending from the stigma halfway down in front; the anther has four unequal pollen-masses, attached to a strap-shaped caudicle as long as the gland to which it is fixed. [A. A. B.]

KEITHIA. A genus of the labiate order, having the calyx with five nearly equal teeth; the lower lip of the corolla with three nearly equal lobes; and the fruit dry and ovoid. The species are natives of Brazil. The genus was named after the Rev. F. Keith, a botanical author. [G. D.]

KELINGOO. An Indian name for *Bataea edulis*.

KELLETTIA. A name given by Dr. in to *Prockia crux*.

KELP. The ashes produced by burning sea-weeds, consisting principally of the common *Fuci* and *Laminariae*. They contain carbonate of soda and salts of potash, and were formerly used in the manufacture of coarse soap and glass, and returned a considerable revenue on rocky shores, or where large stones had been purposely placed to encourage the growth of seaweed. Modern improvements in chemistry, by which carbonate of soda was more profitably obtained from common salt, and the removal of the high duty from barilla, put an end to the manufacture, and the

benefit resulting in consequence to the public was unhappily in some measure counterbalanced by the ruin of many proprietors who had reaped a rich temporary harvest from what was supposed to be a permanent source of revenue. [M. J. B.]

KEMPS. *Plantago media*.

KENDOO. An Indian name for *Diospyros Melanozyton*.

KENGUEL. The seeds of *Gundelia Tournefortii*, used as coffee in Asia Minor and Scinde.

KENKERIG. The Welsh name for a variety of *Parmelia saxatilis*, called *omphalodes*, which is much gathered for dyeing amongst the mountains. [M. J. B.]

KENNEDYA. A genus of prostrate or twining *Leguminosae*, peculiar to Australia, with the exception of *K. prostrata*, which grows also in Tasmania. They have wiry stems, with alternate, trifoliate, stipulate leaves, and axillary racemes of large handsome pea-flowers, bright red, pink, or almost black in colour. These have a two-lipped calyx; an obovate standard, the wings and keel nearly equalling it in length; ten stamens, one only of which is free; and an ovary tipped with a thread-like incurved style. They are distinguished from the allied *Hardenbergia* by their much larger and fewer flowers, which are never blue or white. *K. nigricans*, a Swan River species, is remarkable for its nearly black flowers. The genus is named in honour of Mr. Kennedy, once a nurseryman of Hammersmith. [A. A. B.]

KENTIA. A genus of palms, separated from *Areca*, chiefly on account of their ovary having only one cell, and their seed being solid and homogeneous, not having the nutmeg-like structure of the seed of true *Areca*, under which name, however, many botanists still retain them. They are natives of the islands of the Malayan Archipelago, Norfolk Island, and New Zealand; and have slender unarmed stems, marked with circular scars, supporting a cluster of large pinnate leaves, and branched flower-spikes, which bear numerous flowers of distinct sexes, each female being seated between two males.

K. sapida is the most southern known palm, being found in New Zealand as far south as lat. 38° 22', which is between two and three degrees further south than any representative of the order is found upon the Australian, African, or American continents. The New Zealanders call this palm Nikau, and use the young flower-spikes, just as they emerge from among the leaves, as an article of food. [A. S.]

KENTROPHYLLUM. A genus of *Compositae*, containing about a dozen species, distributed over the Mediterranean region, extending eastward to Kashmir, and west and south to the Canary Isles. They are mostly annual slightly branched thistle-like plants, with hard lance-shaped spiny-toothed leaves, and yellow, white, or pur-

ple flower-heads, each surrounded by a number of prickly scales, which are like the stem leaves. *K. lanatum*, one of the most widely distributed species, is remarkable for the loose white wool which hangs from the stems and flower-heads, giving them the appearance of distaffs loaded with wool. *K. arboregens*, a Spanish plant, grows eight or ten feet high. According to Boissier, this plant gives quite a character to the lower warm regions in Granada, and is popularly known as *Cardo Santo*, or *Cardo lechero*. [A. A. B.]

KERAMIDIUM. The same as *Cystocarp*.

KERMESINUS. Carmine-coloured.

KERNELWORT. *Scrophularia nodosa*.

KEROBETA. An Abyssinian name for *Balsamodendron Myrrha*.

KERRIA. An evergreen shrub, with long slender branches, invested with smooth green bark, lanceolate acuminate leaves, which are coarsely and unequally serrated, and numerous buff-yellow flowers. The double-flowered form is commonly cultivated under the name of *Corchorus japonicus*. The structure of its flowers approaches that of *Spirea*, near which it is placed in the system. French: *Corète du Japon*. [C. A. J.]

KESHOOR. A Bengal name for *Rottlera tinctoria*.

KESTING, KESLING. The Bullace Plum.

KETCHUP, or CATSUP. A name originally of Eastern origin, now applied to a favourite condiment prepared from various *Fungi*, as mushrooms, morels, champignons, &c. It is usually made by sprinkling the fungi when broken up with salt, and boiling the expressed juice with spice. The best way, however, is to let the juice drain without squeezing, and after standing for twelve hours to rack it off clear, and bottle it, filling the top of the bottle up with alcohol in which the proper spices have been previously steeped. Prepared in this way it retains its peculiar aroma much more perfectly than when boiled. Ketchup is often prepared for sale from *agarics* collected almost indiscriminately, no care being taken to discard notoriously poisonous species. The mass, moreover, frequently becomes putrid before it is boiled, and the ketchup is in consequence disgusting in flavour, and if taken largely very unwholesome. The best ketchup is prepared from *Agaricus campestris*, but a very good quality may be obtained from an admixture of other species, especially *A. procerus*, if care is used. [M. J. B.]

KÉTIMONS DES INDIENS (Fr.) *Cucumis sativus*.

KETMIE. (Fr.) *Hibiscus*. — **MUSQUÉE** *Abelmoschus moschatus*.

KHAIR-TREE. *Acacia Catechu*.

KHÂT. *Catha edulis*.

KHAYA. The name of a lofty Senegambian tree, forming a genus of *Cedrelaceæ* closely allied to *Swiebia*, but distinguished from it by the parts of the flower being in fours, and by the fruit bursting from above downwards. The bark of *K. senegalensis* is used as a febrifuge on the banks of the Gambia river, while the wood is like mahogany. [M. T. M.]

KHEU. *Melanorrhæa ustatissima*.

KHISMIS. A Malay name for Italians.

KHORMA. A Malay name for the Date.

KHUJJOOR. *Phoenix sylvestris*.

KHUS. An Indian name for *Andropogon muricatus*.

KHYAR. An Egyptian name for *Cucumis sativus*.

KIBARA. A genus of but one species, *K. coriacea*, belonging to the *Montiaceæ*, and differing from the other genera in the sterile flowers having but five to seven instead of many stamens. It is a large tree of Malacca and Java, having large opposite ovate oblong leaves, and small yellow flowers borne in axillary cymes. The fertile flowers, supported by two bracts, have the mouth of the calyx nearly closed by two or three series of scales enclosing a number of ovaries, which when ripe are oblong stalked drupes about half an inch in length. [A. A. B.]

KIBI. The Japanese name for Millet.

KIDAR-PATRI. An Indian name for *Limonia lauricola*.

KIDNEY-BEAN TREE. *Wistaria frutescens*.

KIDNEY-SHAPED. Resembling the figure of a kidney; that is to say, crescent-shaped, with the ends rounded, as the leaf of *Asium europæum*.

KIDNEY-WORT. *Umbilicus pendulinus*; also *Saxifraga stellaris*.

KIELMEYERA. A genus of resinous shrubs or small trees of Brazil, belonging to *Ternstroemiaceæ*, and related to *Camellia*, from which they differ in the petals being twisted instead of simply overlapping each other in the bud, and from others of their allies in their very numerous flattened and winged seeds. They have alternate, glossy, lance-shaped or elliptical leaves, with numerous nerves running at right angles to the midrib, and racemes or panicles of white or rose-coloured flowers, which in some species are small, but in others large and rose-like, thus suggesting the name *Rosa do Campo*, by which some of the species are known in Brazil.

K. speciosa, called by the Brazilians *Malvo do Campo*, from the resemblance of its flowers to those of some mallows, has an abundance of mucilage in its leaves, which in decoctions are used by them for fomentations. M. St. Hilaire remarks as a curious circumstance, that we have soothing properties in the leaves of this plant,

while in those of the tea, to which it is related, we have stimulating properties. The Malvo do Campo is a tortuous tree eight to fifteen feet high, with short thick branches, corky bark, and elliptical leaves, the shoots terminating in a few rose-coloured flowers as large as camellias, with six curiously unequal-sided petals, and very numerous stamens. [A. A. B.]

KIERA. An Indian name for the seeds of *Amaranthus frumentaceus*.

KIGELIA *pinnata*, an African tree, found in Nubia, Abyssinia, Mozambique, to as far south as Natal on the eastern side, and in Senegal and Guinea on the western, is the only representative of this genus of *Crescentaceæ*. It is of large size, with whitish bark and spreading branches, bearing opposite pinnate leaves, and long-stalked panicles of flowers, hanging down from the trunk or old branches: each flower being turned upwards, and having a two-lipped calyx with the lobes irregularly cut; a broad bell-shaped corolla divided at the mouth into five nearly equal lobes, enclosing two long and two short perfect stamens and five sterile ones; and a single-celled smooth ovary with a two-placed stigma. The fruit is often two or more feet long by from five to eight inches broad, hanging from a stalk several feet in length; it has a whitish corky rind, and is filled with pulp containing numerous roundish seeds. In Nubia this tree is held sacred; the negroes celebrate their religious festivals under it by moonlight, and poles made of its wood are erected as symbols of special veneration before the houses of their great chiefs. The fruits, cut in half and slightly roasted, are employed as an outward application in rheumatic and other complaints. [A. S.]

KIGELLARIA. A genus of *Flacourtiaceæ*, having for its chief distinguishing features a calyx of five distinct segments; the presence of scales at the base of the petals; and anthers opening at top by small round pores, instead of by longitudinal slits. The three known species are bushes or small trees of South Africa, with willow-like leaves clothed underneath with white starry down; in their axils grow the inconspicuous white unisexual flowers, the sterile ones in stalked cymes, and the fertile solitary, on different plants. [A. A. B.]

KING-CUPS, or KING'S CUP or COB. *Ranunculus bulbosus*, and the allied species.

KINGIA. A genus of *Juncaceæ* from South Australia, with the habit of *Xanthorrhæa* (grass tree), having an erect arborescent stem with crowded linear three-edged leaves at the top. The peduncles are shorter than the leaves; at first terminal and erect, but afterwards, as the stem elongates, lateral and reflexed, terminating in dense globose heads of flowers with a six-parted glumaceous perianth, six stamens, and a three-celled ovary becoming an indehiscent one-seeded pericarp. [J. T. S.]

KING-PLANT. *Anaclochilus setaceus*.

KING'S-SPEAR. *Asphodelus albus*.

KING'S TREE. The name among the Zulu Kaffirs of *Strychnos Atherstoni*.

KINGWOOD. A Brazilian wood believed to be derived from a species of *Triptoloma*; by some from *Brya Edenus*.

KINO. The name of various astringent gums. —, AFRICAN. The gum of *Pterocarpus erinaceus*. —, AMBOYNA. The gum of *Pterocarpus Marsupium*. —, BOTANY BAY. The inspissated juice of *Eucalyptus resinifera*. —, BUTEA or DHAK. The gum of *Butea frondosa*. —, INDIAN. The gum of *Pterocarpus Marsupium*.

KIPPER. *Orobus tuberosus*.

KIRIAGHUNA. *Gymnema lactiferum*.

KIRIATHA. A Malabar name for *Andrographis paniculata*.

KIRILOVIA. A genus of *Chenopodiaceæ* from Siberia, consisting of woolly annuals with a slender stem, membranous oblong or lanceolate entire leaves, and axillary sessile polygamous flowers in head-like spikes. The perianth has five (rarely four) small teeth; stamens five, with long exserted filaments; style two-cleft; fruit utricular, included in the unchanged woolly perigone. [J. T. S.]

KIRIS. (Fr.) *Matthiola greeca*.

KIRRITOCHEE. The fruit of *Terminalia angustifolia*.

KIRSCHENWASSER, KIRSCHWASSER. German names for a liqueur prepared from the cherry.

KISSENIA. *Fusonia*.

KISSMISS. A small kind of grape from which the Shiraz wine is made in Persia.

KISSING COMFITS. The candied roots of *Eryngium maritimum*.

KITAIBELIA. The name of a malvaceous plant peculiar to Hungary. The genus is distinguished by the outer calyx or involucrel, which is cleft into seven or nine pieces; and by the numerous one-seeded carpels, which are aggregated together into a five-lobed head. *K. vitifolia* is a mallow-like plant, sometimes seen in English gardens; its leaves are employed in Hungary as a vulnerary. [M. T. M.]

KIT-JAP. The Japanese name of Ketchup.

KITTOOL, KITTUL. A Cinghalese name for *Caryota urens*, also for its strong fibre.

KLAPA. A Malay name for the Cocoa-nut.

KLAPROTHIA. A genus of *Loasaceæ* readily distinguishable by having a four-toothed calyx and four petals to the flowers, instead of five which is the usual number, and by the sterile stamens having their apices dilated and fan-like. *K. mentzeloides*, the only known species, found in the Andes of Quito, is a twining annual herb,

with rough nettle-like leaves, and corymbs of incompilous white flowers terminating the twigs. Klaproth, whose name the genus bears, was a distinguished chemist of Berlin. [A. A. B.]

KLEINHOFIA. A genus of *Sterculiaceae*, consisting of a single species, *K. hospita*, a low branching tree with alternate heart-shaped leaves, and terminal panicles of small pink flowers, which are succeeded by top-shaped, bladder-like, five-winged fruits, with five cells having a single seed in each. These curious fruits are sufficient to distinguish the genus. The calyx is five-parted; the corolla consists of five narrow unequal petals; and the staminal tube bears on its apex five parcels of anthers, three in each parcel. The plant is a native of the Malay Archipelago, extending eastwards to the Solomon Isles. Its bruised leaves are said by Burmann to smell like violets. M. Kleinberg was once director of the botanic garden at Batavia. [A. A. B.]

KLEINIA. From the extensive genus *Senecio* a number of African species are severed by some authors who give to them the name of *Kleinia*, distinguishing them from true groundels more by habit than anything else. *K. verticillata* will serve to show what sort of plants they are. Growing on maritime rocks through all the Canary Islands, this plant is commonly known as Berode by the inhabitants; it is a fleshy-stemmed bush three to eight feet high, with thick candelabra-like branches, covered with scars of old leaves, and furnished at the apex with a rosette of pale-green lance-shaped leaves, somewhat like those of the oleander but fleshy in texture; and the numerous flower-heads are disposed in stalked corymbs arising from the axils of, and shorter than, the leaves. The achenes are ten-ribbed, surmounted by a white pappus of rough hairs. Most of the remaining species are South African; a few only Arabian; almost all having the stems (when present) fleshy, and leaves like those of that noted above. [A. A. B.]

KLOPSTOCKIA. A name sometimes given to the Wax Palm of the Andes and a few allied species, referred by others to *Ceroxylon*. [A. S.]

KLOTZSCHIA. A genus of umbellifers, having the fruit compressed from behind, each half with three dorsal approximate ribs but no oil-cells, and the lateral ribs small with single oil-cells. The genus was named in honour of Klotzsch, a well-known German botanist. The only species is an herb of the warmer parts of Brazil, having the stem leaves stalked, shield-shaped, five-lobed, and finely veined. [G. D.]

KLUGIA. A small genus of *Cyrtandraceae*, natives of India and Mexico. They are annual herbs with alternate leaves, and blue flowers in subsecund racemes. They have a five-cleft calyx; a two-lipped corolla, the upper lip being the smaller and bilobed, the lower entire; four included stamens, without trace of a fifth; and a

one-celled ovary surrounded by a disk, and crowned by a cup-shaped stigma. [W. O.]

KNAPBOTTLE. *Silene inflata*.

KNAPWEED, or KNOFWEEED. *Centaurea nigra*; also *C. Jacea* and *C. Scabiosa*.

KNAURS. Knobs or tumours formed on the stems or roots of plants: see *EXOSTOMA*.

KNAUTIA. A genus of herbaceous plants belonging to the *Dipsacaceae*, and allied to *Scabiosa*, from which it is distinguished by having its fruit invested with a toothed, not awned, calyx. *K. arvensis*, the only British species, is a common but graceful weed in cornfields; it grows to the height of two feet or more, with divided hairy leaves, and large handsome terminal lilac flowers, which are collected into convex heads, the outer florets much the largest, and having their outer segments larger than the inner, so as to assume the appearance of a ray, like that of the compound flowers. This is a favourite plant for showing the effect of burning tobacco on vegetable colour, for the flowers, immediately on being touched by a lighted cigar, assume a brilliant green hue. A similar effect may be produced by thus experimenting with other flowers of a reddish tinge, but none show so bright a green as this *Knautia*. [O. A. J.]

KNAWEL. *Scleranthus*.

KNEE-JOINTED. The same as *Geniculate*.

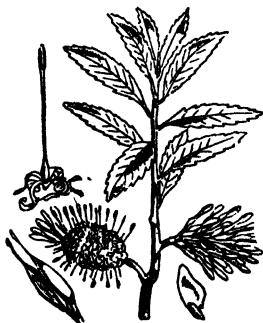
KNEEPAN-SHAPED. Broad, round, thick, convex on the lower surface, concave on the other; the same as *Meniscoid*, but thicker. See *PATELLIFORM*.

KNEIFFIA. A genus of hydroid *Fungi*, in which the hymenium consists of minute granules, surmounted by a little bristle-like point. It is very close to *Grandinia*. *K. setigera* is not uncommon in our woods on decayed sticks. [M. J. B.]

KNEMA. A genus of trees nearly allied to the nutmeg, and belonging to the *Myristicaceae*. The points of distinction lie in the three-lobed hairy calyx, and the stamens forming a column dilated at the top into a disk bearing the anthers at the margin. In the female flowers the stigma is provided with many teeth at its margin. The rigid leaves and the contracted inflorescence also form points of distinction. The trees are natives of India and other parts of tropical Asia. [M. T. M.]

KNESSEBEEKIA. A genus of *Begoniaceae*. Its characters are: anthers obovate, truncate tumid at the apex, with oblique chinks; filaments umbellately monadelphous; stigmas bipartite, dilated anteriorly at the base; placentas bilamellar, with the lamellae distinct, not united into a pedicel. There are thirteen species, found chiefly in Mexico and central America. The plants are more generally regarded as *Begonia*, as are all those proposed to be separated from it by Klotzsch. [J. H. B.]

KNIGHTIA. A genus of *Proteacea*, containing a single species, *K. excoled*, native of the northern island of New Zealand. It is distinguished by having a calyx of four sepals; four stamens with very long anthers and short filaments, one inserted on each sepal a little below the middle; and a long slender style thickened at the end. The fruit is a woody downy capsule, an inch in length with the long style still attached, containing four seeds, which are winged at the apex. The leaves are four to six inches long, very harsh, linear oblong, coarsely and rather bluntly toothed;



Knightia excoled.

and the flowers grow in axillary racemes, nearly as long as the leaves, densely covered with a reddish-brown velvety down, as are also the flowers and their stalks. It forms a large tree about 100 feet high, erect and very narrow for its height, and consequently very conspicuous. The wood is much prized for its colour, which is a mottled red and brown; it is also useful as readily splitting for shingles. *Embothrium strobilifera*, a native of New Caledonia, has latterly been provisionally placed in this genus under the name of *K. integrifolia*, but the structure of the matured seeds has not been ascertained. [R. H.]

KNIGHT'S SPURS. *Delphinium*.

KNIGHT'S STAR. *Hippeastrum*.

KNIGHTSWORT. *Stratiotes aloides*.

KNIPHOPIA. *Trilema*.

KNIPNÉE. *Melicocca bijuga*.

KNITBACK. *Symphytum officinale*.

KNOBTANG. *Fucus nodosus*.

KNOL KOHL. *Brassica oleracea caulorapa*.

KNOLLES. *Brassica Rapa*.

KNOFFERN. A curious kind of gall, formed on some species of oak in Hungary and other parts of Europe.

KNOTBERRY. *Rubus Chamaemorus*.

KNOTTED. Cylindrical, uneven on the surface, as the pod of *Uchidestoma*.

KNOTWORT. *Polygonum aviculare*.

KNOTWORTS. Lindley's name for the *Illecebracea*.

KNOWLTONIA. A genus of herbaceous plants of the *Ranunculaceae*, having, nevertheless, in outward aspect, much the appearance of umbellifers. The flowers have a green five-leaved calyx, several petals, and numerous stamens and carpels. The fruits are somewhat succulent, with a deciduous style, and are placed on a convex receptacle. These are acrid Cape plants, whose leaves are used to produce blisters. [M. T. M.]

KNOXIA. The name of a genus of cinchonaceous plants, consisting of Indian undershrubs, whose flowers have a four-parted calyx; and a saucer-shaped corolla with lance-shaped segments, and a hairy throat, into which the stamens are attached. The fruit is a two-celled capsule, crowned by the calyx, and consisting of two halves, which separate from a slender central column. The species have pink or white flowers. [M. T. M.]

KOARY. An Indian grass used for making mats.

KOBRESIA. A genus of cyperaceous plants, belonging to the tribe *Caricinea*. Distinguished by the inflorescence being in spikes together, or what is termed aggregate; lower flowers female or pistilliferous, the upper ones male or staminate, without any perianth; perigone of one scale, enclosing the germen and covered by the glume. Steudel describes four species, which are natives of high mountains or northern latitudes. The British species, *K. caricina*, is a rare plant, which has hitherto only been observed to grow on the bleak moors of the north of England and Scotland. [D. M.]

KOOHIA. A genus of allied to *Chenopodium*, but with an urceolate perigone, the five segments of which at length send out from their beaks transverse membranous wings. They are herbs or undershrubs from the temperate regions of the old world, with sessile, linear, or cylindrical leaves (rarely absent), and axillary flowers. [J. T. S.]

KODDA-PAIL. *Pistia*.

KODOYA BIKH. *Aconitum ferox*.

KODRO. An Indian name for *Paspalum acrobiculatum*.

KOHLERIA. A genus of grasses, belonging to the tribe *Poaceae*. It is distinguished by the inflorescences being crowded spike-like panicles; glumes unequal, two or three-ribbed; spikelets compressed, two to five-flowered; lower pale keeled, acuminate, or with a straight subterminal bristle; nut free. There are about three dozen species, which have a wide range, mostly inhabiting

climates. One of them, *K. cristata*, is a native of Britain, and is a beautiful grass, as it grows on dry sandy plains, or on dry hills. [D. M.]

KOLREUTERIA. A small-sized deciduous tree belonging to the *Sapindaceæ*. The generic characters are: calyx of five sepals; petals four with two scales at the base of each; stamens eight; ovary three-celled; capsule three-valved; seeds without an arillus. A native of China, first introduced into this country in 1793, and being handsome in regard to both leaf and flower, and hardy withal, it is much cultivated. The leaves are pinnate with an odd leaflet, the leaflets ovate coarsely toothed; the flowers yellow, disposed in terminal spreading clusters, and succeeded by large bladderly capsules which render the tree conspicuous till late in the autumn. [C. A. J.]

KÖRNIGIA. A genus of *Polygonaceæ*, consisting of an exceedingly small annual found in Iceland and Lapland, with alternate obovate, somewhat succulent leaves, short ochreate stipules, and terminal three-leaved flowers in small clusters with membranous bracts. [J. T. S.]

KOHAUTIA. A genus of cinchonaceous herbaceous plants, of no great beauty or interest. The corolla is salver-shaped with a long slender tube and pointed lobes; anthers sessile, within the corolla; capsule globular. [M. T. M.]

KOHL. A German name for Cabbage or Colewort. — **RABI.** *Brassica oleracea caulorapa*.

KÖHLERIA. A genus of handsome *Gesneraceæ*, represented by *K. hondenensis* and *K. Seemannii*. They have squamose stolons, upright stems with opposite leaves, and numerous axillary flowers having the corolla slightly deflexed, with a cylindrical somewhat tumid tube, and a narrow spreading limb; the stigma is bifid; and there are five nearly equal hypogynous glands. [T. M.]

KOKOONA. The Kokoon of the Cinghalese, a large forest tree growing sixty feet or upwards in height, in the central provinces of Ceylon, is *K. zeylanica*; it belongs to the natural order *Celastraceæ*, differing from the other genera of *Celastraceæ* in having a three-celled ovary, with four ovules in each cell, and exarillate seeds. The leaves are narrow at the base, but broad, rounded and with a small notch at the top, spotted beneath with numerous very small dark red dots. The fruit is three-sided and three-celled, each cell containing numerous seeds with broad wings. The Cinghalese use the yellow corky bark in the preparation of a kind of cephalic snuff, which they mix with ghee (vegetable butter) and introduce into the nostrils in order to relieve severe headache by encouraging a copious secretion from the nose. They also express an oil from the seeds and use it for burning in their lamps. [A. S.]

KOKRA. *Lepidostachys Roxburghii*, the hard wood of which is used for making musical instruments.

KOLA. *Cola* or *Sterculia acuminata*, and *tomentosa*.

KOLBIA elegans is the name given by Paillet de Beauvois to a plant which was formerly included in *Papayuca*, but is now considered to belong to the genus *Nodecca* in *Passifloraceæ*, and is referred by Dr. Masters to a form of *M. lobata*. It is imperfectly described, 'and the figure is apparently more fanciful than accurate, especially as to the colour of the flowers.' It differs from typical *M. lobata* in having cordate ovate leaves, and very long points to the anthers. Native of Upper and Lower Guinea. [J. Br.]

KOLGAS. *Colocasia antiquorum*.

KOLKOUAL. *Euphorbia alyssinica*.

KÖLLIKERIA. A small genus of *Gesneraceæ*, separated from *Achimenes*. *K. argyrostigma* is a dwarf New Grenada herewith squamose stolons, rather large opposite leaves spotted with white, and racemes of small white flowers, mottled with red, the lower lip fimbriate. [T. M.]

KOME. A Japanese name for Rice.

KÖNIGA. The generic name sometimes given to the Sweet Alyssum, referred by Lindley to *GLYCE*: which see.

KOOL. The fruit of *Zizyphus Jujuba*.

KOOLINGAN. An Indian name for the Galanga root.

KOOLLAH-I-HUZAREH. The Cabul name of various species of *Statice*.

KOOLTOO. An Indian name for *Fagopyrum esculentum*.

KOOMUGGI. A Japanese name for wheat.

KOONGOONIE. An Indian name for *Setaria italica*.

KOONGOO-TARO. An Indian name for the flowers of a *Tamarix* used in dyeing.

KOORINGA. An Indian fibre obtained from *Tylophora asthmatica*.

KOOROOMBA. A name in Ceylon for the young Cocoa-nut.

KOOSHA. An Indian name for *Eragrostis cynosuroides*.

KOOSUM, KOOSUMBA. Indian names for Safflower; also for *Schleichera trygna*.

KOOT. The Indian *Costus* root.

KOPEH. The Tara, *Colocasia macrorhiza*.

KOPSIA. A genus belonging to the order of dogbanes, distinguished by having the corolla salver-shaped, its tube swollen above, the border of five spreading or reflexed lobes; the style ending in an oblong undivided hairy stigma; and the fruit of two drupes, one often abortive. The name was given in honour of Professor Kops, author of a botanical dictionary. The species are natives of Japan, usually

having milky juice, opposite leaves, and flowers resembling those of *Vinca*, and of handsome appearance. [G. D.]

KORA KANG. An Indian name for *Setaria italica*.

KORARIMA, KURARIMA. A large kind of Abyssinian Caldemon, the fruit of *Anomum angustifolium*.

KORUMB. An Egyptian name for Cabbage.

KORRAS. An Arabic name for Leek.

KORTHALSIA A small genus of palms bearing a general resemblance to *Calamus*, having long flexible cane-like stems which climb up and become entangled among the branches of trees. Their pinnate leaves, also, terminate in long prickly tails like those of the *Calami*, and the lower part of their leaf-stalks forms a sheath round the stem; the leaflets being broad and shaped like a wedge or somewhat trapeziform, plaited, and irregularly toothed or torn at the top. The flower-spikes grow from the sides of the stem and have branches resembling catkins, bearing numerous flowers of separate sexes, the base of each branch being sheathed in an incomplete spathe. The males have a three-lobed calyx, a deeply three-parted corolla, and six stamens; the females a similar calyx, a tubular corolla trifid at the top, six sterile stamens, and a one-celled ovary. The fruit contains a solitary seed. There are five species, all natives of moist places in the forests of the Indian Archipelago. [A. S.]

KOSHEL. *Andropogon Nardus*.

KOUBANKA. A kind of wheat grown in Russia.

KOUKOU. A Tartar name for *Strychnos Ignatu*, the *Ignatia amara* of authors.

KOUKOUNARIA. *Abies cephalonica*.

KOUSSO, KOSSO. An Abyssinian medicinal plant, *Brayera anthelmintica*; also called Cusso.

KOYFUL. An Indian name for wild Nutmegs.

KRAMERIA. An anomalous genus, nearly allied on the one hand to *Leguminosae*, and on the other to *Polygalaceae*, to which Bentham and Hooker refer it; it has even been separated as a distinct family, the *Krameriacae*. It consists of much-branched spreading undershrubs, indigenous to America, having alternate simple or trifoliate leaves, and flowers in racemes. The calyx consists of four or five irregular coloured sepals, and the corolla of four or five petals, the three inner of which are very small and angulate; the stamens are four or fewer, unequal, and open at the end by pores; the ovary is one-celled with two suspended ovules; and the one-seeded fruit is covered with hooked prickles. On careful examination the irregularity of the flower proves to be of the same kind as that of *Leguminosae*, one of the petals being superior or directly next the stem from which

the flower-stalk springs, on which account it appears undoubtedly preferable to refer it to *Leguminosae*. In *Polygalaceae* a sepal occupies that position, so that neither of the petals which are alternate with it can be directly superior. The sepals of *Krameria* are, however, sometimes partially displaced from crowding or inequality, so that one of them may appear superior.

K. triandra, remarkable for its entire obovate acuminate leaves, covered on both sides with silky hairs, is one of the species most known as yielding the Rhatany roots of commerce, but all the species, as far as known, are intensely astringent. In Peru an extract is made from this species which is a mild, easily assimilated, astringent medicine, possessed of great power in passive, bloody, or mucous discharges; it acts as a tonic in weakness of the digestive organs and muscular debility, and is even useful in intermittent and putrid fevers. It is also styptic, and restores tone to relaxed parts, and when applied in plasters is said to correct and cure all kinds of ulcers. An infusion is used as a gargle and wash, and the powder forms along with charcoal an excellent tooth-powder. The colour of the infusion of the roots of the *Krameria* is blood-red, on which account advantage is taken of it to adulterate port wine. [B. C.]

KRAUSIA. The name of a genus of *Cinchonaceae*, consisting of a Natal shrub, whose flowers have a calyx with a short five-cleft limb, a funnel-shaped corolla with a short tube and a five-cleft limb; anthers placed on very short stalks on the hairy throat of the corolla; and an ovary crowned by a large fleshy disk, and a large spindle-shaped stigma which is divided into two lobes; fruit fleshy, two-celled, two-seeded. [M. T. M.]

KRAUT. A German name for Colewort or Cabbage.

KREAT or GREAT. A tonic infusion of the root of *Andropogon paniculata*.

KREYSIGIA. A genus of *Melanthaceae* from New Holland, with a roughish simple stem, ovate lanceolate amplexicaul leaves, smooth above and rough below, and axillary, solitary, one-flowered peduncles, with an involucre of three bracts below the middle. The flowers are pale lilac with a six-leaved spreading deciduous perianth, having glandular appendages, six stamens, and three stigmas. The capsule is somewhat fleshy. [J. T. S.]

KRYNITZKIA. A genus of *Boraginaceae* from New California, allied to *Echinopspermum*, but having the nuts quite smooth. They are hispid annuals with sessile leaves, and small flowers with a very hispid calyx, and a white salver-shaped corolla, having yellow scales in the throat. [J. T. S.]

KUCHOO. An Indian name for the tubers of *Colocasia antiquorum*, *Arun maculatum*, &c.

KUCHOORA. *Curcuma Zerrumbet*.

KUDRUBA. *Net*

KURRA. The Indian name for *Butea* King.

KURRUL. An Indian name for the aromatic bark of *Myrica aspid.*

KURRIA. A small genus of *Compositae*, differing from its allies in the many striate schemes, seated on a naked receptacle, and crowned with a single series of capillary and feathery pappus hairs. The species of *Curria* by Torrey and Gray, *n. Supercilium*, five-angled and schemes. [A. A. B.]

KURJOR. An Indian name for Dates.

KURMOO. The Tamil name for spiked Millet, *Pennisetia spicata*.

KUMERA. A New Zealand name for *Bolotus scutis*.

KUMKUMA. An aromatic drug and perfume obtained from *Didymocarpus aromaticus*; also the Malay name for Saffron.

KUMLA. An Indian name for *Citrus Aurantium*.

KUMEL. A German name for Cumin or Caraway seeds.

KUMON. An Indian name for Cumin.

KUMNYAN. The Malay name for Frank-

KUMQUAT. A variety of *Citrus japonica*.

KUNDALOO. A large kind of Indian Nettle.

KUNDEL. An Indian name for Sage-

KURBOO. An Indian name for *Stellaria media*.

KURKIRZED. An Arabian name for the gum of *Oryza scolyman*.

KURTHIA. A genus of palms, containing but one species, *K. montana*, a reedy palm, with a ringed stem about an inch in thickness, and twenty feet high or more, inhabiting the temperate mountain-regions of New Grenada, where the natives call it *Cana de la Vibora*, i.e. Snake Cane, from the resemblance of its stem to a snake, and they consider its juice to be a remedy against the bite of that reptile. It has a terminal tuft of pinnate leaves, three or four feet long, beneath which the flower spikes, which are enclosed in several sheaths, and bear both male and female flowers, are produced. The fruit is about

the size of a clove, of a green colour, containing a single seed. Besides the use of its juice for curing snake bites, the Indians hollow out the reedy stems of this palm for the purpose of making blowpipes, through which they expel poisoned arrows to a considerable distance. [A. B.]

KURREE. An Indian name for the cut stalks and straw of the *Sorghum*, used as fodder for cattle.

KURDEH, CURDEE. Indian names for Safflower.

KURPAH. A kind of Indigo.

KURRAJONG. A native Australian name for several fibrous plants. —, BROWN, *Commersonia platyphylla*. —, GREEN, *Hibiscus heterophyllus*. —, TAB-MANIAN, *Platanthus didactylus*.

KURTAU. A Malay name for the Mulberry.

KURUNDA. An Indian name for *Cassia Aurantia*.

KUSHMUT. An Indian name for the root of *Costus speciosus*.

KUSHNEEZ. The Persian name for Coriander seed.

KUTOHOORA. An Indian name for the roots of *Curcuma*.

KUTERA, KUTERA. A gum obtained from *Cochlospermum Gossypium*; also from *Sterculia urens*.

KUTH. An Indian name for *Acacia Catechu*.

KUTHAR-CHARA. An Indian name for *Limonia laurapa*.

GA, KURKULEGA. In the tonic seeds of *Cassia*.

KUTKEY. An Indian name for Hellebore.

KYABOOCA. An ornamental wood obtained in the Eastern Archipelago, from the excrescences or burrs of *Pterospermum indicum*; the same as Amboyna wood.

KYLLINGIA. A genus of cyperaceous plants, belonging to the tribe *Cyperes*, distinguished principally by the inflorescence being in solitary heads, rarely two to three together; spikes compressed, one to two-flowered, the upper flowers male; stamens one to three; styles cleft. There are upwards of fifty species, the greater part natives of Brazil and South Africa, with a few from Australia. [D. M.]

ENCYCLOPAEDIA
OR THE
TREASURY OF BOTANY

PART II.

L to Z, with Supplement.

THE TREASURY OF BOTANY.

PART II.

LABARIA PLANT of Demerara. *Dracontium polyphyllum*.

LABATIA. A genus of tropical American trees, belonging to the *Eupotaceae*. The flowers have a four-parted calyx, whose segments are arranged in two rows; five fertile stamens inserted at the base of the tube of the corolla, alternating with five scale-like abortive stamens placed on its throat; a four-celled ovary surmounted by a style that does not project beyond the corolla; and a fleshy fruit. [M. T. M.]

LABEL, LABELLUM. The third petal of an orchid, usually turned towards the lower front of the flower, and very different in form from the remainder. Also a similar petal in other flowers.

LABIATÆ. (*Lamiaceae, Labiatae*.) A natural order of Dicotyledonous plants, belonging to Lindley's Echio Alliance of perigynous Exogens. Herbs or under-shrubs with square stems, opposite and exstipulate leaves, and flowers in verticillasters. Calyx tubular, persistent, five to ten-toothed or bilabiate; corolla bilabiate; stamens four, didynamous, or by abortion two; anthers two-celled, or one-celled by abortion; ovary deeply four-lobed on a disk; style basilar; stigma blind. Fruit one to four achenes enclosed by the calyx; seeds erect with little or no albumen. Natives of temperate climates. Many of them are carminative, and yield volatile oils. Mint, sage, lavender, rosemary, hyssop, patchouly, marjoram, horehound, thyme, basil, savory, belong to the order. There are upwards of one hundred genera, and about 2,500 species. [J. H. B.]

LABIATE. A term applied to that form of a monopetalous calyx or corolla which is separated into two unequal divisions, the one anterior, and the other posterior, with respect to the axis.

LABIATIFLOUS. A term applied to composites whose corolla is labiate.

LABICHERA. A genus of *Leguminosae* of the suborder *Casalignae*, allied to *Cassia*, but the sepals and petals are occasionally reduced to four, and the stamens are two only (with the anthers either both alike or one of them produced into a tube exceeding the other, and filled with pollen at the base only). There are five species, all Australian glabrous shrubs, with pinnate leaves consisting of one emarginate terminal usually lanceolate and sharply pointed leaflet, and two or more small ones at its base. The flowers are yellow, in short axillary racemes, and rather showy.

LABIOSE. A polypetalous corolla having the appearance of being labiate.

LABISIA *potholus* is the name given by Lindley to the *Ardisia pumila*, a native of the Eastern Archipelago, which differs from the rest of the genus in the more induplicate aestivation of the corolla, in the almost apiculate inflorescence, and in the shape and venation of the leaves, which are almost those of some monocotyledonous plants, hence it was mistaken for a *Pothos* in the garden of the Horticultural Society until it flowered. For the same reason it was proposed by A. De Candolle as a section of *Ardisia* under the name of *Murantoides*.

LABIUM. The lower lip of a labiate corolla.

LABIAB. A genus of tropical pulse more usually included in *Dolichos*. The two recognised species are natives of India, but they have been so widely spread by cultivation that they are now found naturalised in most tropical countries. They are twining herbaceous plants, with trifoliate leaves, and long-stalked racemes of flowers, in which the two lower petals are bent inwards at a right angle, not twisted as in *Phaseolus*; and nine of the stamens are united. The pods are flat, marked along the edges with rough tubercles or warts. *L. vulgaris* and *L. cultratus* are greatly cultivated in tropical countries, the young pods taking the place of our kidney beans, while the seeds or pulse, on account of their nitrogenous qualities, afford nutritive and wholesome food. There are several varieties, some of which yield better-flavoured pulse than others. [A. B.]

LABORDEA. An evergreen shrub from the Sandwich Islands, described and figured by Gaudichaud as a genus of *Loganiaceae*, but of doubtful affinity.

LABOUCHERIA. A North Australian tree of the *Leguminosae Mimosae*, scarcely sufficiently distinct from the African *Erythrophloeum*.

LABURNUM. *Cytisus Laburnum*. —, **SCOTCH.** *Cytisus alpinus*.

LABYRINTHIFORM. Marked by sinuous intricate lines: the same as *Dadaleus*.

LAC. A fluid having an opaque appearance, and either white, orange, or some such colour, occurring in many plants. Also the name of a gummy substance produced by *Ptychirina monosperma*, *Alourette lactifera*, *Schleichera trijuga*, &c.

LACÆNA. A genus of epiphytal orchids with the habit of *Acinetus*, and approaching very nearly to it in structure, but differing in having the lip articulated with the column as well as in the middle, and in having but two pollen-masses instead of four, these being attached to a long slender caudicle. *L. Macfar*, the original species, is a native of Guatemala. [T. M.]

LACAUSADEA. *Polybotrya*.

LACE-BARK. The inner bark of *Lagetta hirsuta*.

LACEPEDEA. A Mexican shrub, described by Kunth as a distinct genus, but which has since proved to be a species of *Turpinia*.

LACE-LEAF PLANT. *Ouvrandra*.

LACERATE, LACERUS. Irregularly divided by deep incisions.

LACHENALIA. A genus of Lilyworts from the Cape of Good Hope, consisting of bulbous plants, with lanceolate lorate often spotted leaves, and erect flower-scapes bearing a raceme of pendulous flowers, the yellow colour being predominant among them. The perianth is six-parted, with the segments connivent into a cylindrical tube, the three exterior ones shorter than the others; there are six stamens, and a three-celled many-ovuled ovary which becomes a membranaceous three-winged capsule, containing but few seeds. *L. pendula*, *luteola*, *tricolor*, and *quadricolor* are familiar inhabitants of our greenhouses, and very ornamental in the spring months. [T. M.]

LACHNÆA. Cape shrubs of the *Thymelacææ*, deriving their name from the woolly hairs that densely clothe their flowers. The inflorescence consists of terminal flower-heads frequently surrounded by bracts. The perianth is coloured, tubular, jointed below, the lower portion persistent, the limb divided into four segments, and having attached to it, at its junction with the tube, eight stamens in two rows, and as many scales (petals?) inserted lower down than the stamens, and placed opposite to the divisions of the limb. [M. T. M.]

LACHNOCAULON. A genus of *Eriocaulacææ*. They have fibrous roots, a very short stem, linear-lanceolate leaves, sheathed peduncles, and villous capitules of unisexual flowers. They are natives of Virginia, Carolina, Georgia, Florida, and other parts of North America. [J. H. B.]

LACHNOSTACHYS. An Australian genus of *Amaranthacææ*, consisting of woolly shrubs, with opposite rigid leaves, and terminal and axillary cylindrical bracted spikes of perfect flowers, with a six or eight-parted scarious perigone, densely woolly outside. [J. T. S.]

LACHRYMÆFORM. Tear-shaped; the same as Pear-shaped, except that the sides of the inverted cone are not contracted; as the seed of the Apple.

LACINIA (adj. **LACINIATE**). A slash. A deep taper-pointed incision.

LACINULA. A small lacinia or slash; also the inflected point of the petals of umbellifers.

LACIS. A genus of *Podostemacææ*, consisting of small herbs, natives of Brazilian rivers, having a thick somewhat globular root-stock, numerous stalked palmately-divided leaves and racemose flowers, which differ from those of other genera of the order in their monadelphous stamens, and

in their capsules which consist of two or three equal ribbed valves. [M. T. M.]

LACISTEMACEÆ (*Lacistemadæ*). A natural order of dicotyledonous plants belonging to Lindley's violal alliance of hypogynous Exogens. They are shrubs with simple stipulate leaves, and hermaphrodite or unisexual flowers in axillary catkins. Perianth free, divided, with a large bract; stamen one, hypogynous, the connective separating the antherine lobes, which open transversely; disk often fleshy; ovary one-celled; placentas parietal. Fruit a one-celled two to three-valved loculicidal capsule. Seeds numerous, albuminous, with an aril. Natives of the tropical woods of America. There are about half a dozen species in two genera. [J. H. B.]

LACISTEMA. A small genus of arborescent plants of tropical America, from which the order *Lacistemacææ* derives its name. They have simple alternate leaves, polygamous catkin-like flowers, a calyx supported by a bract, no corolla, a solitary stamen surrounded by a somewhat fleshy disk, a capsular one-celled fruit, each cell bearing a solitary seed. In habit the species somewhat resemble peppertrees. Their properties are unknown. [B. S.]

LACTARIUS. A large genus of gill-bearing *Fungi*, distinguished by the cellular not filamentous substance of the gills, and the milky juice which is contained in distinct tubes. They are often extremely acid and dangerous, but some of them, as *L. volenus* and *L. deliciosus*, are mild and form excellent articles of food. As, however, they are used when pickled in considerable quantities almost indiscriminately by the Russians, it would seem that the dangerous properties are neutralised by the acid. Dogs suffer dreadfully after biting such species as *L. vellereus*, and Dr. Badham had very unpleasant symptoms from simply tasting a few of the spores. The milk of this species leaves a burning sensation in the throat like that of *Euphorbia Lathyris*. When collected it forms a cheesy mass which burns with a bright flame. The milk in many species, though originally white, changes colour when exposed to the air, and sometimes displays brilliant tints, as blue, orange, &c. One or two species have been found in the Himalayas, but Europe and North America are their principal habitats. [M. J. B.]

LACTESCENT. Containing lac, or milk.

LACTEUS. Milk-white; dull white verging to blue.

LACTUCA. A well-known genus of *Compositæ*, deriving its name from the milk-like juice which pervades the plants in their wild state. The genus belongs to the *Cichoraceæ*, and bears the following marks: involucre of a few overlapping bracts, including a few yellow or blue flowers, which are placed upon a scaleless receptacle; fruits somewhat flattened, surmounted by a thread-like beak, and a papose calyx of

silky hairs. The species are annual or perennial herbs, with erect branching stems, and smooth or spiny leaves, and are distributed over Southern Europe, Central Asia, and North America.

The Garden Lettuces have been so modified by long cultivation, that it is impossible to decide accurately from which species they have originated. Suffice it to say, that the narcotic and sedative principles that are so well known to exist in Lettuce do not occur except to an infinitesimal extent in the succulent young leaves that form so agreeable a salad, but when the flowering stem is thrown up, the sap becomes milky and bitter, and its narcotic properties are then more fully developed. The sedative effects of Lettuces appear to have been known from the earliest times of which we possess any record. Venus, after the death of Adonis, is reported to have found rest for her love-distracted mind by throwing herself upon a bed of Lettuces. Virgil and Oolumella both mention the Lettuce as proper to be eaten as a sequel to more savoury viands, at the end of a repast, as well as for their soporific qualities; and Pliny relates that Augustus was cured of an illness by the use of Lettuces, prescribed by his physician, Musa. The popular opinion respecting the properties of these plants is maintained in our own times by the doggerel that tells us

for want of rest

Lettuce and cowslip-wine probatum est.

Indeed, a substance called *Lactucarium* or Lettuce Opium is prepared from the dried juice of some of these plants, especially *L. virosa*, and is occasionally used as a mild narcotic or sedative where opium is inadmissible.

There are a few British species of this genus: *L. murale*, with thin stalked leaves, and short beaked fruit; *L. virosa*, with sessile prickly leaves, and a spreading panicle; and *L. saligna*, in which the panicle is so contracted as to resemble a spike. [M. T. M.]

The Garden Lettuce, commonly called *L. sativa*, is a hardy annual, whose native country is unknown with certainty, although it is generally supposed to be Asia. It has been cultivated in England since 1562. The plant has large roundish or roundish-oblong entire slightly-toothed milky leaves, which in some varieties are of a deep green, while in others they are of a dingy brown colour. The flower-stem is round, about three feet high, the flowers pale yellow and corymbose. Lettuces appear to have been known and used for salads at a very early period. According to Herodotus, they were served to the royal tables of the Persian kings more than 400 years before the Christian era. It is also recorded that they formed the opium of Galen, the celebrated Greek physician, in A.D. 200, and it was probably the consideration of this historical fact which led to the discovery in our day, by the late Dr. Duncan of Edinburgh, of the drug called *Lactucarium*, prepared from the juice of the Lettuce. The ancient Romans knew but one sort of Lettuce, and this was a variety

with dark-coloured leaves, which they suspected of having an injurious effect on those who ate it; but after the Emperor Augustus was said to have been cured by the free use of Lettuces, suspicion of their deleterious qualities vanished, and great efforts were made not only to cultivate them, but to blanch them so as to remove their bitterness, and thus render them more palatable.

The first English writer on gardening who has noticed the Lettuce is Gerard in 1597. He describes eight varieties as being then cultivated. The number has since greatly increased, and year after year new and improved sorts are brought forward to supply the places of those which have degenerated and are considered unworthy of further cultivation. The whole have been arranged in two divisions or groups, namely, *Cabbage Lettuces*, comprising all those which have round leaves, and form a compact head resembling a cabbage; and *Cos Lettuces*, those having firm and crisp upright oblong leaves, folded over one another. The latter are preferred for salads, while the cabbage kinds, from being more flaccid and milder, are preferred for soups. Although containing but little nourishment, Lettuces are universally esteemed for their emollient and cooling properties, and they are always in great demand. [W. B. B.]

LACUNA (adj. **LACUNOSE**). A large deep depression or excavation.

LACUNOSO-RUGOSE. Marked by deep broad irregular wrinkles, as the shell of the walnut, or stone of the peach.

LACUSTRIS. Growing in lakes.

LADANUM, or **LABDANUM**. A resinous product of *Cistus creticus*, and other species.

LADENBERGIA. A genus of *Cinchonaceæ*, consisting of trees inhabiting Peru. The characteristics of the genus reside in the limb of the calyx, which is very small, somewhat bell-shaped, with triangular teeth; and in the ovary which is surmounted by an eight-lobed disk. [M. T. M.]

LADY'S BEDSTRAW. *Galium verum*; also *Pharnaceum Mollugo*.

LADY'S BOWER. *Clematis Vitalba*.

LADY'S COMB. *Scandix Pecten-Veneris*.

LADY'S CUSHION. *Armeria vulgaris*.

LADY'S FINGERS. *Anthyllis Vulnaria*.

LADY'S GARTERS. *Phalaris arundinacea variegata*.

LADY'S GLOVE. *Digitalis purpurea*.

LADY'S HAIR. *Briza media*.

LADY'S LACES. *Cuscuta*.

LADY'S LOOKING-GLASS. *Specularia perfoliata*.

LADY'S MANTLE. *Alicemilla vulgaris*.

LADY'S NAVEL. *Cotyledon Umbilicus*.

LADY'S NIGHTCAP. *Oxystegia septum.*

LADY'S SEAL. *Conuallaria Polygonatum.*

LADY'S SLIPPER. *Cypripedium Calceolus.*

LADY'S SMOOK. *Cardamine pratensis.*

LADY'S THIMBLE. *Campanula rotundifolia.*

LADY'S THISTLE. *Carduus Marianus.*

LADY'S TRAVERS or TRESSES. *Neottia spiralis.*

LADY'S THUMB. An American name for *Polygonum Persicaria.*

LADLEWOOD. A Cape name for the wood of *Cassia Colpoon.*

LÆLIA. A beautiful genus of orchids, closely related to *Cattleya*, from which indeed it differs in little if anything, besides having eight pollen-masses instead of four. They are epiphytes, furnished with pseudobulbs which are often elongated clavate and stem-like, thick hard leaves, and terminal scapes of few or many flowers, which are for the most part extremely showy. *L. purpurata* and its allies, *L. superbiens*, *L. majalis*, and *L. prestans*, are some of the finest of the species, which are all South American, and come chiefly from Brazil and Mexico. [T. M.]

LÆLIOPSIS. The name of a few epiphytal orchids of the West Indies and South America. They agree with *Cattleya* in all respects except that the flowers are membranaceous, and the veins of the lip bearded. *L. domingensis*, the typical species, is a St. Domingo plant, with two-leaved pseudobulbs, and a slender terminal scape, bearing at the end a few showy flowers, of which the sepals and petals are rather erect than spreading, and the large lip is rolled up round the column, and two-lobed with wavy toothed recurved divisions. [T. M.]

LÆTIA. A genus of *Flacourtiaceæ* consisting of small trees inhabiting the woods of tropical America, with dotted or dotless, usually entire and leathery leaves; hermaphrodite or polygamous flowers, arranged in racemes; a highly imbricate calyx; either no corolla or one composed of five petals, yellow or white; an indefinite number of stamens, with very short anthers; and an ovate or three-cornered berry. *L. apetalæ*, of the Magdalena river, yields a balsamic resin which becomes white in contact with the air, like Sandarach. [B. S.]

LÆVIGATE. Having the appearance of being polished, as many seeds.

LÆVIS. Free from asperities or hairs, or any sort of unevenness.

LÆVOENSIA. A genus of South American *Eythraceæ*, consisting of tree or shrubs, with opposite leaves, and flowers either solitary in the axils or in terminal racemes or panicles; they are large, white or pale red, with a bilabiate eight to ten-

toothed calyx, ten to twelve petals, and twenty to twenty-four stamens; and are succeeded by an incompletely two-celled capsule. [T. M.]

LAGAROSIPHON. A genus of aquatic herbs, inhabiting tropical rivers and lakes, and belonging to *Hydrocharidaceæ*. It has smooth parallel-veined leaves, and flowers enclosed in a spathe, and having three sepals and three petals, an indefinite number of stamens, and a succulent fruit. [B. S.]

LAGASCEA. A genus of *Compositæ* of the tribe *Vernoniaceæ*, distinguished by the doubly compound flower-heads, each separate floret being enclosed in a four or five-toothed tubular involucre, several of these partial involucre being collected in a general head, surrounded by imbricated leafy bracts. Each floret has a very slender tubular corolla, and a compressed four-angled achene crowned by a very short entire or toothed membranous pappus. There are about seven species, natives of Mexico, all coarse weedy herbs of little interest.

LAGENARIA. A genus of *Cucurbitaceæ*, consisting of an annual pubescent musky plant, with alternate heart-shaped leaves, tendrils, clustered single-flowered axillary flower-stalks, and white monocious or dioecious flowers: the males with a bell-shaped five-



Lagenaria vulgaris.

parted calyx, five spreading petals, and five triadelphous stamens; and the females with a three-celled inferior ovary, becoming, when mature, a woody pepo. The only species is a native of the warm parts of Asia and Africa. [The fruits are poisonous, or at best of doubtful quality, although some of the numerous varieties have been eaten with impunity.] [J. H. B.]

LAGENIFORM. Shaped like a Florence flask.

LAGENOCARPUS. The generic name of plants belonging to the order of heath-works; distinguished by having the corolla small, nearly globose, its border slightly five-cleft, the seed-vessel flagon-shaped and one-celled. The species are heath-like shrubs, natives of the Cape. [G. D.]

LAGENOPHORA. A genus of *Compositæ*

of the tribe *Asteroides*, consisting of small daisy-like herbs, with the leaves mostly radical, and the small flower-heads growing singly on slender scapes. The numerous spreading ray-florets, either white or pale blue, the numerous yellow tubular florets of the disk, and the flattened achenes without any pappus, are nearly those of *Bellis*, from which genus *Lagenophora* differs chiefly in the achenes being narrowed into a beak at the top. There are about ten species, all Australian, although one species, *L. Billardieri*, extends also into Southern Asia.

LAGERSTRÖMIA. A genus of *Lythraceæ*, of which fourteen species are known, all natives of tropical and subtropical Asia, and forming large trees or shrubs, with opposite entire leaves, and terminal panicles of purplish or white flowers. The bell-shaped calyx is cut into six equal-sized lobes, without any intermediate teeth; the corolla consists of six petals, furnished with long narrow claws or stalks; the stamens vary from eighteen to thirty; and the fruit is divided into three or six cells, containing numerous winged seeds. *L. indica* is a shrubby plant, growing eight or ten feet high, with elliptical smooth pale green leaves, and bright rose-coloured flowers, the petals of which are very much curved, having a crumpled but exceedingly beautiful appearance. It is a native of China, and flourishes in our greenhouses.

L. reginae forms a magnificent timber tree, yielding a bloodred-coloured wood, which, though open in the grain and soft, is greatly used in India for boat building, and for the knees of ships, on account of its great durability under water. It is called Jarcol, and is common in the peninsula of India, and in Birmanah. The native Indian physicians esteem various parts medicinal, the astringent root being used as a remedy for thrush, its bark and leaves as purgatives, and its seeds as a narcotic. [A. S.]

LAGETTA. The tree producing the well-known lace-bark of Jamaica is called in that island by the name *Lagetta*. The genus belongs to the *Thymelacææ*, and is known by its perfect flowers; its tubular coloured perianth, with a distended tube, contracted throat, and four glands; eight stamens; and a small round hairy fruit, enclosed in the persistent base of the perianth.

The inner bark of *L. hirsuta* consists of numerous concentric layers of fibres which interlace in all directions, and thus present a great degree of resemblance to lace, whence the common name of the tree. It is reported that Charles II. received, as a present from the governor of Jamaica, a cravat, frill, and pair of ruffles, made of this material; and to this day it is used for bonnets, collars, and other articles of apparel, specimens of which may be seen at the Kew museum, &c. The uses to which this natural lace is applied are not always so unobjectionable as those just mentioned, for it is likewise used in the manufacture of thongs and whips, with which, in former

times at least, the negroes were beaten by their cruel taskmasters. The plant is cultivated in English hot-houses as an object of curiosity. [M. T. M.]

LAGOECIA. The name of a genus of umbellifera, characterised by having one half of the fruit abortive, and a deep furrow on one side of that part which attains maturity. The only species is a small annual, a native of Eastern Europe, along the borders of the Mediterranean. [G. D.]

LAGOPUS. Hare-footed. A term applied to parts which are so closely covered with long hairs as to resemble a hare's foot; as the rhizome of some ferns, and the inflorescence of some grasses.

LAGUNARIA. A malvaceous genus allied to *Hibiscus*, but distinguished from it, and other closely-related genera, by the small size and paucity of the bracts of the involucre; by the presence of a club-shaped style, terminated by a radiated stigma; as well as by the capsule, which is five-celled. The flowers are handsome, and of a pink hue. [There are two forms of the single species, *L. patersoni*, one from Norfolk Island, the other from Queensland.] [M. T. M.]

LAGURUS. A genus of grasses belonging to the tribe *Agrostideæ*. It is distinguished by the inflorescence being in round spike-like panicles; glumes scarious, ending in a long-fringed bristle. The soft white silky spikes of flowers, with their protruded awns, give this pretty grass a very remarkable appearance. *L. ovatus*, the only species, is a native of the south of Europe, as well as of some parts of Asia. Though included in the British flora, it is only found in Guernsey. [D. M.]

LAITRON. (Fr.) *Sonchus*. — **DE PLUMIER.** *Mulgedium*.

LAITUE. (Fr.) *Lactuca sativa*.

LA-KAO. A Chinese green dye obtained from *Rhamnus cathartica*.

LAKE-WEED. *Polygonum Hydropiper*.

LALAGE. A genus of *Leguminosæ* [now usually united with *Bauhinia*, from which it differs only in the much narrower and longer upper lobes of the calyx, which, however, pass gradually into the more usual shape observed in *Bauhinia*]. It consists of four or five shrubs, natives of South west Australia, with alternate ovate lanceolate or linear leaves, and pretty axillary flowers, either yellow or mixed with orange violet and crimson. *L. ornata* has been introduced into our greenhouses with other Swan River *Papilionacææ*.

LALANG. *Andropogon carissosus*.

LALO. The powdered leaves of *Adansonia digitata*.

LAMAM. (Fr.) *Solanum nigrum*.

LAMARCKIA. A genus of grasses belonging to the tribe *Festucææ*. The inflorescence is in simple crowded panicles, the spikelets of which are stalked, two-flowered, one fertile and the other sterile. *L. aurea*, the only species of the genus, is a pretty

annual, sometimes cultivated in botanical gardens. It is a native of the south of Europe and north of Africa. [D. M.]

LAMBERTIA. A proteaceous genus of small shrubs, natives of extra-tropical Australia, principally on the south and south-west coasts. The flowers are regular, solitary or in clusters, with a four-cleft tubular calyx, the segments of which bear each an anther; and a filiform style with a pointed stigma. The prevailing colour is dark red with occasionally an orange tint. The seed-vessel is ovate, leathery, often bristly, containing two winged seeds. The leaves are entire or toothed, either in threes or verticillate. [R. H.]

LAMBKILL. An American name for *Kalmia angustifolia*.

LAMBRUSQUE. (Fr.) *Vitis Labrusca*.

LAMB'S QUARTERS. *Atriplex patula*; in America, *Chenopodium album*.

LAMB'S TOE. *Anthyllis Vulneraria*.

LAMB'S TONGUE. *Plantago media*.

LAMELLA (adj. **LAMELLAR**). A plate or thin part such as is found at the end of many styles.

LAMELLÆ, LAMINÆ, LAMELLULÆ. The gills of fungi: vertical membranous radiating or branching plates belonging to a pileus.

LAMIACEÆ. Lindley's name for the *Labiata*: which see.

LAMINA. The blade of a leaf; that expanded part which terminates the petiole, if there be one.

LAMINARIACEÆ. A natural order of dark-spored *Algae*, consisting of olive-coloured inarticulate sea-weeds, whose spores are superficial and form indefinite cloud-like patches, or cover the whole surface of the frond. Most of them are of considerable size, except *Chorda* which attains a great length, and *Adenocystis*. Some, like *Lessonia*, form submarine forests with stems as thick as a man's thigh, while *Macrocystis* by repeated division attains a length of hundreds of feet. One of the most remarkable is *Nereocystis*, which occurs on the north-west coast of America, and has a stem 300 feet long, which bears above a huge air-vessel six or seven feet long, shaped like a great cask, and ending in a tuft of upwards of fifty forked leaves. This is the favourite resting-place of the sea-otter. *Ecklonia buccinalis*, again, the Trumpet Weed of the Cape colonists, has a stem twenty feet high crowned with a fan-shaped cluster of leaves more than half as long. The stem, which is hollow above, is often used as a siphon or converted into a trumpet. These plants are mostly deep-sea *Algae*, and occur in either hemisphere, both in colder and warmer seas. [M. J. B.]

LAMINARIA. An important genus of dark-spored *Algae*, the type of the natural order *Laminariaceæ*. It has no definite leaves, but on the contrary a plane ribless

expansion, which is either simple or cloven. The stem is either short or elongated, and is sometimes of considerable thickness, and either naked or fringed with a crisped expansion. Some of the species, as *L. digitata* and *L. bulbosa*, attain an immense size, and together with *L. saccharina*, which is commonly brought away from the coast to answer the purpose of an hygrometer, yield an enormous supply for the preparation of manure or kelp. One peculiarity about these plants is that the old lamina annually falls off by means of a constriction, and is replaced by a new frond formed from the part beneath. The species delight in the colder seas of the north, and are usually exposed only at low tides. [M. J. B.]

LAMINATING. Separating into several plates or layers.

LAMIUM. A genus of herbaceous labiate plants distinguished by having four stamens, of which the lower pair are longest; hairy anthers, the cells of which diverge and burst longitudinally; and a corolla of two lips, of which the upper is arched and entire, the lower spreading, two-lobed, and mostly furnished with one or two teeth on each side. The common perennial, *L. album*, or Dead-nettle, received its English name from the resemblance of its leaves to those of the true nettle, from which, however, it may be distinguished at any stage of its growth by its square stem. *L. purpureum* is a common annual weed in cultivated land. French, *Lamier*; German, *Taubnessel*. [C. A. J.]

LAMOUROUXIA. A genus of *Scrophulariaceæ*, distinguished by a four-cleft calyx; by a corolla with an elongated somewhat flattened tube, dilated below the throat, and the small three-lobed lower lip shorter than the concave upper one; and by transverse hairy anthers with the cells unusually mucronate. The species are natives of Mexico or of the Andes of South America; they are all herbs, either erect or somewhat climbing, with opposite toothed or divided leaves, rarely quite entire, and handsome flowers, usually scarlet or pink, in terminal spikes or racemes. There are about eighteen species known, most of them very showy plants. None have, however, been yet brought into cultivation, and indeed it is probable that they are more or less parasitical on the roots of other plants, and therefore scarcely capable of being cultivated.

LAMPOURDE or **L. GLOUTERON** (Fr.) *Xanthium Strumarium*.

LAMPRA. A genus of *Commelynaceæ* from Mexico. They have erect leafy stems, with the lower leaves reduced to sheaths, the upper numerous and lanceolate, and numerous flowers in a sessile head among the leaves. [J. T. S.]

LAMPRETTE. (Fr.) *Lychnis Flos-auculi*.

LAMPSANE. (Fr.) *Lapsana*.

LANA, LANUGO (adj. **LANATE, LANUGINOSE**). Long, dense, curled, and

matted hairs, resembling wool, as in *Verbascum Thapsus*.

LANCEOLATE. Narrowly elliptical, tapering to each end. *Lanceolate-hastate* is hastate with the principal lobe lanceolate; and *Lanceolate-sagittate* is sagittate with the principal portion lanceolate.

LANCE-WOOD. The light elastic wood of *Duguetia quitarenis*. —, JAMAICA. A species of *Lycium*.

LANDE, or LANDIER. (Fr.) *Ulex europæus*.

LANGUE D'AGNEAU. (Fr.) *Plantago media*. — DE BŒUF. *Anchusa officinalis*. — DE CERF. *Scotopendrium vulgare*. — DE CHIEN. *Cynoglossum officinale*. — DE MOINEAU. *Passerina Stelleri*. — DE SERPENT. *Ophioglossum vulgatum*.

LANGUOR. A name given in vegetable pathology to that condition of plants in which, from unwholesome food, bad drainage, frequent want of water, &c., they fall into a state of premature decrepitude. This is well known in French vineyards under the name of *Goupissure*, and is familiar to all fruit-growers when the subsoil is ungenial. When once this condition is set up, it is difficult of remedy, if not past cure altogether. The removal of the cause is the only rational treatment, and this is not always possible. [M. J. B.]

LANKESTERIA. A genus of *Acanthaceæ*, containing two species, natives of Central Africa. They are hairy shrubs with ovate entire leaves, and yellow flowers in short axillary spikes, having a calyx of equal linear sepals, subtended by two bracts; a long slender corolla-tube, and one-sided five-parted limb, two exserted stamens, and a simple capitate stigma. The genus is named after Dr. Lankester, a well-known English botanist. [W. C.]

LANSA, LANGSAT, or LANSÉE. The fruit of *Lansium domesticum*.

LANSBERGIA. A South American genus of *Iridaceæ*, related to *Phalocallis* and *Cypella*, from the first of which it differs in having the sepals all closed and converging, in the cells of the anther being adherent to the lobes of the style by their whole length, and in the stigmas being minutely crested and not petaloid; while the second is known from it by its stigmas being lobed, acute, and fringed at the upper side with acute horny crests. The outer divisions of the perianth are large and concave, the inner narrow and involute. *L. caracasana* has tuberous roots, simple stems, equitant leaves, and yellow fugacious flowers, spotted with brown or black. [T. M.]

LANSIUM. A genus of *Meliaceæ*, confined to the East Indies, and consisting of trees with imparipinnate leaves, and axillary flowers arranged in panicles. The calyx is composed of five sepals; the corolla of five petals; the ten stamens are formed into a tube. The fruit is a corticated berry, having five cells, each cell contain-

ing one or two seeds. This berry has a cooling pleasant taste, and hence they are sometimes cultivated, and sold in the Canton markets. *L. domesticum* (known as *Lansa*, *Langsat*, *Lansch*, *Ayer-Ayer*, or *Bejetian*, in the different languages of the East Indies) has a fruit as large as a pigeon's egg, of a yellowish colour without, and whitish within, which is highly esteemed, and eaten either fresh or variously prepared. The wood is used by the Malays. [B. S.]

LANTANA. A considerable genus of *Verbenaceæ*, containing upwards of fifty species, chiefly from tropical or sub-tropical America. They are shrubs, or rarely herba, with flowers in pedunculate axillary heads, rarely lengthening into spikes. The calyx is small, truncate or sinuately four-toothed; the corolla tube slender, with a spreading four or five-lobed limb; there are four included stamens; the ovary is two-celled; and the fruit is a drupe, the kernel two-celled, or divided into two nuts. [W. C.]

LAPAGERIA. A genus of *Philetiaceæ*, consisting of twining undershrubs, with alternate cuspidate somewhat reticulate leaves, and solitary one-flowered peduncles, the perianth coloured, six leaved, and somewhat bell-shaped; and the stamens six, in-



Lapageria rosea.

serted at its base. The fruit is a one-celled berry, with numerous seeds. They are natives of Chili. *L. rosea*, with its white variety, are two of the most beautiful plants grown in modern greenhouses. [J. H. B.]

LAPEYROUSIA. A genus of *Iridaceæ*, consisting of half a dozen species from the Cape colony, allied to *Anomatheca*, in the long slender tube of their perianth, and spreading lobes, but these are much more equal, the stigmas are more deeply cleft, and the capsule is distinctly three-lobed. They have tuberous bulbs, simple stems, with sheathing leaves, and terminal elongated flower-spikes, each flower in the axil of a leafy bract. Three species, *L. assefolia*, *L. anceps*, and *L. corymbosa*, were formerly cultivated among our Cape *Iridææ*, but are

not near so showy as many other Ixia-like plants. The same genus has been described under the name of *Ovieda*; and the name of *Lapeyrousea* was also given by Thunberg to a genus of *Compositæ*, which De Candolle altered to *Peyrousea*.

LAPHAMIA. A genus of *Compositæ*, connected in many respects with the tribe *Asteroidæ*, but the leaves are usually opposite, and it has not exactly the style of that group. It consists of five species, low herbs or undershrubs, from Texas or New Mexico, with small discoid or radiating yellow flower-heads, and offering no particular interest except to botanists. It is in many respects very near *Pertyla*.

LAPIDOSE. Growing in stony places.

LAPIEDRA. A small genus of paniciform *Amaryllidaceæ*, consisting of a single species, *L. Placiana*, found in Spain. Its leaves are linear obtuse, striped longitudinally with white, and its flowers, white in a many-flowered umbel, have a spreading limb, an imperfect staminal cup, with the filaments short, and dentately winged on each side; a curved and tapering style, and a small trifid stigma. According to Herbert it is the same as *Vagaris parviflora*. [T. M.]

LAPLACEA. A genus of *Ternstroemiaceæ*, distinguished from *Gordonia* by the short styles, distinct and spreading from the base. There are fourteen species from tropical America, and the Indian Archipelago.

LAPPA. *Aralium*.

LAPPACROUS. Bur-like; that is, round or roundish, and covered with small hooks.

LAPPAGO. A genus of grasses, belonging to the tribe *Panicææ*. The inflorescence is in close bundles or heads; spikelets two to five-flowered, with the rudiments of neuter florets. There are three species, natives of the south of Europe and Africa. [D. M.]

LAPSANA. A genus of herbaceous plants mostly annual, belonging to the tribe *Cichoraceæ* of compound flowers, and distinguished by having compressed striated fruit destitute of pappus, a naked receptacle, and the involucre composed of a single row of erect scales, with smaller ones at the base. *L. communis*, a hedge weed, is our common Nipplewort. [C. A. J.]

LARANGA DA TERRA. A wild orange of Brazil.

LARBREA. A section of the caryophyllaceous genus *Stellaria*, of which *S. uliginosa*, the *Larbrea aquatica* of St. Hilaire, is the type; also a synonym of *Malachium*, *M. aquaticum* being the *Larbrea aquatica* of De Candolle. [J. T. S.]

LARCHE. *Abies Larix*. —, **CORSICAN.** *Pinus Laricio*.

LARDIZABALACEÆ. (*Lardizabalæ*.) A natural order of dicotyledons, belonging to Lindley's mesialpermal alliance of diolous *Exogæna*. Twining shrubs, with alternate exstipulate leaves, ternary symmetry, and unisexual flowers. They re-

semble *Menispermaceæ*, but differ in their spound leaves. Natives of the cooler parts of South America and China. The fruit of some of the plants is eaten. Examples: *Lardizabala*, *Holboellia*. [J. H. B.]

LARDIZABALA. One of the two American genera, belonging to the small order *Lardizabalaceæ*, and consisting of two species, both climbing shrubs, with rather large compound leaves, the six or nine leaflets disposed in two or three sets containing three each. The flowers are of separate sexes, borne on distinct plants, the males in many-flowered racemes, and the females solitary. Both sexes have a calyx of six fleshy egg-shaped sepals, arranged in a double series, the inner ones narrower than the outer. The ovaries ripen into many-seeded berries. Both species are found in Chili, extending as far south as Concepcion. One, *L. biternata*, which generally has leaves composed of six leaflets, is sufficiently hardy to withstand the cold of our winters, when trained against a wall, and its dark glossy evergreen foliage, and drooping spikes of deep purple flowers, render it very ornamental. In Chili, a very tough fibre is obtained from its stems and made into cordage; and its fruit, containing a sweet-tasted pulp, is sold in the markets. [A. S.]

LARIX. See **ABIES**, under which head information is given respecting the well-known European Larch; hence, it is here only necessary to add what is there omitted, viz. that the American Larch, *Abies* or *Larix pendula*, is the tree known to the Canadians as the Tamarack, and which furnishes an important feature in the appearance of the Canadian forests. [M. T. M.]

LARKSPUR, LARKHEEL, LARK'S OLAW. *Delphinium*.

LARME DE JOB, or LARMILLE. (Fr.) *Cotyle Lachryma*.

LARNAX. Peruvian and Mexican herbs, constituting a genus of *Solanaceæ*, closely allied to *Physalis*, with which genus, among other things, they concur in the fact that, as the berry-like fruit ripens, the calyx increases in size and assumes the appearance of a bladder surrounding the fruit. The points of distinction are to be sought for in the shape of the calyx, which is here tubular, angular, and five-toothed; and in that of the corolla, whose limb is somewhat bell-shaped, and divided into five acute spreading lobes. [M. T. M.]

LAROEHA. *Rochea*.

LARREA. A genus of *Zygophyllaceæ*, of which four species, three of them found in Chili and Paraguay, are known. They are strong-scented evergreen shrubs, with low branched stems, knotty jointed branchlets, opposite leaves, consisting usually of a single or rarely of several pairs of unequal-sided leaflets, and terminal flowers, with five sepals, five yellow petals, ten stamens, and a five-celled ovary, each cell maturing a single thin-shelled seed.

L. maritima, the Oreocote plant of the

Americana, is a shrub growing from four to six feet high, very abundant in some parts of Mexico, forming a dense and almost impassable scrub, particularly on the borders of the Colorado desert, where its luxuriant growth puts a stop to the drifting sand. It is a sure sign of a sterile soil, for wherever it flourishes little else can be found, and although it gives the scenery a beautifully verdant appearance, its strong crocodile-like odour renders it so repulsive that no animal will touch it. Moreover, as it can scarcely be made to burn, it is useless even for the purpose of fuel. The resinous matter to which the odour is due abounds in all parts of the plant. The Pimos Indians collect and form it into balls which they kick before them as they journey from one point to the other of their trail. It is also used in rheumatism. [A. S.]

LASEGUEA. A genus of dogbanes, distinguished by having the calyx five-parted, the divisions oblong, two glands at the base of each; the corolla shorter than the calyx, its border five-lobed; a ring of hairs at the point of origin of the stamens; and the glands of the nectary five. The species are shrubs or undershrubs, natives of Brazil, having opposite and shortly-stalked leaves, which are cordate and entire; the racemes of flowers are terminal, and the individual flowers are supported on stalks which are longer than the linear-lanceolate bracts. [G. D.]

LASER. (Fr.) *Laserpitium*.

LASER CYRENAICUM. The *Assa dulcis*, *Thapsia gargarica*.

LASERPITUM. A genus of umbellifers, distinguished from its allies by the fruit having eight prominent wing-like appendages. The species are perennial herbs, chiefly found in South-eastern Europe. Some of them are employed as domestic remedies, on account of their possessing some degree of aroma. [G. D.]

LASERWORT. *Laserpitium*; also *Thapsia Laserpitii*.

LASIA. A genus of onoriads, very closely allied to *Pothos*, but distinguished from that genus by its sessile spadix and its pendulous ovules. The species are Indian plants, with more or less of a creeping habit, thickly beset with strong spines; and the pinnately-divided leaves have sheathing leaf-stalks. [M. T. M.]

LASIAGROSTIS. A genus of grasses belonging to the tribe *Stipeæ*. The species which were referred to it are described under *Stipa* by Steudel, who makes *Lasiagrostis* a section of that genus. [D. M.]

LASIANDRA. A genus of *Melastomaceæ*, consisting of trees or shrubs with four-angled branches, opposite or verticillate entire ribbed leaves, and panicle showy flowers, with five petals and a capsular fruit. There are about forty species, natives of tropical America. [J. H. B.]

LASIOLEPIS. This genus is stated to

differ from *Harrisonia* in its five-parted flowers only, and therefore would be better merged therein. The name is applied to a shrub of the Philippine Islands, with wavy spiny branches and compound leaves, and refers to the hairy scales that are attached to the base of the stamens in this and other genera of *Simarubaceæ*. [M. T. M.]

LASIOPETALUM. A genus of *Sarcococceæ*, the type of the tribe *Lasiopetaleæ*, exclusively Australian, distinguished by hermaphrodite flowers with the petals either wanting or reduced to small scales; and by the stamens, of which five only bear anthers, and which are only shortly united at the base, or quite free. The genus is characterised in the tribe by anthers opening in terminal pores, and by the calyx not marked with the parallel prominent ribs of *Sarcotæ*. It consists of about twenty-five Australian species, low shrubs, more or less clothed with stellate hairs. The leaves are usually alternate, and more or less toothed or lobed, rarely entire or opposite; and the flowers are in short racemes, with the calyx at first herbaceous and downy, often enlarging as the flower advances, and coloured blue or reddish, so as to assume the appearance of a corolla. A few species occasionally occur in our collections of greenhouse plants.

LASIOSPERMUM. A genus of South African plants, belonging to the chamomile group of the *Compositæ*, and readily recognised by the dense rusty wool which completely envelopes the ripe achenes. The three species are erect branching herbs, with pinnatisect leaves, and solitary whitened flower-heads, having much resemblance to those of the feverfew. [A. A. B.]

LASIOSTOMA. The name of a cinchonaceous shrub, native of New Ireland. It has sessile flowers in axillary heads; a cup-shaped calyx limb; a short-tubed four-parted funnel-shaped corolla; four anthers; and a succulent two-celled fruit. The name is also synonymous with *Rouhihamon*, a genus of *Loganiaceæ*. [M. T. M.]

LASTHENIA. A genus of *Compositæ*, of the tribe *Heliantheæ*, consisting of three or four Californian or Chilian annuals, with opposite linear leaves, and small flower-heads, with a yellow ray or entirely discoid. The involucre is campanulate, of several united bracts, the receptacle without scales, and the achenes with a pappus of about ten chaffy scales or none at all. They grow in wet places, and appear to be uninteresting weeds.

LASTREA. A large genus of polypodiaceous ferns of the *Aspidium* group, including all those species in which the veins are free, and the indurium is kidney-shaped. It is one of the three great divisions into which the old genus *Aspidium* was broken up by modern pteridologists, the others being *Nephrodium* and *Polystichum*. The former, which also has reniform indusia, is known from it by the conveniently anastomosing venation, that of *Lastrea* being

quite free; while the other, which is free-veined, is separated by its petiole indurata. *Sagittaria*, another group with reniform indurata, is separated by its compoundly anastomosing veins. The species are well represented in gardens, and consist principally of those whose veins are simple, as in *L. lucida*, and those whose veins are forked, as in *L. marginata*. Several of our British species belong to this genus, of which, indeed, *L. Filix-mas* is the type. A similar name, *Lastrea*, was formerly given to certain species supposed to be allies of *Poly-podium*, and this name is sometimes mistakenly used for the modern group, which was defined by Presl under the name of *Lastrea*. A fine Japanese species, *L. Sieboldii*, has several series of sori. [T. M.]

LATANIA. A small genus of African palms, forming trees of twenty or thirty feet high, their stems marked with circular scars, and bearing at the summit a tuft of fan-shaped leaves, from the lower part of which the branching flower-spikes, sheathed in incompete spathe, emerge. The two sexes of flowers grow on separate trees, the males being disposed in many-flowered, the females in fewer-flowered, cylindrical catkins. Both have three sepals and three petals. The fruits contain three rough stones, covered with a bony network. The round or somewhat three-sided yellowish fruit of *L. Commersonii* is about the size of a small apple, covered with a tough rind, and containing a small quantity of pulp, which the negroes eat in spite of its very disagreeable flavour. It is a native of Bourbon and Mauritius, and is one of the palms cultivated in the hot-houses of European gardens. [A. S.]

LATERA. Sides; the two opposite sides of a stem or similar body.

LATERAL. Fixed near or upon the side of anything.

LATERINERVED. Straight-veined, like the leaves of grasses.

LATERITIUS. Red brick colour.

LATEX. The same as Lac (which see), but the term is extended to any kind of viscid fluid conveyed in lactiferous vessels, whether opaque or not. Latex granules are particles of starch or other matter, floating in the latex.

LATHRÆA. Toothwort, a curious herbaceous plant belonging to the *Orobanchaceae*, and having the habit of an *Orobancha*, from which it may be distinguished by its four-cleft calyx. *L. Squamaria*, the only species, has a simple fleshy erect stem, about a foot high, leafless, but furnished with numerous fleshy scale-like bracts; and dull purple or flesh-coloured drooping flowers, which grow in two rows on the same side of the stem. The root, which is parasitic on the roots of various trees, is branched and clothed with numerous fleshy scales, which, from their resemblance to human front teeth, originated the English name. In accordance with the common fallacy of

the old herbalists, its tooth-like roots were considered a specific for tooth-ache, but the plant has no known virtues. French, *Almandine*; German, *Schuppenwurz*. [O. A. J.]

LATHYRUS. A genus of *Leguminosae*, of the suborder *Papilionaceae*, very nearly allied to *Vicia*, but distinguished by the style, which is flattened below the stigma, quite glabrous on the outer side, but more or less downy on the inner face for some way below the stigma. There are a considerable number of species, mostly known by the name of Peas. Indeed, the common pea (for which see *Pisum*) ought, strictly speaking, to be included in the same genus, the characters by which botanists have been in the habit of separating it being of very trifling value. The true *Lathyrus* are dispersed over various parts of the globe, chiefly in temperate climates or in mountain ranges within the tropics. They are herbs with weak stems, sometimes climbing, the leaves usually pinnate, with fewer and larger leaflets than in the vetches, and often only one pair or even none at all, the common stalk always ending in a point or a tendril. The flowers are solitary or in racemes, purple, red, blue, white, or bright yellow, and often very handsome.

Several species are in cultivation. *L. odoratus*, the Sweet Pea of our gardens, an annual well known for its showy sweet-scented flowers, two or rarely three together on each peduncle, is a native of southern Sicily, where it is not uncommon wild, in cultivated as well as in bushy places. *L. latifolius*, cultivated in flower-gardens as the Everlasting Pea, is a slight variety of *L. sylvestris*, a species dispersed over the greater part of Europe, and known by its perennial root-stock, its single pair of lanceolate or rarely ovate leaflets, and its loose racemes of rather large reddish-purple scentless flowers. The garden variety has broader leaflets, and larger, more richly coloured, flowers. *L. sativus*, an annual with leaflets in single pairs, bluish flowers growing singly on each peduncle, and winged broad short pods, is extensively cultivated in Southern Europe, under the name of Jarosse or Gasse, for its seed, which is eaten in the same way as the chick pea (*Cicer*), but is of superior quality; the pod is also eaten green, and the whole plant is sometimes cut for forage, while the peas are much given to poultry. *L. Cicera*, an annual like the last but with red flowers, is also grown occasionally for its peas, under the names of Jarosse pola-carra, or lesser chick pea, but is of a still inferior quality, and said to be sometimes very unwholesome. *L. tuberosus*, a very handsome perennial, with purplish-red often sweet-scented flowers, not uncommon in cornfields in several parts of Europe, has been recently detected in Essex. In countries where it is abundant, its tuberous roots are much sought after for eating, boiled, or baked like potatoes, but it is now much less common than it used to be. *L. pratensis*, common in our meadows, has short racemes

of yellow flowers, and forms an excellent pasture. *L. Aphaca*, an annual with solitary small yellow flowers, is curious from the leaves, which have no real leaflets, but are reduced to a tendril between two large leaf-like stipules; and *L. Nissolia*, an annual with solitary pale red flowers, has neither leaflets nor stipules; but the leaf-stalk is flattened so as to resemble a linear grass-like leaf. The genus *Orobus*, distinguished only by the tendril being reduced to a short point, is now united with *Lathyrus*, and includes the British species *L. macrorrhizus* (*Orobus tuberosus*) and *L. (Orobus) niger*.

LATICIFEROUS VESSELS. A continuous anastomosing tubular tissue in which latex is conveyed. It is probably a modification of cellular tissue, formed in a similar way to bothrenchyma.

LATIPES. A genus of grasses belonging to the tribe *Panicææ*. *L. senegalensis*, the only species, is now included under *Lappago*. [D. M.]

LATOURIA. A section of *Leschenaultia* consisting of a North Australian herb, with alternate filiform leaves, and flowers opposite the leaves, having a tubular calyx and a partially two-lipped corolla. They are distinguished by the capsule which is slightly valvate, and by the seeds which are cylindraceous. [R. H.]

LATROBEA. An Australian genus of *Leguminosæ*, nearly allied to *Lotus*, differing in the strophilote seeds, and the leaves concave or with involute not revolute margins; and to some species of *Pultenaea*, from which it

LATTICE-LEAF-PLANT. *Ocoteandra fomes-trulis*; also *O. Bernieriana*.

LATURACEÆ. (*Laurinææ*, *Lauri*, *Laurelæ*.) A natural order of dicotyledons belonging to Lindley's daphnoid alliance of perigenous Exogens. Trees with exstipulate, usually alternate, dotted leaves; perianth four or six-cleft in two rows; stamens often eight to twelve, the three or four innermost being abortive staminodia, and the outer fertile; filaments sometimes bearing glands; anthers two to four-celled, opening by recurved valves; ovary superior, one-celled, with one or two pendulous ovules. Fruit a berry or drupe; pedicel often thickened; seed solitary, exalbuminous; embryo with large cotyledons. They

species. *Cinnamomum zeylanicum* yields cinnamon bark. *C. Cassia* supplies cassia bark. *Camphora officinarum*, a native of China, Japan, and Cochin China, yields camphor. *Persea gratissima* furnishes the fruit called avocado pear or alligator pear. *Neotandra Rodiei* is the name of bebeeru bark. *Bassafras officinale* is the sassafras tree of America. *Laurus nobilis*, a tree of the south of Europe and the Levant, is the victor's laurel or sweet-bay. [J. H. B.]

LAUREL. *Laurus*; also *Cerasus Lauro-cerasus*. — of Panama. *Cordia Geraschanthus*. — of New South Wales. *Cryptocarya glaucescens*. —, ALEXANDRIAN. *Buscus racemosus*. —, AMERICAN. *Kalmia*. —, BAY. *Laurus nobilis*. —, CHERRY. *Cerasus Laurocerasus*. —, COPSE. *Daphne Laureola*. —, GREAT. An American name for *Rhododendron maximum*. —, GROUND. *Epigæa*. —, JAPAN. *Aucuba japonica*. —, MOUNTAIN. *Oreodaphne bullata*. —, PORTUGAL. *Cerasus lusitanica*. —, NATIVE, of Tasmania. *Anopterus glandulosa*. —, NEW ZEALAND. *Corynocarpus lavigata*. —, POETS. *Laurus nobilis*. —, ROMAN. *Laurus nobilis*. —, SEABIDE. *Xylophylla latifolia*. —, SHEEP. *Kalmia angustifolia*. —, SPURGE. *Daphne Laureola*.

LAUREL-CHERRY. *Cerasus Laurocerasus*.

LAURELIA. A genus of *Atherospermaceæ*, one species of which is confined to Chili, and the other to New Zealand. They are tall trees, exhaling a powerful aromatic odour when bruised or broken. The leaves are ovate or oblong lanceolate serrated, and of smooth leathery texture; the flowers are small and inconspicuous, borne in short racemes, the two sexes being usually upon different trees, their calyx cut into from five to fifteen segments, arranged in several series, those of the males containing from seven to fourteen stamens, and those of the females numerous scales in the place of stamens, and several hairy ovaries.

L. Nova Zelandia, called Pukatea by the natives, is one of the largest of the New Zealand trees, attaining a height of one hundred and fifty feet, with a trunk from three to seven feet in diameter, encircled at the base by huge buttresses fifteen feet thick. It affords a soft yellowish timber which is much used by the colonists for boat-building. The aromatic seeds of the Chilian species, *L. sempervirens*, are used as a spice in Peru, and are often called Peruvian Nutmegs. [A. B.]

LAURENOLACEÆ, LAURENCIA. A natural order and genus of rose-spired *Algae* belonging to the series with tufted spore-threads. The capsules are external, and contain a distinct nucleus with a basal placenta, and the fruit is confined to the terminal joint of the spore-threads. The frond is four-articulate, solid or tubular, and septate, the cells on the surface minute, and the tetraspores scattered irregularly through the branchlets. The type of the order is *Laurencia*, which has a solid cartilaginous round or compressed four-articulate compound pinnate or rarely forked frond, studded with ovate capsules, opening by a terminal pore. This genus contains some of our more common *Algae*, as *L. obtusa* and *pinnatifida*, the latter of which is sometimes eaten under the name of Pepper Dulse, while *L. obtusa* forms the greater part of what is now sold in the shops as Coralline Moss. Both of these are found equally in the north and south

hemispheres. No *Alga* are more subject to variation. [M. J. B.]

LAURENTIA. A genus of *Lobeliaceae*, consisting of low-growing annual plants, with tufted leaves, axillary or racemose inflorescence, and blue or rose-coloured flowers. They are natives of extra-tropical Australia, and of the Cape of Good Hope. The genus is mainly distinguished from its allies by the ovate calyx tube, and the straight tube of the corolla, whose limb is divided into five nearly equal segments, or is somewhat bilabiate. [M. T. M.]

LAURÉOLE. (Fr.) *Daphne Laureola*.

LAURESTINE, or LAURUSTINUS. *Viburnum Tinus*.

LAURIER. (Fr.) *Laurus*. — **ALEXANDRIN.** *Ruscus racemosus*. — **ALEXANDRIN DES ALPES.** *Streptopus amplexifolius*. — **AMANDIER.** *Cerasus Lauro-cerasus*. — **A SAUCE.** *Laurus nobilis*. — **AU LAIT.** *Cerasus Laurocerasus*. — **AUX ORÈMES.** *Cerasus Laurocerasus*. — **AVOCAT.** *Persea gratissima*. — **BENJOIN.** *Benzoin odoriferum*. — **CERISE.** *Cerasus Laurocerasus*. — **D'APOLLON.** *Laurus nobilis*. — **DE PORTUGAL.** *Cerasus lusitanica*. — **DE SAINT ANTOINE.** *Epibotium angustifolium*. — **DU MI-SSISSIPI.** *Cerasus caroliniana*. — **SASSAFRAS.** *Sassafras officinalis*. — **TIN.** *Viburnum Tinus*. — **TULPIER.** *Magnolia grandiflora*.

LAURIER-ROSE. (Fr.) *Nerium Oleander*. — **DES ALPES.** *Rhododendron ferrugineum*.

LAURINE. (Fr.) A kind of olive.

LAURUS. Under the common name of Laurel many very different plants are met with in gardens, but Bay or Noble Laurel, *L. nobilis*, is the only one which is properly so called. The genus *Laurus* gives its name to the order *Lauraceae*, and is distinguished by the leaves, which have a single midrib, and by the twelve stamens all of which are fertile, with two-celled anthers, and two glands, one at each side. In the female flower the succulent fruit is surrounded by the persistent base of the calyx. The Bay Laurel, *L. nobilis*, is a native of the south of Europe, and is commonly cultivated in this country as an evergreen shrub, as it usually proves hardy enough to resist our winters. In its native countries it attains a height of thirty or forty or even sixty feet, but never loses its shrub-like character. Its leaves are evergreen, lance-shaped, with an agreeable aromatic slightly bitter taste; its flowers are yellowish and inconspicuous, and its fruits are succulent and of the size of a small cherry. From their agreeable flavour the leaves of the Bay are made use of by cooks and confectioners, and without the hazard that attends upon the use of the leaves of the cherry-laurel, which are frequently substituted for those of the Bay. The dried figs that are imported into this country are usually packed with these leaves. From the fruit is expressed a butter-like

substance known as oil of Bays, which has been used as an external stimulant, and still finds a use in veterinary medicine.

The Laurel is one of the plants called *Daphne* by the ancients, and is figured under that name in the Rinceval MS. of Dioscorides, now in the possession of Sir Thomas Phillips. The branches of this plant were likewise used to form the crowns placed on the heads of the heroes of antiquity, and on the statues of the gods: hence perhaps the name from *laus*, praise, and also the specific name 'noble.' See **BENZOIN, CINNANOMUM, CAMPHORA, PERSEA, and SASSAFRAS.** One of the Laurels is figured in Plate 11 d. [M. T. M.]

LAVANDE MÂLE. (Fr.) *Lavandula Spica*.

LAVANDULA. A genus of *Labiata* known by its ovate ribbed calyx; its two-lipped corolla, the upper lip of which is two-lobed and the lower three-lobed; and its four stamens which are bent downwards. The common Lavender, *L. vera*, is a native of the south of Europe, but is largely cultivated in this country for the sake of its agreeable perfume, and for the oil on which this property depends. It is an undershrub two to three feet high, with ascending striated branches; linear hoary leaves, which in the young state are rolled under at the edges; and greyish-blue flowers which are borne in compact spikes. The flowers and leaves of this plant are stated to have been used by the ancients to perfume their baths, whence perhaps the name, from *lavare*, to wash. They are still used by housewives to perfume their stores of linen, and prevent the access of moth. The essential oil of Lavender is procured by distillation from the flowers, and is much prized for its agreeable odour; when dissolved in spirits of wine, and mixed with other perfumes, it forms the much-appreciated Lavender Water. The Red Lavender drops of the druggists consist merely of a spirituous solution of the oils of Lavender and Rosemary, mixed with certain aromatic and colouring materials. They are used frequently as a stimulant and cordial in cases of flatulence, hysteria, or faintness.

Another species, *L. Spica*, yields oil of Spike, which is of a darker colour and less agreeable perfume than true oil of Lavender. The oil procured from this plant, together with that from *L. Stachas*, are used by painters on porcelain, and by artists in the preparation of varnishes. The last-named plant is employed as an expectorant and antispasmodic by the Arabs.

Besides these, other species natives of the Canary Isles, Madeira, &c., are cultivated in greenhouses; some of them are remarkable for the elegance of their leaves, which are more or less deeply divided in a pinnate manner. *L. Stachas* is moreover remarkable for the large size of some of the uppermost bracts of the spike, which are of a beautiful violet colour. [M. T. M.]

LAVANÈSE. (Fr.) *Galega officinalis*.

LAVATERA. A genus of *Melvacceæ* chiefly confined to Europe and Western Asia, abounding principally in the countries bordering on the Mediterranean, and apparently preferring the vicinity of the sea, one species extending as far north as the British Isles. They are shrubby plants, sometimes having woody stems two to three feet high, their leaves being roundish and lobed, and their flowers having a three to six-lobed involucre, a five-lobed true calyx, five or more carpels or ovaries arranged in a circle round a thick axis, and as many styles. *L. arborea*, the Sea or Tree Mallow, is a common south-west European plant, growing upon rocks on the sea-shores, occasionally found in a wild state on the south and west coasts of England and Ireland, and also on the Bass Rock in the Frith of Forth, but more frequently seen in places where it has escaped from cultivation, it being a common plant in sea-coast cottage gardens. In a wild state it is usually three or four feet high, but when cultivated it attains a height of eight or ten feet, and its stem is three or four inches thick. The pale purple flowers grow in long racemes at the ends of annual flowering branches. Like the rest of mallowworts the Tree Mallow contains an abundance of mucilaginous matter, and a large quantity of fibre. It has lately been recommended for cultivation as a fibre-yielding plant, but the quality of its fibre is not very good. [A. S.]

LAVATÈRE D'HYÈRES. (Fr.) *Lavatera Olbia*.

LAVENDER. *Lavandula vera*. —, **FRENCH.** *Lavandula Spica*. —, **SEA.** *Statice*.

LAVENDER COLOUR. Pale blue, with a slight mixture of grey.

LAVENDER-COTTON. *Santolina*.

LAVER. A condiment prepared from the common *Porphyra*, which is greatly esteemed by some, while to others it is an object of unmitigated disgust. The taste for it, like that for olives, is only acquired by use. The best way of preparing it for table is to mix the quantity required for immediate use with a few tablespoonfuls of stock, and a little lemon-juice. It is then to be made quite hot in a well-tinned or silver saucepan, and poured upon toast. Green Laver is *Ulva latissima*. [M. J. B.]

LAVOIR DE VÉNUS. (Fr.) *Dipsacus sylvestris*.

LAVOISIERA. A genus of *Melastomaceæ*, consisting of shrubs with dichotomous erect branches, opposite decussate sessile leaves, and terminal bracteated showy flowers, with a five to ten-toothed calyx, five to ten petals, and ten to twenty stamens, the anthers with a short beak, and a single pore. The fruit is a capsule covered by the calyx. There are about twenty species, natives of Brazil. [J. H. B.]

LAVRADIA. A genus of *Sauvageestaceæ*, consisting of smooth undershrubs, with

crowded alternate stipuled leaves, and white or rose-coloured panicles, bracteated flowers, having a five-parted calyx, five hypogynous convolute petals, hypogynous stamens, the outer ones petaloid staminodia, and a free ovary three-celled at the base and one-celled at the apex. The few species are natives of Brazil. [J. H. B.]

LAWRENCILLA *rosea* is a very pretty dwarf Swan River annual, described by Lindley as forming a genus of *Compositæ*, of the tribe *Gnaphaliceæ*. It resembles *Rhodanthe*, but is said to be handsomer, and differs in the achenes being covered with long clavate glands, and in the pappus not being plumose. The leaves are said to be fragrant. Bentham unites it with *Seitcheryum*.

LAWRENCIA. The name of a small malvaceous herb of Taamanin, having small flowers arranged in densely-crowded spikes, provided with numerous bracts; each flower has an involucre of three segments, and an inner bell-shaped five-cleft calyx, five lance-shaped petals, and reniform two-valved anthers. The fruit consists of five one-celled one-seeded indehiscent capsules. It is now referred to *Fruganthus*. [M. T. M.]

LAWSONIA. The celebrated Henna of the East, *L. alba*, or as sometimes called *L. inermis*, the only species of this genus of *Lythraceæ*, is a dwarf shrub eight or ten feet high, bearing smooth oval lance-shaped entire leaves, and panicles of small white sweet-smelling flowers, which are used by Buddhists as offerings to their deities. These flowers have a four-parted persistent calyx without intermediate teeth, four spreading petals, eight stamens, and a four-celled ovary. The fruit is about as large as a pea.

This shrub is grown throughout India, Kurdistan, Persia, Syria, Egypt, and the north of Africa, and the use of its powdered leaves as a cosmetic is very general in all these countries, the practice having descended from very remote ages, as is proved by the evidence of Egyptian mummies, the parts dyed being usually the finger and toe nails, the tips of the fingers, the palms of the hands, and the soles of the feet, to all of which it imparts a reddish-orange colour, which is considered by the Oriental fair sex greatly to enhance their beauty! It is also used by the men for colouring their beards, and by the Arabs for dyeing the manes and tails of their horses. The preparation of henna usually consists in simply reducing the leaves and young twigs to a fine powder, but sometimes powdered catechu or lucern leaves are mixed with it. When required for use, this powder is made into a pasty mass with hot water, and then spread upon the part to be dyed, being generally allowed to remain on for one night. Henna is the Persian name of the shrub, Khenna the Egyptian, Al Khanna the Arabic, and Mendee the Indian, while in England it is often called Egyptian Privet, and in the West Indies, where it is naturalised, it goes by the name of Jamaica Mignonette. [A. S.]

LAXMANNIA. A genus of Australian herbs, belonging to the *Liliaceae*. They have the habit of *Polycarpon*, with filiform procumbent stems, setaceous-acerose leaves, the radical ones crowded, and small purple or white flowers, arranged in sessile axillary or shortly-stalked terminal heads, the perianth being membranaceous, six-parted, and persistent. [J. T. S.]

LAX, LAXUS. Said of parts which are distant from each other, with an open arrangement, such as the panicle among the kinds of inflorescence.

LAYIA. A genus of *Compositae*, of the tribe *Heliantheae*, including *Madaraglossa* of De Candolle. It is near to *Madia*, differing chiefly in the achenes not being laterally compressed, and all, at least those of the disk, being crowned by a pappus of ten to twenty bristles, which are plumose or villous, with long hairs at the base. It consists of seven or eight annual or biennial herbs, natives of California or Oregon, usually pubescent or hirsute and often glandular, with alternate leaves, the lower ones often cut or lobed, and flower-heads more showy than in *Madia*, with white or yellow rays. The name of *Layia* has also been given to a Chinese leguminous tree, which has since been united with *Ormosia*.

LEAD-COLOURED. Slate-coloured, with a slight metallic lustre.

LEAD PLANT. An American name for *Amorpha canescens*.

LEADWORT. *Plumbago*.

LEADWORTS. Lindley's name for the *Plumbaginaceae*.

LEAF. An expansion of the bark, placed symmetrically with regard to other leaves, and performing the offices of respiration and digestion when in its perfect condition. In an incomplete or modified state, it constitutes all the forms of the appendages of the axis. It is simple when not cut into separate parts, and compound when divided into other distinct parts.

LEAF-BUDS. Buds from which leaves only are produced: they are called *normal* when produced at the axils, *adventitious* when they occur in places not axillary, and *latent* when they are undiscoverable by the naked eye.

LEAFLET. One of the divisions of a compound leaf.

LEAF-LIKE. The same as Foliaceous.

LEAF-STALK. The (unexpanded) base of a leaf, connecting it with the stem.

LEAF-CUP. *Polymnia Uvedalia*.

LEAF, WALKING. *Campylosorus rhizophyllus*.

LEATHER-FLOWER. *Clematis Viorna*; also *Byrranthus*.

LEATHER-WOOD. *Biros*; *Ceratopetalum*.

LEATHERY. The same as Coriaceous.

LEAVENWORTHIA. A genus of *Cruceferae* from North America, formerly included in *Cardamine*, from which it differs by having the seed wing-margined and the embryo nearly straight, or with the radicle only slightly bent towards the edge of the cotyledons. The flowers also are yellow, which is never the case in *Cardamine* and *Dentaria*. [J. T. S.]

LEBECKIA. A South African genus belonging to the papilionaceous suborder of *Leguminosae*. The species are shrubs with ternate leaves, or occasionally with one leaflet or with none, the leaf-stalk being then leafy and supplying the place of the true leaf. The flowers have a five-toothed calyx; an ovate standard bent downwards, and a rather sharp keel; ten monadelphous stamens; and a cylindrical many-seeded pod. [M. T. M.]

LEBO. The leaves of the Bread-fruit tree used in the Pacific Islands sewed together to cover food in cooking, in order to keep in the steam.

LECANIODISCTUS. A name given by Planchon to a sapindaceous tree or shrub from tropical Africa, which appears, however, scarcely to differ generically from some species of the large genus *Cupania*.

LECANOPTERIS. A name proposed by Blume for a Javanese polypodiaceous fern, remarkable chiefly for its coriaceous pinatifid fronds, with roundish ovate segments, having the sori immersed in the concave or cupuliform marginal teeth, which are turned back on the surface of the frond. It belongs to the series with the venation anastomosing, and has free included veinlets within the areoles. Sir W. Hooker and Mr. J. Smith both regard it as an abnormal form of *Pleopeltis loma-rioides*. [T. M.]

LECANORA. A genus of crustaceous lichens belonging to the order *Parmeliaceae*, resembling frequently *Lecidea* in appearance, but always distinguished by the border being formed from the thallus. *L. tartarea* affords the Cudbear of commerce; but the most remarkable species in the genus are *L. cauculeta* and *affinis*, which are found in Armenia and Algeria, blown about and heaped up by the winds, and are ground up with corn in times of scarcity to eke out the scanty supply. They are, however, a bad substitute, as they contain 66 per cent. of oxalate of lime. These species are either slightly lobed like the brain, or composed of close-packed branches. Their early stage of growth has not been observed, but it is probable that they are attached when young, and become free by a sort of hypertrophy, which nourishes the plant everywhere except at the very base — at least an analogous form of *Parmelia saxatilis* has been described. The natives consider these lichens to be the Manna of the Israelites, and believe that they fall from heaven, as they see them occasionally borne by tempests from distant tracts. [M. J. B.]

LECHEA. A genus of *Oistacea*, differing from *Helianthemum* in the petals being reduced to three small ones or entirely deficient, in the fringed stigmas, the ovules two only to each placenta, and in the seeds having a straight embryo. There are four or five species, natives of North America, all low slender much-branched herbs or undershrubs, with numerous small greenish or purplish flowers of no beauty.

LECHEGUANA HONEY. A dangerous kind of honey, supposed to be furnished by *Paulinia australis* and *Serjania lethalis*.

LECHENAULTIA. *Lechenaultia*.

LECIDEA. The typical genus of *Lecidinet*, consisting of crustaceous lichens, for the most part adhering closely to rocks or trunks of trees. The weather-stains on stones and the grey patches on trees belong principally to this genus, which is diffused over the whole face of the globe. The fruit-bearing shields have the border coloured like the disk, which is always well-defined in the young plant, though sometimes obliterated in age. [M. J. B.]

LECIDINEI. A natural order of lichens in which the open orbicular disk of the fruit is contained in a distinct proper receptacle. The disk sometimes in age obliterated the margin and becomes convex. The frond frequently consists of a mere crust adhering closely to the substance on which it grows, and scarcely separable from it. It becomes, however, by gentle degrees, foliaceous; and finally erect often branched bodies, as in the reindeer moss (*Clenomyce*) and cup moss, arise from the crust and bear the fruit. The order, in fact, contains some of the most obscure and some of the most beautiful of lichens. *Lecidea aurorum* is one of the most common examples of the crustaceous group, and is conspicuous from its golden hue, which is, however, far surpassed by that of *L. elegans*, which flourishes in extreme latitudes. [M. J. B.]

LECYTHIDACEÆ. (*Lecytha*.) A natural order of dicotyledonous plants, belonging to Lindley's myrtal alliance of epigynous Exogens. Large trees, with stipulate leaves and showy flowers, allied to *Myrtaceæ*, but distinguished by the large almond-like seeds, the alternate dotless leaves, and by the stamens being in part collected into a hooded plate. The fruit is a woody capsule, often opening by a lid. They are natives of the warm regions of South America. The seed-vessels are used as cups and bowls. The seeds of *Bertholletia excelsa* are the Brazil or Castanha nuts of the shops. There are about forty species distributed among seven genera. [J. H. B.]

LECYTHIS. A genus of *Lecythidaceæ*, almost exclusively confined to Venezuela, Guiana, and Brazil, where most of the thirty or forty known species attain a large size, their gigantic trunks towering to a height of eighty or more feet, and expanding into large heads of glossy foliage. The flowers have a six-lobed calyx, and six nearly equal petals, the centre being hid by the curious

hood-shaped body to which the sterile stamens are attached, and which serves to protect the fertile stamens seated beneath it. In most species the fruit is very hard and woody, and often of a large size; it is furnished with a lid at the top, which, when the fruit is quite ripe, falls away, and thus permits the escape of the seeds.

Under the name of Sapucala nuts, the seeds of *L. Zuluwaya* are commonly sold in our fruit shops, and they will probably take the place of the closely-allied Brazil nuts, to which they are greatly superior in point of flavour and much easier of digestion. They are rather more than two inches long and one wide, covered with a longitudinally-furrowed corky shell, and grow in large hard woody fruits, shaped like urns, measuring about six inches in diameter, and having close-fitting lids at the top. Our supply comes from Parí, and is principally the produce of the Brazilian forests.

L. Ollaria is another species producing large fruits, commonly known as Monkey Pots, but its seeds are not so palatable as those of the last, leaving a bitter flavour in



Lecythis Ollaria.

the mouth. Its bark is composed of a great number (upwards of a hundred have been counted) of layers, not thicker than writing paper, which the Indians separate by heating, and employ, under the name of Tauré, for the wrappers of cigarettes. [A. B.]

LEDEBOURIA. A genus of bulbous plants from India, referred to *Liliaceæ* by some authors, and to *Melanthaceæ* by others. They have broadly-lanceolate root-leaves, spotted like those of *Orchis maculata*, and scapes terminating in a raceme of bluish flowers, with a six-leaved bell-shaped deciduous perianth; six stamens with introrse anthers. The cells of the capsule are one-seeded. [J. T. S.]

LEDGERIA. *Cyrtosia*.

LEDOCARPUM. A genus of small Chilean shrubs belonging to *Oralidaceæ*. They have alternate, rarely opposite, three-parted leaves, with linear revolute segments, and rather large yellow terminal solitary flowers on long peduncles. The flowers have five sepals, with as many linear bracts on

the outside; five petals, ten free stamens, and a five-celled capsule. [J. T. S.]

LÉDON, or LÉDE. (Fr.) *Ledum*.

LEDUM. A genus of heathworts, having the calyx five-toothed, and the seed-vessel with five cells, each containing numerous small seeds, the outer coat of which is soft and forms a wing-like border at each end. The species are small shrubs, natives of the colder parts of the northern hemisphere; their leaves are of hard texture, usually with rust-coloured down on the lower surface. One of them, *L. palustre*, is known by the name of Labrador Tea, on account of its use. [G. D.]

LEBA. A genus of *Vitaceæ*, the type of the suborder *Leeæ*, distinguished by its petals being united at the base, by its monadelphous stamens, and by its three to six-celled ovaries, with the ovules solitary in each cell. The tendrils which are present in the true vines are absent in this suborder. They are rough shrubby plants (rarely trees) found in tropical Asia, Africa, and the Mauritius, and have opposite pinnate or bi-tri-pinnate leaves, and peduncles opposite the leaves, cymosely branched, with small greenish-yellow flowers, the petals united to the stamina cup, which is five-lobed, and has the five filaments adnate outside between the lobes. [J. T. S.]

LEE-CHEE, or LITCHI. *Nephelium Litchi*.

LEEK. *Allium Porrum*. — **STONE.** *Allium fistulosum*. — **VINE.** *Allium Ampeloprasum*.

LEERSIA. A genus of grasses belonging to the tribe *Oryzææ*. Most of the species have the inflorescence in lax panicles; and the pales of the florets ribbed, thin, paper-like, of equal length, the outer somewhat boat-shaped. There are about a dozen species, which have an extensive range over some of the warmer parts of the globe; only one extends so far north as the British Isles, namely, *L. oryzoides*, which is found in wet ditches through the counties of Sussex, Surrey, and Hampshire, though it seldom flowers there. [D. M.]

LEGNOTIDÆÆ. (Cassipourææ.) A tribe of *Rhizophoraceæ*, sometimes regarded as a distinct order. It consists of tropical trees or shrubs, with opposite entire stipulate leaves, and axillary solitary or clustered flowers, having the calyx bell-shaped, four to five-cleft; the petals four to five, fringed; and the stamens two or three times as many as the petals, distinct, with free filaments, and two-celled introrse anthers. The ovary is superior, three to five-celled; ovules two or more in each cell; style simple; stigma blunt. Fruit baccate or capsular. Lindley considers them to be allied to *L. paniculææ*. *Cassipourææ* is the principal genus. [J. H. B.]

LEGUME. The fruit of leguminous plants, as the pod of the pea; a solitary two-valved carpel, bearing its seeds on the ventral suture only.

LEGUMINOSÆ. (Fabaceæ, Leguminosæ plants.) A natural order of dicotyledons belonging to Lindley's roseal alliance of perigynous *Exogens*. Herbs, shrubs, or trees, with alternate usually compound stipulate leaves. Calyx five-parted, hypogynous, the odd segment inferior; petals usually five, sometimes one or more abortive, papilionaceous or regular, the odd petal superior; stamens definite or indefinite, perigynous, rarely hypogynous, distinct, or united in one or more bundles; ovary superior, one-celled, one or many-seeded, sometimes consisting of one carpel, sometimes of two or five; style and stigma simple. Fruit a legume or a drupe; seeds with or without albumen; embryo with large cotyledons.

This order is a large one, and the plants occur in all parts of the world, but are abundant in tropical countries. It has been divided into three suborders—1. *Papilionaceæ*: petals papilionaceous imbricate, upper one exterior; 2. *Cæsalpiniceæ*: petals imbricated, upper one interior; 3. *Mimosææ*: petals valvate in aestivation. Some of the plants are nutritious, others tonic and astringent, others purgative, and a few poisonous. They supply timber, fibres, gums, dyes, and various economical substances. Amongst the useful plants of the order may be noted, beans, peas, lentils, kidneybeans, and pulse of various kinds, lupins, clover, lucerne, medick, sainfoin, liquorice, tragacanth, indigo, and kino. Among the poisonous plants are *Coronilla varia*, *Cytisus Laburnum*, *Gompholobium uncinatum*, and *Physostigma venenosum*, the ordeal bean of Calabar. There are about 550 genera and 7,000 species. Examples: *Lotus*, *Pisum*, *Vicia*, *Phaseolus*, *Cæsalpinia*, *Cassia*, *Acacia*. [J. H. B.]

LEHMANNIA. A Peruvian undershrub constituting a genus of *Solanaceæ*, or of *Atropaceæ* according to Miers. It has decurrent lance-shaped leaves, and racemes of dull purple flowers, the corollas of which are funnel-shaped with a short tube and a bell-shaped somewhat oblique plaited and five-toothed limb. By these latter characters the genus is distinguished from *Nicotiana*. [M. T. M.]

LEIANTHUS. A genus of *Gentiana-cææ*, very closely allied to *Liatanthus* and *Tuchia*. The points of distinction reside in the corolla which is regular; in the stamens which are bent downwards, and protrude beyond the corolla; and in the fruit which is one-celled, with the margins of the valves bent inwards. The leaves are opposite, and have sheathing connate stalks. The species are natives of the West Indies and Mexico. *L. nigrescens* has pendent purplish flowers, which in outward appearance are somewhat like those of *Atropa*. *L. limiflorus* has yellow tubular flowers. Both are highly ornamental. [M. T. M.]

LEICHARDTIA. A genus of Australian *Asclepiadaceæ*, having a five-parted calyx, an urceolate corolla with the tube beardless within, and the throat with a thick-

ened ring, a five-lobed staminal crown, with the leaflets undivided, erect pollen-masses, and a scarcely divided stigma. *L. australis* is a climbing shrub, with linear acute leaves, and flowers in fascicles. [T. M.]

LEIOCARPUS. A genus of *Euphorbiaceæ*, established by Blume for two Javanese shrubs referred to the tribe of *Buxceæ*; they are considered by Müller as belonging to the genus *Aronosa*; which see (Surr.)

LEIOPHYLLUM. A genus of *Eriaceæ*, having a five-parted calyx; a corolla of five separate petals; ten exerted stamens; and a two to three-celled many-seeded pod, splitting from the apex downward. *L. buxifolium*, the only species, is a native of New Jersey, where it is called Sand Myrtle. [J. Br.]

LEIOSPERMUM. A genus of *Canoniaceæ*, allied to *Wemmannia*, differing in the deciduous calyx, and the flat (not urceolate) disk; the seeds also are glabrous, not hairy. They are New Zealand trees or shrubs, with opposite simple or pinnate leaves, having jointed leaf-stalks and caducous stipules; and the flowers are racemose. [J. T. S.]

LEIOTHAMNUS. A genus of *Gentianaceæ*, represented by an Andean shrub, with opposite stalked leaves, axillary incurved flower-stalks provided with large bracts, a windless calyx with five overlapping concave divisions, a salver-shaped deciduous corolla, its limb divided into five slightly unequal lobes, and five stamens inserted into a ring-like membrane, lining the base of the tube of the corolla, the anthers arrow-shaped, finally revolute. [M. T. M.]

LEMATREA. A genus of *Goodeniaceæ*, proposed by De Vriese for an Ant plant, resembling a *Scarola*, except that the style is said to be deprived of the indusium considered as characteristic of the order.

LEMANEA. A curious genus of green-spored *Algeæ* belonging to the natural group *Batrachospermæ*, consisting of one or two species which grow mostly in sub-Alpine torrents. The first growth is precisely that of a conferva, but the walls of the frond at length become cellular, and are coated within with two or three layers of colourless cells, which give off tufts of necklace-like threads, the ultimate joints of which are the spores. It is, in point of structure, like a *Batrachospermum*, turned inside out. *L. Annulata* and *torulosa* occur not unfrequently in this country, the latter also in North America. [M. J. B.]

LEMMAPHYLLUM. *Drymoglossum*.

LEMNACEÆ. A synonym of *Pistiaceæ*.

LEMNA. The Duckweed, the typical genus of *Pistiaceæ*. The species have a membranous urn-shaped spathe or flower sheath; flowers proceeding from immediately below the edge of the frond; stamens one to two; anthers two-celled. The plants float on water, and are propagated chiefly by buds. The 'green mantle of the standing pool' is

formed chiefly by *L. minor*. Four species are natives of Britain. [J. H. B.]

LEMONIA. A genus of *Rutaceæ*, named in honour of Sir Charles Lemon, an enlightened patron of science and of horticulture. *L. spectabilis* is a Cuban shrub with ternate leaves, and axillary clusters of beautiful rose-coloured flowers, recognised by the following characters: calyx of five sepals, the two outer much larger than the three inner ones; corolla salver-shaped, with an oblique five-parted limb; stamens five, attached to the hairy inner surface of the corolla tube, two fertile sessile, three sterile, projecting from the tube, horned, glandular; ovary five-celled, surrounded by a lobed disk; stigma five-lobed. Fruit of five two-valved one-seeded carpels. It is often united with *Eusenia*. [M. T. M.]

LEMON. The fruit of *Citrus Limonum*. There are many varieties, some of which bear the names of Citron, Cedrate, Genoa, or Wax Lemons. —, JAVA. *Citrus javanica*. —, MEDIAN. *Citrus Medica*. —, PEARL. A variety of *Citrus Limetta*. —, PEARL. *Citrus margarita*. —, SWEET. *Citrus Lumia*. —, WATER. *Passiflora laurifolia*. —, WILD. *Podophyllum peltatum*.

LEMON-COLOURED. The purest yellow, without any brightness; as in a lemon when ripe.

LENS-SHAPED. The same as *Lenticular*.

LENTIBULARIACEÆ. (*Utriculariæ*, *Utricularia*, *Buttercups*.) A natural order of dicotyledons, belonging to Lindley's bigynous alliance of perigenous *Exogææ*. Herbs growing in water or in wet places, with radical leaves, which are either undivided or cut into filiform root-like segments, bearing little bladders; and producing irregular showy flowers. Calyx divided, persistent; corolla bilabiate, irregular; stamens two, included, with one-celled anthers; ovary superior, one-celled, with a free central placenta. Fruit a one-celled capsule; seeds exalbuminous. Most abundant in the tropics. There are four genera, and about 180 species. *Pinguicula* and *Utricularia* are familiar examples. [J. H. B.]

LENTICELLÆ (adj. **LENTICELLATE**). Lenticular glands. Rudimentary roots appearing on the surface of the stems of many trees in the form of small conical swellings.

LENTICULÆ. The spore-cases of certain fungi.

LENTICULAR, LENTIFORM. Lens-shaped; resembling a double convex lens.

LENTIGINOSE. Covered with minute dots, as if dusted.

LENTILS. The seeds of *Ervum Lens*, from which Rovalenta Arabica is prepared.

LENTILE, or **L. COMMUNE.** (Fr.) *Ervum Lens*. — DEAN. *Lemna minor*. — D'ESPAGNE. *Lathyrus sativus*.

LENTILLON. (Fr.) *Ervum Lens minor*.

LENTINUS. A large genus of gill-bearing *Fungi*, distinguished principally from *Agaricus* by their tough substance, and from *Panus* by their thin toothed gills. Two or three species are found in this country, and a few more in Europe and North America, the maximum being attained in hot countries, where they are the ornaments of the woods from their beautiful forms, elegant sculpture, and various clothing. The tough substance renders them unfit for food, but easy of preservation, so that more is known of them than of most tropical *Agaricini*, as they are brought home by every collector, when the more watery and fleshy species are neglected. [M. J. B.]

LENTISCUS. *Pistacia Lentiscus*.

LENTISQUE (Fr.) *Pistacia Lentiscus*.

LENZITES. A genus of gill-bearing *Fungi*, distinguished from *Agaricus* by its tough corky substance and gills. It leads in fact directly through *Dedalea* to the pore-bearing *Fungi*, the gills in certain states being so connected with transverse processes as almost to constitute pores. *L. betulina* is our commonest species, and is often very beautiful from the purity of its hymenium, and the zoned velvety pileus. It occurs on stumps of various trees, and on wrought wood. *L. scoparia* is often very rich in colouring, showing various tints of brown and reddish-yellow. It is sometimes abundant on imported deals, but is scarcely indigenous. [M. J. B.]

LEOCHILUS. A genus of South American epiphytes of the orchid family, allied to *Oncidium*, from which it is distinguished by the arms of the column being placed below the stigma, and by the presence of a honey-pore at the base of the lip. The species, which are not numerous, are pseudo-bulbous, and produce small, often yellowish flowers in racemes. [T. M.]

LEONIA. This genus, referred by Mr. Benthani to the *Violaceæ*, consists of two species, one found in Peru, the other in Brazil. They form moderately high trees, and have alternate entire leaves, full of pellucid dots, with small deciduous stipules at their base. The flowers are small, full of dots, with a five-parted calyx of round fringed lobes; five petals slightly cohering, but ultimately free; and four stamens, with their filaments united into a short tube. *L. glycyarpa* produces edible fruit, greatly relished by the Peruvians, who call the tree Achocón. It is of a roundish form, about the size of a peach, with a rough yellow rind, marked with a kind of network, and contains from six to ten seeds, and a soft whitish pulp or flesh possessing an agreeable sweet taste. [A. S.]

LEONOTIS. A genus of herbaceous or somewhat shrubby plants belonging to the *Labiata*, well distinguished among its congeners by the elongated concave entire upper lip of the corolla, and the very short lower lip which is nearly equally three-cleft.

The species inhabit the southern hemisphere, and are cultivated in English conservatories for the sake of their handsome orange flowers, which grow in dense whorls, with numerous very narrow bracts. The Greek name *Leonotis* (or Lion's ear) was given from some fancied resemblance of the corolla to a lion's ear. One species, *L. Leonurus*, a native of the Cape of Good Hope, received its second systematic, and its popular name Lion's tail, from the assumed resemblance of the inflorescence to a lion's tail, an infelicitous combination of not very apposite terms. French, *Queue de lion*; German, *Löwenschwanz*. [C. A. J.]

LEONTICE. A small genus of *Berberidaceæ*, of Southern and Eastern Europe, and Western and Northern Asia, consisting of smooth herbaceous plants with tuberous roots, which annually send up several variously-cut leaves, and stems about a foot or a foot and a half high, bearing smaller leaves, and racemes of small yellow flowers. The calyx consists of six coloured sepals; the corolla of six smaller stalked petals, bearing scales at the bottom on the inside. The fruits are inflated or bladder-like, of a thin texture, marked with netted veins. *L. Leontopetalum* is a strong-growing herbaceous plant, having large long-stalked leaves, composed of six inversely egg-shaped stalked leaflets arranged in threes. It is commonly called Lion's leaf, on account of a fancied resemblance between the leaves and the imprint of a lion's foot. Its tuberous roots, sometimes called Lion's turnips, are pounded and used at Aleppo, instead of soap, for washing woollen garments, and more particularly for taking out spots or stains from Cashmere shawls. Medicinal properties were formerly ascribed to them, Dioscorides attributing to them the power of allaying the pain caused by snake bites; and the Turks of the present day employ them as an antidote to the effects of overdoses of opium. [A. S.]

LEONTODON. A genus of *Compositæ*, having a perennial rootstock, from which proceed, near to the ground, a number of spreading toothed leaves. The flower-stalks are usually leafless, the flowers yellow, all strap-shaped, surrounded by several rows of overlapping bracts, but the receptacle on which the flowers are immediately placed is destitute of bracts. The fruits taper above into a short beak, and are surmounted by a pappus of feathery hairs, which latter circumstance serves to separate the genus from the nearly-allied *Taraxacum*. The species are widely spread over Europe and central Asia. Three of them, according to Mr. Benthani, are British, viz. *L. hispidus*, *autumnalis* (formerly ranged under *Apargia*), and *hirtus* (which has been also called *Thérincia*). *L. hispidus* is covered with short hairs that are frequently stellate. [M. T. M.]

LEONTOPODIUM. A genus established by Cassini and adopted by De Candolle for the *Gnaphalium Leontopodium* from the Alps of Europe, and two closely-allied species of

varieties from the mountains of Asia, which differ slightly in the pappus from other species. They are also remarkable for their dense clusters of flower-heads surrounded by a kind of radiating general involucre of floral leaves, all densely clothed with a close white cotton.

LEONURUS. A small genus of *Labiata*, consisting of erect herbs, with the leaves more or less lobed, and the small flowers in close axillary verticillasters, forming long leafy spikes. The calyx has five prominent ribs and five equal spreading almost prickly teeth, the corolla has a shortish tube, a concave entire upper lip, and a spreading three-lobed lower one; the stamens form two pairs; and the nuts are flat, angular at top. *L. Cardiacus*, or Motherwort, is found in vases, hedges, &c., in Europe and Russian Asia, and has pinkish flowers with a very hairy upper lip. The genus is allied to *Stachys*, differing chiefly in the shape of the nuts. [T. M.]

LEOPARD'S BANE. *Doronicum*; also *Scorpio Doronicum*, *Aronicum Clusi*, and *Parn. quadrifolia*.

LEOPARD WOOD. The wood of *Bromelia lutea*, also said to be applied to a fancy wood of the palm tribe.

LEOPOLDINIA. A small genus of Brazilian palms, comprising three or four species, existing in considerable numbers on the Amazon and Rio Negro, and forming trees of medium size bearing terminal unarmed pinnate leaves, and having the upper part of their stems covered with a copious network of fibres. Their flower-spikes are very much branched, with two small spathe, the male flowers being seated on the upper, and the female on the lower part of the spike.

L. Passaba is one of the palms which yield the Passaba or Paçaba fibre, now so extensively employed in this country by the natives, and also for making the stout street brooms used in most large cities. Two distinct varieties of this fibre are recognised in commerce, one a coarse kind obtained from *Attalea funifera* and imported from Bahia; and the other a finer kind brought from Para, and the produce of the *Leopoldinia*, which is found growing in great abundance on the extensive plains between the Rio Negro and Orinoco rivers, forming entire forests. It attains a height of fifteen or twenty, or occasionally as much as forty feet, and the fibre or beard, as it is usually called, which is the envelope of the young leaves, hangs down all round and completely covers the trunk quite to the ground, except in very tall trees, the lower part of whose trunk is generally bare. [A. S.]

LEOTIA. A genus of the helvellaceous order of pyrenomycetous *Fungi*, distinguished by its gelatinous substance, and the button-shaped head, the borders of which are rounded and confluent below with the stem. *L. lubrica* is a common in-

habitant of our woods, and varies in tint from dull yellow to olive. [M. J. B.]

LEPALS. Sterile stamens.

LEPANTHES. A genus of minute-flowered West Indian orchids, closely related to *Pleurothallis*. [T. M.]

LEPICYSTIS. *Gomophlebium*.

LEPIDADENIA. A genus of *Lauraceæ*, represented by an Indian tree, with ribbed leaves, and hermaphrodite flowers in umbels surrounded by an involucre. The perianth has six nearly equal segments; stamens twelve in four rows, the two inner surrounded by scales, whence the name; anthers four-celled, four-valved. [M. T. M.]

LEPIDANCHE. A proposed genus of *Cuscutaceæ*, but generally accepted as a section of *Cuscuta*, including those species which have five sepals in the calyx, a sub-tubulose urceolate corolla, a two-celled ovary always with two styles, and a two-celled capsule with no more than one seed in each cell. [W. C.]

LEPIDANTHUS. A genus of *Brassicæ* from the Cape of Good Hope, with simple leafless stems, and spicate terminal male flowers, which have three glumes, and three stamens. [J. T. S.]

LEPIDES (adj. **LEPIDOTE**). Scurfy; minute pelate scales, such as cover the foliage of *Eleagnus*.

LEPIDIDIUM. The *Cresses* form a very extensive genus of *Brassicæ* (*Cruciferae*) widely spread throughout the temperate regions of the earth, but abounding in the greatest number in the northern hemisphere. They are annual or perennial herbs, occasionally with woody stems, and have entire or variously cut leaves, and numerous small white flowers arranged in terminal racemes, which grow longer while fruiting. The genus is distinguished from its congeners by characters taken from its pods, which are egg-shaped or oblong, entire, notched or two-lobed at the apex, and compressed at right angles to the narrow partition dividing them into two boat-shaped valves.

L. oleraceum is confined to New Zealand, where it is found growing abundantly upon the sea-shores, and, being a good antiscorbutic, it was eagerly sought after by early voyagers as a remedy for the dreadful scurvy with which their crews were so frequently affected. The natives call it *Eketera*; and it is now cultivated as a pot herb. It is a smooth erectish branching plant, with a short woody stem and narrow-oblong or wedge-shaped leaves, two or three inches long, the lower ones being sharply serrated, and the upper entire or toothed towards the tip. The natives of the Society and Sandwich Islands make use of *L. Pseudium* for catching fish, it, in common with several other plants, possessing the property of intoxicating them so that they float upon the surface in a helpless insensible state, and are then easily taken. The

whole plant possesses an extremely pungent taste. [A. S.]

L. sativum, the Garden Cress, is a hardy annual whose native country is stated to be Persia. It has been cultivated in this country since 1548, and is a comparatively dwarf uninteresting plant, having oblong alternate deeply-divided leaves, smooth erect branching stems, and small white flowers producing an orbicular winged seed-pod. The chief purpose for which it is grown in gardens is for its leaves, which are cut and used in a young state with those of mustard for salads, to which it gives a peculiarly warm and grateful flavour. It is on this account very generally cultivated and esteemed as one of the most useful plants for small salads that we possess. The leaves when full grown are frequently employed for garnishing like those of parsley. [W. B. B.]

LEPIDOCARYUM. A genus of palms containing two species found in moist places in forests on the banks of the Rio Negro in Brazil. Both have slender stems of ten or twelve feet high, the upper part being covered with remnants of the stalks of dead leaves, and bearing at the summit a tuft of fern-shaped irregularly-cleft leaves with bristly margins. They have perfect and imperfect flowers; and their flower-spike consists of numerous little catkins proceeding from sheathing spathe at short intervals along its branches; the male catkins being longer than those of the female, and having their flowers in pairs within cup-shaped bracts, while in the latter they are solitary. Their fruits are of a reddish-brown colour and vary from the size of a hazel-nut to that of a pigeon's egg, and, like those of other palms belonging to the same section (*Culmacee*), are covered with hard scales arranged like plates of mail in ancient armour. Neither of the species (*L. gracile* and *L. tenuis*) possesses any special feature of interest. [A. S.]

LEPIDONEURON. *Nephrolepis*.

LEPIDOSTACHYS. A genus of East Indian *Euphorbiaceae*, which proves to be the same as *Scopa* of Lindley, *Aporosa* of Blume.

LEPIDOSTEPHANUS. *Achyrochama*.

LEPIDOTIS. *Lycopodium*.

LEPIGONUM. *Spergularia*.

LEPINGIA *permanorum* is a procumbent branching Californian annual, forming a genus of *Compositae*, which has the aspect of an *Asterum* with the style of one of the *Sonchoides*. The lower leaves are pinnatifid, the upper ones entire, the flower-heads yellow, not showy, either terminal or lateral, without rays. The involucre is imbricated, the receptacle naked, the achenes silky, with a bristly pappus.

LEPIOTA. A subgenus of *Agaricus*, characterised by the free white-spored gills, and well-formed ring. *Agaricus procerus*, one of our best esculent fungi, and very ornamental, belongs to this subgenus. [M. J. B.]

LEPISANTHES. A genus proposed by Blume for two or three East Indian trees which may be better considered as forming a subgenus or section of *Cupania*.

LEPISMA. A cup-shaped disk.

LEPISIUM. A small genus of *Cactaceae* now regarded as a section of *Rhipsalis*, but at one time separated, and characterised by the petal-like leaves of its perianth standing almost erect, while those of *Rhipsalis* are widely expanded; and by its smooth pear-shaped fruits being somewhat buried in the fleshy substance of the branches. The three or four known species are natives of Brazil. They have weak, fleshy, jointed branches, occasionally emitting roots, the joints being sharply three or four-angled, waved along the edges, and bearing tufts of hairs seated upon little cushions in the depressions from out of which the small cream-coloured flowers are produced. *L. communis* and *L. Myosurus* are cultivated in European gardens. [A. S.]

LEPISTEMON. A genus of *Convolvulaceae*, containing two species, natives of India and the islands of the Indian Archipelago. They are twining hairy shrubs, with many-flowered axillary peduncles. The calyx consists of five equal sepals; the corolla is tubular and inflated at the base; the five stamens spring from the back of as many large arched hairy scales which are united to the base of the corolla; the ovary is two-celled with two ovules in each cell, and bears a stigma composed of two capitate lobes. [W. C.]

LEPISTOMA javanicum, is a twining shrub, with elliptical oblong leaves, and interpetiolar peduncles, growing in the island of Java, and representing a genus of *Asclepiadaceae*. The calyx is tubulate and has five teeth; the corolla is rotate and five-cleft; whilst the fruit is unknown. Uses not recorded. [B. S.]

LEPRA (adj. **LEPROUS**). A white mealy matter, which exudes or protrudes from the surface of some plants; leprosy.

LEPRARIA. An abnormal condition of certain lichens in which the crust is broken up into a dusty mass, occasionally mixed with a few threads. The yellow powdery and white patches which are so common on oak are examples, the one being a condition of some lichen like *Parmelia parietina*, and the latter of *Porina pertusa*. The genus is now, however, justly exploded. [M. J. B.]

LEPROSE. Having a scurfy appearance.

LEPTADENIA. A genus of *Asclepiadaceae*, inhabiting tropical and subtropical parts of Africa and Asia, and comprising erect leafless shrubs, or twiners furnished with leaves. There are about a dozen species described, all having a greyish tomentum covering stem and leaves. The flowers are white, small, and arranged in interpetiolar umbels. The calyx is short,

the corolla rotate or bell-shaped, the fruit quite smooth on the surface. [B. S.]

LEPTANDRA. *Veronica*.

LEPTANTHUS. A small genus of aquatic herbs belonging to the *Pontederiaceae*, natives of North America, differing from *Heliconthera* in having the three filaments all alike. *L. graminea* is common in streams in North America, and has much the habit of the narrow-leaved pond-weeds. The small yellow flowers with a salver-shaped perianth float on the surface of the water, and are produced from a one-flowered terminal spathe. [J. T. S.]

LEPTARRHENA. A genus of *Saxifragaceae*, found on the north-west coast of America, and in Kamtschatka. It is allied to *Saxifraga*, from which it differs by the anthers being four-celled (the partition being incomplete), and by the two carpels adhering only by their bases: a herb with shining evergreen leathery undivided and serrate leaves, resembling those of *Pyrola secunda*; scape with a terminal panicle of small inconspicuous white flowers. [J. T. S.]

LEPTINELLA. A genus of *Compositae* of the tribe *Anthemideae*, consisting of four or five prostrate or procumbent herbs with the scent of *Artemisia* or of tansy, all natives of the southern extremity of South America, or of some of the Antarctic islands. They are remarkable for the shape of the minute ray-florets, of which the corolla appears to be formed by a double membrane connected at the summit and the base, with a cavity between them. One species, *L. scariosa*, though possessed of no beauty, is interesting as one of the flowering plants which extend the furthest into the Antarctic regions.

LEPTOCARPUS. A genus of Australian *Restiaceae*, consisting of leafless herbs, with the stems simple, and the dimerous flowers fasciculate. [J. T. S.]

LEPTOCAULIS. A genus of umbellifers, characterised by each half of the fruit having five inconspicuous ribs, and one oil-vessel (vitta) in each furrow. The species are natives of North America, of no great interest, having umbels of few small white flowers. [G. D.]

LEPTOCERAS. A genus of terrestrial Australian orchids belonging to the *Arethuseae*. They have solitary or geminate radical leaves, and one or many-flowered scapes, the flowers often fragrant. They have membranaceous sepals, the upper fornicate, the lateral deflexed; clavate erect petals; a lip articulated with the winged column; and four pollen-masses. [T. M.]

LEPTOCHILUS. *Gymnopteria*.

LEPTOCHLOA. A genus of grasses belonging to the tribe *Chlorideae*. The spikes of inflorescence are disposed in racemes, and the spikelets mostly unilateral, two or more-flowered; glumes keeled; outer pale keeled, three-nerved, with a straight awn.

The species, of which about three dozen are described, are, for the most part, handsome grasses, and chiefly natives of South America and the West Indies. *L. arabica* is found growing near Naples. [D. M.]

LEPTODACTYLON. A section of *Gilia*, originally proposed as a distinct genus of *Polemoniaceae*. The three species are distinguished from other *Gilias* by the following characteristics: they are lowly branching perennial herbs, with alternate sessile palmatisect leaves, the segments subulate and needle-like; and the solitary sessile flowers are either terminal or axillary at the tops of the branches; the divisions of the calyx are subulate and prickly; the corolla is somewhat salver-shaped, with entire lobes; the anthers are ovate; and there are many ovules in each cell of the ovary. Natives of North America. [W. G.]

LEPTODAPHNE. A genus of Brazilian lauraceous trees, with net-veined leaves, and flowers in panicles. The perianth is funnel-shaped, with a limb of six deciduous segments; stamens nine, in three rows, the outer six fertile, some of them provided with an erect tooth-like appendage; the inner three sterile, sometimes absent, and when present having two glands at their base; the anthers are four-celled. The fruit is fleshy and enclosed within the fleshy base of the perianth. [M. T. M.]

LEPTOGLOSSIS. A genus of Peruvian herbaceous plants of the family *Scrophulariaceae*. The leaves are hairy; and the flowers grow at the extremity of the branches, the corolla limb being somewhat two lipped. The genus is intermediate between *Schwenkia* and *Browallia*. [M. T. M.]

LEPTOGRAMMA. *Grammitis*.

LEPTOLÆNA multiflora is the sole representative of a genus of *Chenaceae*, inhabiting Madagascar. It is an elegant tree, bearing undulate glabrous leaves, corymbose flowers, with a fleshy cylindrical involucre, three sepals, five petals, and ten stamens; and a three-celled capsule, with one or two seeds in each cell. [B. S.]

LEPTOLOBIUM. This name has been applied to two genera of *Leguminosae*, but is now abandoned. The species so named by Vogel are Brazilian trees now referred to *Bryonia* (see *ECPL.*) in *Euphoraceae*, and distinguished by the lobes of the calyx equaling or exceeding the tube. Benthams gave the name to a few Australian and Asiatic plants of the tribe *Phaseoleae*, and which was afterwards changed by him to *Leptogrammus*; they are now united with *Glycyne*, from which they differ only in the flowers being distinct from each other, not clustered along the rachis of the raceme. [J. Br.]

LEPTOMERIA. An Australian genus of *Santalaceae*, abounding in the neighbourhood of Swan River. About twenty species are known, two of them separated by some botanists under the name of *Omphalomeria*. They are broom-like shrubs, with angular or roundish twiggly branches, gene-

rally entirely destitute of leaves, or with very small ones only upon the young twigs, and bearing spikes of extremely minute flowers. The fruit is either fleshy and juicy or dry and juiceless, and has a scar at the top surrounded by the remains of the calyx. *L. Billardieri* is a pretty broom-like shrub, growing about six feet high, with erect very slender branches, and numerous spikes of small white flowers producing greenish-red berries, which are called Native Currants in New South Wales and Victoria; they have a pleasant acid taste, combined with a certain degree of astringency. Mixed with other fruits, they are used for making preserves, and in the preparation of cooling acid beverages. The fruit of another species, *L. (Omphacomeria) acerba*, is also called Currants in Australia, and is used for the same purposes. [A. S.]

LEPTONEMA. A low branching Madagascar shrub, with the habit of a *Vaccinium*, but constituting a genus of *Euphorbiaceae*, of the tribe *Phyllanthæ*. Dr. Mueller has since referred to the same genus, as a second species, a shrub from tropical Australia.

LEPTOPETALUM. This name, signifying slender or narrow petal, is applied to a Mexican shrub constituting a genus of *Cinchonaceae*. The flowers are in terminal corymbs, and have a somewhat globular calyx tube, with a four-toothed limb; the corolla is divided into four long very narrow segments; stamens four, equalling the corolla; capsule hemispherical, crowned by the teeth of the calyx, and opening by a chink at the top; seeds small, angular. [M. T. M.]

LEPTOPTERIS. A Sumatra plant, proposed by Blume as a distinct genus, but which appears to be the same as the *Medicla* of Gardner, a species of *Gelsemium*.

The name is also sometimes unnecessarily given to those species of *Todea* which have delicate membranaceous fronds and oligocarpous sori. [T. M.]

LEPTOPUS. An East Indian herb proposed by Decaisne as a genus of *Euphorbiaceae*, but reduced by Baillon to *Andrachne*.

LEPTORHACHIS. A genus of *Euphorbiaceae* of the tribe *Acalypheae*, founded by Klotzsch on a Brazilian herbaceous twiner with hastate leaves, and having the habit of a *Trapa*. [J. Br.]

LEPTORHYNCHUS. A genus of *Compositæ* allied to *Helichrysum*, but the florets are all hermaphrodite, and the achenes are narrowed into a slender beak bearing a pappus of simple bristles. There are several species, natives of Australia, all erect herbs with narrow leaves and terminal flower-heads of yellow florets, not so handsome as other everlastings, the involucres being smaller and less scarious.

LEPTOS. In Greek compounds = slender, graceful; as *leptophyllus*, slender-leaved.

LEPTOSEMA. A North Australian papilionaceous shrub, proposed by Beutham as a genus of *Leguminosae*, which has since been reduced to *Brachysema*.

LEPTOSIPHON. A name applied to some Californian annuals, which are now generally considered as forming a section of *Ulmaria*, which see. [J. Br.]

LEPTOSOLENA. A genus of *Singiberaceae*, closely related to *Alysicarpus* and *Renealmia*, and containing but one species, *L. Bankii*, native of the island of Luzon. It has an erect leafy stem, with oblong acuminate leaves terminated by a sessile branched panicle of flowers with bracts at its base. The tube of the corolla is elongate and filiform, the outer segments spreading, the inner segments very short. [J. Br.]

LEPTOSPERMUM. A large genus of shrubs or small trees belonging to the *Myrtaceae*, and nearly all confined to Australia and Tasmania. The leaves are alternate, small, leathery, and full of dots or cells containing oil; and their white flowers are borne on short stalks on the sides of the young branches, either solitary or in little clusters. They have a bell-shaped calyx with five lobes; a corolla of five roundish petals; numerous short free stamens; and a four or five-celled ovary. *L. laugerrum*, a native of Tasmania and South-eastern Australia, is commonly called Tea tree on account of its leaves having been used by the early settlers in those countries as a substitute for tea. It sometimes forms a tree thirty feet high, with a trunk four or five feet in circumference, but in mountainous situations is only a small shrub a few feet in height. Its straight stems were used by the Australian aborigines for making their spears, the points being sharpened with a flint and then hardened by means of fire. *L. scoparium*, the Kahl-Katon or Manuka of the New Zealanders, a shrub of moderate height, with harsh prickly leaves, produces a very hard heavy wood, but its small size renders it of little value. [A. S.]

LEPTOSTACHYA. A genus of *Acanthaceae*, containing seventeen species chiefly natives of America and India. They are herbs, rarely shrubs, with opposite leaves, and distant opposite flowers in slender terminal or axillary spikes, furnished with many small bracts and bracteoles. The small calyx is five-parted; the corolla ringent with a longish tube and a two-lipped limb, the upper lip arching and two-toothed, the lower convex and trifid; two stamens are inserted in the tube; and the ovary is two-celled surmounted by a simple style and trifid stigma. This genus is less distinct from its technical character than from its habit and inflorescence. [W. C.]

LEPTOSTEGIA. *Onychium*.

LEPTOSTELMA. The Mexican Daisy (*Erigeron maximus*) is sometimes cultivated under this name. It attains a height of five to seven feet, and is rather hand-

some when in flower. The whole plant is more or less clothed with short stiff hairs; the lower leaves, a foot long, lanceolate and coarsely toothed, the upper amplexicaul; the flower-heads more than an inch across, the ray-florets strap-shaped, purple, and very narrow. [A. A. B.]

LEPTOTICHUS. Thin-skinned; a term applied only to tissue.

LEPTOTES. A small genus of Brazilian orchids of the tribe *Epidendreae*, distinguished by having the sepals and petals linear spreading and nearly equal; the lip three-lobed, parallel with the short thick column, around which the lateral lobes are convolute; the six pollen-masses incumbent, the two upper ones pear-shaped, the four lower ones unequal and thinner. *L. bicolor*, a pretty epiphyte with thick rush-like leaves, and white flowers blotched on the lip with purple, bears fragrant fruit with the odour of the Tonquin bean or of the sweet vernal grass. This fruit infused in cream gives it, when fed, a mild agreeable flavour, sweeter than vanilla but less penetrating. *L. serrulata* is a second species with larger flowers. [T. M.]

LEPTURUS. A genus of grasses belonging to the tribe *Rotthelieae*. The inflorescence is mostly in close round solitary spikelets, imbedded alternately on opposite sides of the rachis; glumes one or two, thick, on the same side of the spikelet, which contains one perfect floret, and the rudiment only of a second floret. The species are mostly natives of the north-east of Europe and New Holland. *L. incurvatus* extends to the British Isles, and grows on most of the salt marshes along the seaboard, where it often furnishes the principal pasture grass. [D. M.]

LEPURANDRA. The Sack-tree of Western India, a tree of the *Artocarpaceae*, now referred to *Antiaris* and called *A. saccidora*, has been so called. It is a gigantic tree, reaching a height of a hundred feet, with a trunk six feet in diameter, exuding a milky juice when wounded, and having a strong tough fibrous inner bark useful for the manufacture of cordage, and of which the natives, by an ingenious yet simple process, make capital sacks. For this purpose young trees of about a foot in diameter are selected, and cut intounks of the same length as the sack required. These are then soaked for a short time and afterwards beaten with clubs until the outer bark is removed and the inner loosened so that it can readily be separated by turning it inside out. Sometimes a small piece of the wood is left to form the bottom of the sack, but more frequently the bark is pulled entirely off and the bottom sewed up. These sacks are commonly used by the natives of Western India and of Ceylon for carrying rice, &c., and are very strong and elastic. A considerable quantity of milky viscid juice exudes from the fruit when wounded, and hardens into the appearance and consistence of bees' wax, but eventually becomes

black and shining; the seeds have an intensely bitter taste. [A. B.]

LEPYRODIA. A genus of Australian *Besitaceae* with simple leafless stems, and compound spikes of dioecious, or rarely simple spikes of perfect flowers. [J. T. S.]

LEQUÉE. (Fr.) *Lechea*.

LERENA. A species of *Rajania*, whose roots are used in St. Domingo like potatoes, and are said to be extremely nutritive.

LERIA. A genus of *Compositae* of the tribe *Mutisteeae*, consisting of South American perennials, with the leaves all radical and white cottony underneath, and solitary flower-heads on long simple cottony scapes. The inner disk florets are obscurely bilabiate, while the outer radiating ones pass into ligules without any inner lip. The pappus consists of numerous simple bristles. There are about half a dozen species known, none of them in cultivation.

LESCHENAUTIA. A genus of goodeniaceous heath-like shrubs, distinguished by having a tubular calyx with five linear sharp-pointed lobes and a partially two-lipped corolla, the tube of which is split on its upper side. The anthers cohere previous to the opening of the flowers, which are axillary or terminal, of a red, blue, or yellow colour. The leaves are linear and sharp-pointed. The plants are natives of the south and south-west parts of Australia, and are very ornamental. [R. H.]

LESKEA. A genus of pleurocarpous mosses, distinguished from *Hypnum* by its erect more or less symmetrical capsule, and the want in general of intermediate cilia. The limits are not, however, very acutely marked. Our commonest species, *L. sericea*, grows on almost every ash tree, forming silky yellowish-green patches, which are darker when dry, and add much to the picturesque effect of the bark. There are many exotic species. [M. J. B.]

LESSERTIA. A genus of *Leguminosae* of the suborder *Papilionaceae*, consisting of herbs or undershrubs with pinnate leaves, and pink or crimson, rarely white flowers in axillary racemes. There are above thirty species described, all from the Cape Colony. They much resemble the Australian *Swainsonia*, both in habit and character, differing chiefly in the pod, which, though membranous as in *Swainsonia*, is perfectly flat, and never inflated. None of the species are in cultivation, and few are so showy as those of *Swainsonia*.

LESSINGIA. A genus of Californian *Compositae* consisting of procumbent branched herbs, with thickish leaves, the lower ones pinnatifid, and yellow solitary terminal flower-heads, with an imbricated involucre and naked receptacle, the florets all tubulose, those of the ray larger than the rest. The achenes are silky and compressed, with a pappus of one row, the hairs rigid and scabrous. [T. M.]

LESSONIA. A genus of seaweeds be-

longing to the natural order *Laminariaceae*, with a tall thick stem, branched above and bearing at each tip a pair of lanceolate leaves which hang down for a foot or more in length. The species form large submarine forests, and the stems when thrown ashore look like wood; hence they are sometimes collected by seamen for firewood, to their great disappointment when they attempt to use them. They are employed more profitably for knife handles, and other similar purposes. The blade is fixed in when the plant is moist, and is effectually fastened by its contraction when dry. The stems have a kind of false exogenous growth, of which a representation may be seen in *Berkeley's Introduction to Cryptogamic Botany*, p. 56. The new rings seem to depend upon the growth of the leaves, whereas in the large *Laminariaceae* where a similar structure occurs, it depends upon the development of new roots or holdfasts. *Lessoniae* are principally at home in the southern hemisphere. [M. J. B.]

LETHARGIA. A name applied in vegetable pathology to those cases in which the buds of transplanted plants and grafts, or the embryos of seeds, though still possessed of vitality, are sluggish and other are not developed at all, or are expanded imperfectly. Close pruning is often necessary to overcome this evil in plants which are not removed till spring; and artificial means, as the application of hot water, weak solutions of acids, &c., are sometimes needful to overcome the suspended animation of seeds. Some roots, again, like those of orchids, occasionally lie dormant in the soil for years, where they are excluded from the light by an overgrowth of shrubs. *Ophrys muscifera* and some other species in certain districts appear only after the underwood has been cut down. Portions of the tubers of dahlias, again, if no part of the crown be left, will live for years without throwing out a single bud. [M. J. B.]

LETTERED. Bearing letter-like spots.

LETTER-LEAF or LETTER-PLANT. *Grammatophyllum*.

LETTER-WOOD. *Brontium Aubletii*, sometimes called *Pisatinera guianensis*.

LETTESOMIA. A name given by Ruiz and Pavon to a genus of *Ternstroemiaceae*, since united with *Freziera*; and by Roxburgh to a convolvulaceous genus which has proved to be identical with *Argyrea*.

LETTUCE. *Lactuca*. —, **BLUE.** *Mulgedrum*. —, **CABBAGE.** Garden lettuces with low depressed cabbage-like hearts. —, **COS.** The erect-growing crisp-leaved varieties of garden lettuce. —, **FALSE.** *Mulgedrum*. —, **GARDEN.** *Lactuca sativa*. —, **LAMBS.** *Valerianella oleracea*. —, **PRICKLY.** *Lactuca Scariola*. —, **SEA.** *Fucus vesiculosus*. —, **WILD.** *Lactuca virgata*.

LETTUCE TREE. *Pisonia morindifolia*, common in gardens in S. and W. India.

LEUCADENDRON. A genus of proteaceous plants, mostly shrubs or small trees, natives of the Cape of Good Hope and the

south-eastern parts of Africa, distinguished by having the calyx either four-cleft or with four sepals, each of which bears a nearly sessile anther, and a filiform style with an oblique club-shaped stigma. The seed-vessel is one-celled, containing a single wingless seed. The involucre is generally imbricated; the dioecious flowers (white or yellow) are produced in small heads; and the leaves are generally sessile, simple, entire, occasionally covered with white silky hairs. *L. argenteum*, the Witteboom or Silver tree of the Cape colonists, was formerly of great importance for firewood, but it is now nearly extirpated. [R. H.]

LEUCENA. A genus of *Leguminosae*, of the suborder *Mimosae*, characterised by having the ten stamens of a *Mimosa*, with the flat two-valved pod of an *Acacia*. It consists of eight species, trees or shrubs, all natives of central or South America, or the Pacific Islands, with twice-pinnate leaves, and small white flowers in globular heads. One species, *L. glauca*, is much cultivated as an ornamental tree in most warm climates, and has become naturalised and apparently wild in several parts of Africa and Asia. In Europe it will bear the winter only in the warmer parts of the Mediterranean region, where it is occasionally planted.

LEUCANTHEMUM. A name given to the Ox-eye Daisy, *Chrysanthemum Leucanthemum*, and a few other species, which have been distinguished from other *Chrysanthemums* as a genus on account of some very slight differences in the achenes.

LEUCAS. A genus of *Labiatae*, having the upper lip of the corolla concave, usually entire and hairy on the outside, the lower lip spreading, its middle lobe largest; having also the end of the style of two unequal pieces, the upper of which is shortest. They are herbs or shrubs, natives chiefly of tropical Asia and Africa. The flowers are white, rarely purple. [G. D.]

LEUCERIA. A genus of *Compositae* of the suborder *Mutisiales*, consisting of eight or nine Chilian herbs, with erect or ascending stems, more or less clothed with white cottony wool. The leaves are mostly pinnately divided, cottony underneath, the flower-heads small in terminal panicles. The involucre is hemispherical and imbricate, the outer florets radiating; the pappus consists of shortly plumose bristles. None of the species offer any particular interest either as useful or ornamental plants.

LEUCHTENBERGIA. A remarkable genus of *Cactaceae*, of which the only species, *L. principis*, a native of Southern Mexico, has been introduced to European gardens. In this plant the mammillae, as the variously-shaped projections seen in most Cacti are called, grow very long, and being of a succulent nature and three-sided shape, they somewhat resemble aloe leaves, but bear tufts of long chaffy or horny scales on their apex. The plant itself grows a foot or more high, the lower part of the stem being about as thick as a man's arm, hard and

woody, and covered with the remains of decayed mammillae, while the upper bears long perfect mammillae, and looks very much like an artichoke. The flowers, which are produced at the top of the plant among the younger mammillae, bear a great resemblance to those of *Cereus*, but are distinguished by the tube of their perianth being more cylindrical, and having the stamens growing to its inside as far as the bottom of the petals, after which they converge and meet in the centre, closing up the mouth of the tube. [A. S.]

LEUCO. In Greek compounds = white: thus *leucocarpus* is white-fruited; *hypoleuca*, white beneath, &c.

LEUCOBRYUM. A genus of acrocarpous mosses, having the white hue of *Sphagnum*, and agreeing with *Dicranum* in the capsule and peristome, but distinguished by the peculiar structure of the external leaf-cells. These are disposed in two or more strata, and are large and rectangular, void of chlorophyll, and communicating with each other by means of circular apertures. The chlorophyll cells are imbedded in the centre of the leaves. Our only species, *L. glaucum*, occurs in the same sort of situations as *Sphagnum*, forming large tufts, which, however, seldom fructify: it agrees in the general appearance of the foliage with *Leucophanes* and *Octoblepharum*, and occurs in America and in the southern hemisphere. There are several exotic species. [M. J. B.]

LEUCOCORYNE. A genus of Chilian herbs of the order *Liliaceae*. They have fleshy roots, linear leaves, and umbels of white or blue flowers supported on scapes. These flowers have a hypocrateriform perianth; three fertile stamens inserted in the middle of the tube, and three sterile fleshy ones seated in the throat; and a terminal style articulated with a sessile ovary, and having a simple stigma. [T. M.]

LEUCOJUM. A genus of European *Amaryllidaceae* comprising a few very pretty bulbous plants called Snowflakes. They bear considerable general resemblance to snowdrops, but are larger, and the six perianth segments are nearly equal. They have sheathing erect linear lorate leaves, and hollow angular scapes, the flowers being campanulate, and white tipped with green. The six stamens are inserted on an epigynous disk, and their anthers open by a terminal pore, and also by a lateral exterior slit, not extending to the base. *Erinosma* and *Acis*, represented by *L. vernum* and *L. autumnalis*, were formerly included. The common species is *L. aestivum*. [T. M.]

LEUCOLÆNA. A genus of umbellifers, having the border of the calyx five-lobed; and the fruit compressed, each half with seven to nine narrow ribs. The species are natives of New Holland, generally of small size, and usually covered with fine down. The name indicates the white appearance of the bracts. [G. D.]

LEUCOMERIS. A Himalayan shrub or thick-stemmed erect herb, with long leaves

hoary underneath, and numerous flower-heads in a terminal corymb, forming a genus of *Compositae*, scarcely differing from the American *Gochmalia*.

LEUCOPHÆE. A genus proposed by Webb for the shrubby species of *Sideritis* from the Canary Islands, but which have generally been maintained as a section only of *Sideritis*, under the older name of *Marrubium* of Mönch.

LEUCOPOGON. A large genus of *Epacridaceae*, distinguished by having a five-lobed calyx, with two or three bracts at the base; a funnel-shaped corolla with five spreading lobes; five anthers on very short filaments which are included within the corolla; and a style thickened at the base, bearing a capitate stigma. The fruit is either a berry or a dry capsule. The flowers are white in terminal or axillary spikes, and the leaves are lanceolate slightly toothed or hairy at the margin. They are handsome shrubs found in most parts of Australia, Tasmania, and New Zealand. [R. H.]

LEUCOPSIDIUM. A genus of *Compositae* established by De Candolle in the tribe *Anthemideae*, for some North American plants since reduced to *Eglella*. *L. arkan-sanum* is sometimes met with in gardens.

LEUCORCHIS. A genus of Java orchids consisting of terrestrial, perhaps leafless, herbs, having scapes bearing racemes of whitish flowers. They belong to the *Arethuseae*, and have the leaflets of the perianth connate at the base, the lateral sepals forming an emarginate lower and the dorsal sepal with the petals a trifold upper lip, while the labellum is roundish undivided and spreading, articulate with the column. [T. M.]

LEUCOSMIA. A genus of *Aquilariaceae*, consisting of a shrub, native of the Friendly Isles. It has opposite entire leaves, and terminal heads of flowers, surrounded by a deciduous involucre. The perianth is tubular, coloured, with five petaloid scales in its throat; stamens ten, in two rows; ovary girt round at the base by a short sheath, with a solitary ovule in each of its two compartments; fruit fleshy. [M. T. M.]

LEUCOSPERMUM. A notaceous genus consisting of shrubs or small trees, natives of South and South-eastern Africa, reaching to the tropic. They are known by having a four-cleft silky calyx, the concave segments of which occasionally cohere, and each bear a sessile anther; style filiform, with a smooth stigma. The seed-vessel is one-celled, and contains a single smooth wingless seed. The involucre is imbricated, and the yellow flowers are borne in terminal globose heads; leaves sessile, of a leathery texture, often toothed at the apex, and generally covered with silky hairs. [R. H.]

LEUCOSTEGIA. *Acrophorus*.

LEUCOSYKE. The name of a small tree, native of Java, forming a genus of *Moraceae*. The leaves are stalked, ovate, sharply pointed, white and hoary on the

lower surface, with large stipules; and the flowers are unisexual, grouped in axillary globose heads, the males stalked, and the females sessile. The ovary contains a single ovule. [M. T. M.]

LEUCOTHRAMNUS. A name proposed by Lindley for two or three species of *Thomasia*, in which the cup formed by the united base of the filaments is more adnate to the calyx, thus rendering the insertion of the stamens more perigynous than in the other species.

LEUCOTHOË. One of the subgenera of *Andromeda*.

LEUZEA. A genus of unarmed perennial composite herbs related to thistles, found in Eastern Australia, and in the Mediterranean region, and Siberia. Their unbranched stems are furnished with entire or pinnatifid leaves, and terminate in a single rather large ovate or globose flower-head, which contains numerous purple tubular florets, enclosed by an involucre of many series of silvery scales extended into thin dry membranous tips. The nature of these scales serves to distinguish the genus from some of its allies, and the feathery pappus-hairs which crown the four-sided achenes from others. [A. A. B.]

LEVENHOOKIA. A small genus of *Stylidiaceæ* consisting of minute herbaceous plants natives of King George's Sound, South-west Australia, and distinguished by having a five-cleft calyx with two lips; the limb of the corolla five-parted and irregular, the fifth segment or lip being dissimilar to the others, arched and longer than the erect column; the lobes of the anthers lie one above the other; there are two half-shaped stigmas, and a one-celled capsule. The leaves are alternate, crowded at the tops of the branches, and intermixed with fascicles of flowers. [H. H.]

LEVERWOOD. *Ostrya virginica*.

LEVISTICUM. A genus of umbellifers, distinguished by having each half of the fruit with five wings, the two lateral of which are broader than the others. The only species is an herb, native of the Pyrenees; it contains an abundant yellow juice, and is employed as a domestic remedy. [G. D.]

LEWISIA rediviva, the Bitter-root plant or *Racine amère* of the Canadians, the *Spatium* or *Spist'lum* of the Oregon Indians, is the only species of this singular genus of *Mesembryaceæ*. It is a somewhat succulent stemless perennial, with a fleshy tapering root, from the summit of which arise numerous clusters of narrow succulent green leaves; and in the centre a fleshy stalk, jointed above the middle, and bearing a solitary rose-coloured flower, surrounded by an involucre of five to seven narrow scales. As soon as the flower opens, the leaves begin to wither and dry up, usually lasting only a few days, the entire period of the plant's existence above ground not exceeding six weeks, viz. from early in May

till the middle of June. The flower, which remains open only during sunshine, has a persistent calyx, a corolla of eight to ten spreading petals, numerous stamens, and a one-celled ovary, in which respect it differs from allied genera.

This extremely curious plant is a native of the Upper Oregon territory, and its roots, which are largely collected by the Indians, afford a wholesome though bitter-tasted food, being composed almost entirely of starch. When fresh, these roots are covered with a dark-brown skin, and are bright-red within, but when skinned and dried for preservation they are nearly white. The specific name, *rediviva*, was given to the plant in consequence of the growth of some dried and apparently dead roots taken from an herbarium specimen. [A. S.]

LEYCESTERIA. A genus of *Caprifoliaceæ*, having the border of the calyx five-parted, the pieces narrow and unequal; and the fruit a berry with five cells and numerous seeds. The only species is *L. formosa*, a shrub, chiefly confined to the higher parts of Nepal, and now well known as an ornament of our shrubby gardens. The name was given in honour of the late Mr. Leycester, of the Indian civil service, and a patron of horticulture. [G. D.]

LEYSSERA. A genus of *Compositæ*, of the tribe *Senecioneæ*, distinguished by the ray-florets being ligulate, female or neuter, with a pappus of short simple bristles, whilst the tubular and hermaphrodite disk-florets have a pappus of long plumose bristles, alternating with chaffy scales. It consists of three or four African herbs or undershrubs, with slender branches terminating in a long peduncle with a single yellow flower-head. The leaves are linear, and usually irregularly clustered.

LÉZARDELLE. (Fr.) *Saururus*.

LHOTSKYA. A genus of *Myrtaceæ*, of the section *Chamelaucioideæ*, peculiar to South-western Australia, and consisting of trees and shrubs with acroser or tetragonous leaves, and yellow or violet flowers, arranged in terminal heads. The calyx, supported by two bracts, has ten ribs, and is five-cleft; the petals are five; the stamens indefinite; and the fruit an oblong ten-ribbed capsule, indehiscent, one-celled, and often only one-seeded. [B. S.]

LIABUM. A genus of *Compositæ*, differing from *Andromachia* in the pappus, which consists of a single series of filiform bristles; and like *Andromachia* usually referred to *Vernoniaceæ*, on account of the style, but the opposite leaves, yellow radiating flower-heads, and anthers with points at the base, are much more those of some *Senecionioideæ*. There are several species, all South American, and not all sufficiently distinct from *Andromachia*.

LIANE. A woody twining or climbing plant like those which occur in tropical forests.

LIANE À BLESSURES. (Fr.) A West

Indian name for *Vanilla claviculata*. — A SIROP. A name given by the French colonists to *Columnea scandens*. — HOUGE. *Tetracera Tigarea*.

LIARD. (Fr.) *Populus balsamifera*.

LIARDIER. (Fr.) *Populus nigra*.

LIATRIS. A genus of North American herbaceous plants, belonging to the tribe *Cichoraceae* of compound flowers, distinguished by having a naked receptacle, an oblong lubricated involucre, and a feathery pappus. Many of the species are pretty plants, well worthy of cultivation; among them *L. squarrosa*, a handsome species with very long narrow leaves, and large heads of beautiful purple flowers; *L. scariosa*, well marked by the involucreal scales, which are margined with purple; *L. spicata*, which, as its name indicates, bears its flowers in a spike; and *L. odoratissima*, of which the leaves, when dry, give out a smell resembling vanilla. *L. scariosa* and *squarrosa* are called in North America Rattlesnake's Master, because the tubers bruised are considered a specific for the bite of that reptile. [O. A. J.]

LIBANOTIS. A genus of umbellifers, chiefly distinguished by having the border of the calyx in five slender awl-shaped and coloured divisions, which fall off before the fruit ripens. The species are herbs, natives of Europe and middle Asia; their leaves are pinnate, with ovate pinnae, cut or deeply incised. The name is from the Greek word signifying incense, indicating the odour of some of the species. [G. D.]

LIBER (adj.). Free: as when there is no cohesion between parts in contact with each other.

LIBER (subst.). The inner lining of the bark of Exogens, where alone its woody matter resides.

LIBERTIA. A small genus of *Iridaceae*, natives of Australia, Tasmania, New Zealand, and Chili, distinguished from *Sisyrinchium* by the stamens being distinct, or connate only at the very base, and having versatile anthers. The few species are herbs, with creeping rhizomes or fibrous roots, grassy leaves, and panicle inflorescence, with the flowers almost in umbels. The flowers are always white, except the sepals, which are occasionally greenish. [A. S.]

LIBOCEDRUS. Two Chilian and two New Zealand trees are all the known species of this genus belonging to the *Cupressaceae* section of conifers. They are closely related to the arborescens (*Thuja*), from which they differ by the scales of their cones being valvate, and having each only one seed at its base, and also by their seeds being unequally winged. One of the New Zealand species, *L. Douglasii*, the Kawaka of the natives, is a fine timber tree growing 60 or 100 feet high, and yields an excellent fine-grained heavy, dark-coloured wood, useful for both planks and spars; while the wood of *L. Bidwillii*, the other

New Zealand species, is so soft and porous that soap-bubbles may be blown through a piece a foot in length. Both the Chilian species, *L. tetragona* and *L. chilensis*, are timber trees of large size. The former is the Alerce of that country, and yields the South American timber of that name, which is largely used on the Southern Pacific coast, and forms an important article of trade to the Chilians. Spars eighty or ninety feet long are obtainable from it; and a single tree often yields 800 to 1,000 or even 1,500 boards. Its grain, too, is so straight and equal that it can be split into shingles, which look as though they had been dressed with a plane. [A. S.]

LIBIDIBI. A name given to the pods of *Casalpinia* or *Lebidibia coriaria*.

LIBRA. The best kind of tobacco grown in the western part of Cuba.

LICANIA. A genus of *Chrysobalanaceae*, containing about thirty-five species, mostly inhabitants of the forests of Guiana and Brazil. They are timber trees or large shrubs, and have large entire leathery leaves, and small flowers in terminal clusters. The Pottery tree of Pará (*Moguelia utilis*) was formerly referred to this genus; the ashes are used by the natives of the Amazon for mixing with the clay employed in the manufacture of pottery-ware, in order to enable the vessels to withstand the action of fire. The Indians call these trees Caraipe, but botanists have adopted that name for a genus of *Ternstroemiaceae*, owing to the Pottery tree having at one time been supposed to belong to that order. Mr. Spruce describes them as exceedingly straight slender and lofty trees, having trunks not exceeding twelve or fifteen inches in diameter, growing to a height of a hundred feet before sending forth branches, the wood being so hard that ordinary tools will not cut it. The bark is likewise exceedingly hard, and very gritty from the large quantity of silica it contains, and to which it owes its property. The Indians burn the bark, reduce it to powder in a mortar, and then mix it with an equal quantity of the best clay they can procure, using it for all kinds of utensils required to stand fire-heat. [A. S.]

LICCA TREE. *Sapindus spinosus*.

LICE, BEGGAR'S. An American name for *Cynoglossum Mortonii*.

LICHENS. A large tribe of cryptogams belonging to the fungal alliance, and distinguished from *Fungi* by their not deriving nutriment in general from the substance on which they grow, but from the surrounding medium; by their slow development and long endurance; and, technically, by their producing within their substance granules distinct from the general tissue, called gonidia, which in certain conditions are reproductive. In fructification they agree with ascomycetous *Fungi*, and like them have either a second form of fruit (stylospores) contained in distinct cysts (pycnidia), or minute bodies variously

horse, which are supposed to have the power of impregnation. On these points the memoirs of Tulasne and Lindsay must be consulted by all who wish to have a complete knowledge of the subject. Lichens, perhaps, reach higher latitudes and altitudes, and are capable of enduring greater degrees of cold, than any other vegetables except *Diatomeae*. On the contrary, they may be exposed to a burning sun without injury; and, though apparently dried up and withered, they recover their proper appearance with the first shower. Most of them are essentially air-plants, but a few are either constantly wet with spray, or totally immersed.

Lichens are divisible into two principal sections, according to the nature of the fruit, thus:—

1. ANGIOCARPEI: fruit contracted, like a *Sphaeria*.

2. GYMNOCARPEI: fruit expanded, like a *Peziza*.

In each there is a distinct gelatinous or collemaeous group; and various natural orders arise in either division from modifications of the fruit.

Nylander, who is perhaps the best modern authority on Lichens, divides them into three families, the vegetative element in his arrangement prevailing, as the fructiferous does in that of Acharius—MYRIANGIACEI, COLLEMACEI, and LICHENACEI, of which the two first are gelatinous. The Lichens proper he divides as follows:—

1. EPICOLONI: spores ultimately dusting the shields, as *Calicium*.
2. CLADONIIDEI: lichens with a stem-shaped thallus, as *Cenomyces*.
3. RAMALODEI: lichens with a shrubby thallus, as *Ulex*.
4. PHYLLODEI: lichens with a leafy thallus, as *Parmelia*.
5. PLACODEI: lichens with a crustaceous thallus, as *Lecidea*.
6. PYRENODEI: lichens with capsule-like fruit.

Lichens are in some cases useful as articles of food and medicine, but their principal economical value consists in their properties as dyes. [M. J. B.]

LICHEN, CUP. *Cenomyces punctata*, also called Cup-moss. — HORSEHAIR. *Corticularia jubata*, also called Tree-hair.

LICHEN COMESTIBLE. (Fr.) *Lecanora esculenta*. — DES RENNES. *Cenomyces rangiferina*. — D'ISLANDE. *Cetraria islandica*.

LICHENOLOGY. That part of Botany which treats of Lichens.

LICHINA. A small genus of gelatinous capsule-fruited lichens, remarkable for its species growing on rocks exposed to the spray or covered at high water. They were in consequence formerly referred to *Algae*, but their fructification is now well-known, and agrees in essential points with that of collemales. They are short-branched tufted lichens, with terminal fruit, which opens merely by a terminal aperture without any exposed disk. [M. J. B.]

LICHWALE. *Lithospermum officinale*.

LICHWORT. *Parietaria officinalis*.

LICIET. (Fr.) *Lyctum*.

LICUALA. A genus of palms comprising about a dozen species from India and the Indian Archipelago. With the exception of one New Guinea species, none exceed ten or fifteen feet in height, some scarcely having any stem at all, while others have slender stems marked with circular scars or rough with the hard bases of fallen leaves. Their leaves are terminal and fan-shaped, with prickly stalks, the prickles being conical or often hooked; and their branching flower-spikes, with numerous incomplete spathes, stand almost erect, or hang down from amongst the leaves. The flowers have a cup-shaped three-cut calyx, and a three-parted corolla, and are all perfect.

L. acutifida yields the walking-sticks known by the curious name of Penang Lawyers. It is a native of the island of Pulo-Penang, where it grows generally to a height of about five feet, but occasionally higher, its stems averaging about an inch in diameter, except at the very base, where they are considerably thicker. In order to convert these stems into walking-sticks, they are carefully scraped so as to remove the rough outside portion, then straightened by means of fire-heat, and afterwards polished, but those brought to this country come in an unpolished state. [A. S.]

LID-FLOWER. *Calyptanthus*.

LIEBERKUHNIA. A genus of *Compositae*, founded by Cassini on a Montevideo plant, with the habit of *Leria*, and scarcely sufficiently distinct from that genus.

LIEBIGIA. A genus of *Cyrtandraceae* peculiar to Japan and the Moluccas, and consisting of erect or climbing shrubs, with opposite equal or unequal serrated leaves, and axillary peduncles bearing blue violet-coloured flowers. The calyx is tubular, four to five-cleft, the corolla funnel-shaped, the stamens four, two of them sterile, and the capsule elongated, pod-like, two-valved, and falsely four-celled. [B. S.]

LIÈGE. (Fr.) *Quercus Suber*.

LIERRE. (Fr.) *Hedera Helix*. — DES COPENHAGEN or D'ÉTÉ. *Senecio mikanioides*, sometimes called *Delavaya scandens*. — GRIMPANT. *Hedera Helix*. — TER-RESTRE. *Nepeta Glehoma*.

LIF, LIEF, LOOF. Names for the fibre by which the petioles of the date-palm are bound together.

LIFF, or LOUF. *Infus acutangula* and *egyptiaca*.

LIGEA. One of the genera of *Podostemaceae*, consisting of aquatic herbs, natives of Guiana. According to M. Tulasne, the able investigator of these humble plants, the species have larger stems than is usual in this order, these stems being either single, or tufted and curiously wavy, and the leaves alternate in two rows, decurrent, and of various shapes. The flowers are

placed on long stalks, which are grouped together in cymes, and are further distinguished by the number of stamens, and the smooth, not ribbed capsule, whose valves are of equal size. [M. T. M.]

LIGHTFOOTIA. A genus of bellworts, having the filaments of the anthers broad and ciliated at the lower part, and the style beardless, its summit short, and with narrow divisions. The species are mostly small shrubs, and natives of the Cape, with small stalkless leaves which are alternate or opposite. The name was given in honour of the Rev. J. Lightfoot, author of a Flora of Scotland. [G. D.]

LIGHTWOOD. *Acacia Melanoxylin*; also *Ceratopetalum apetalum*.

LIGN-ALÔES. The fragrant wood of *Aloxylium Agallochum*.

LIGNEOUS, LIGNOSE. Having the texture of wood; or of belonging to wood.

LIGNUM. The wood; that central part of a stem which lies below the bark, or its equivalent, the cortical integument.

LIGNUM CAMPECHIANUM. Logwood — **COLUBRINUM.** A drug obtained from *Strychnos ligustrina*, and perhaps other species. — **RHODIUM.** The wood of *Amrys balsamifera*, and *Rhodorrhiza scoparia*. — **VITÆ.** The wood of *Euodacum officinale*, or perhaps of other species. — of N. S. Wales. *Eucalyptus polyanthemoides*; also *Acacia falcata*. — of New Zealand. *Metrosideros scandens*. —, **HASTARD.** *Budiera diversifolia*.

LIGULE. A strap. The radiant florets of certain composites; also the membrane which occurs at the base of the lamina of a grass-leaf; also certain appendages found on the coronet of some asclepiads, alternating with the horns and spreading over the corolla.

LIGULARIA. A genus of *Compositæ*, closely allied in habit and character to *Senecio*, and scarcely differing from some of the large-flowered herbaceous species, except in a tendency of the ray-florets to assume a bilabiate form, and in the anthers to have points at the base. The species are all natives of the mountainous regions of Asia, and have been more generally known as species of *Cineraria* or of *Senecio*. One only, *L. sibirica*, extends into the mountains of central Europe. It is a showy marsh plant, with broadly cordate leaves, and large yellow radiating flower-heads, in a simple terminal spike.

LIGULATE. Strap-shaped; narrow, moderately long, with the two margins parallel.

LIGULIFLORÆ. A name applied to a suborder of *Compositæ*, in which all the florets in the head of flowers are ligulate, and each of the florets has stamens and pistil. This suborder corresponds to the *Cickoraceæ* of Jussieu. [J. H. B.]

LIGULIFLOUS. Having a capitulum composed exclusively of ligulate florets.

LIGUSTICUM. A genus of umbellifers, having the fruit nearly round, each half of it with five sharp ribs, and numerous oil-vessels in the furrows. The species are perennial herbs, widely distributed, being found, some in North America, others in central Asia. *L. scoticum*, a native of many parts of the British coast, is sometimes used as a potherb. [G. D.]

LIGUSTRUM. The common Privet of our hedges is the most familiar and only European representative of this genus of *Oleaceæ*, but there are about twenty other species, which belong principally to China, Japan, and Northern India. They are mostly large shrubs from six to ten feet high, but some form trees, which in India attain a considerable height. They have opposite entire leaves, usually oblong egg-shaped or lanceolate; and the flowers are small and white, disposed in thyrsus-like panicles at the ends of the young branches; they have a cup-shaped deciduous four-toothed calyx, and a funnel-shaped four-lobed corolla; and the fruit is globular, and contains two one-seeded cells.

L. vulgare, the common Privet, a native of most parts of Europe, is otherwise called Prim or Prim-print, in consequence of one of its chief uses being for the formation of hedges in ornamental gardens, owing to its bearing clipping or being kept in prim order without injury; and its generic name is said to be derived from the Latin *ligo*, to tie, on account of the long straight shoots being used in many places instead of osiers for tying, &c. It seldom grows higher than eight or ten feet, and has a short crooked trunk; but its wood is only large enough for turnery purposes, for which its hardness and whiteness render it suitable. Its purplish-black berries, which during winter afford food for many kinds of birds, yield an oil by pressure, and their juice is used in Germany for painting playing-cards and similar articles, and in other countries for colouring inferior descriptions of port wine. A bitter extract called *ligustrine* is obtained from the bark; and in Belgium the dried and powdered twigs are used for tanning purposes. [A. S.]

LILAC. Pale dull violet, mixed a little with white.

LILAC. *Syringa vulgaris*. —, **AFRICAN.** *Melia Azedarach*. —, **AUSTRALIAN.** A name used by the settlers for *Hardenbergia monophylla*; also *Prostanthera violacea*. —, **INDIAN.** *Melia* or —, **PERSIAN.** *Syringa persica*.

LILAS. (Fr.) *Syringa vulga*. — **DE MARLY.** *Syringa purpurea*. — **DE ROUEN.** *Syringa dubia*. — **DES INDES.** *Melia Azedarach*. — **DE TERRE or TERRESTRE.** *Muscari monstrosum*. — **VARIN.** *Syringa dubia*.

LILIACEÆ. (*Hamercallidæ*, *Tulipaceæ*, *Coronariæ*, *Asphodelæ*, *Asperagtiæ*, *Convallariaceæ*, *Lilyworts*, &c.) A natural order of monocotyledonous plants belonging to

the subclass *Petaloides*, and constituting the type of Lindley's liliaceous alliance of Endogens. Herbs, shrubs, or trees, with bulbs, corms, rhizomes, or fibrous roots, simple sheathing or clasping leaves, and regular flowers. Perianth coloured, of six leaves or six-leaf; stamens six, inserted on the perianth, the anthers introrse; ovary three-celled; style one; stigma simple or three-lobed. Fruit three-celled, capsular, or succulent; seeds in one or two rows, sometimes in pairs or solitary; albumen fleshy. They are natives both of temperate and tropical regions, and emetic, purgative, and diaphoretic in their qualities. Certain species of *Aloe* supply the aloe used in medicine. *Urginea Scilla* furnishes a bulb which is used medicinally under the name of squill. New Zealand flax is prepared from *Phormium tenax*. Onions, leeks, garlic, chives, shallot, rocambole, tulips, the resin called dragon's blood, &c., are all furnished by plants belonging to this extensive order, which comprises upwards of 150 genera and 1,200 species. *Tulipa*, *Agapanthus*, *Yucca*, *Hyacinthus*, *Asphodelus*, and *Dracena*, are examples of the principal groups. [J. H. B.]

LILIUM. The genus which gives its name to the order *Liliaceæ*. It embraces a considerable number of species, all of which belong to the northern hemisphere, and, with the exception of the few found in the mountains of sub-tropical Asia, to the temperate regions. Several are Japanese, and from that country our gardens have lately been enriched with certainly the finest species of the genus, *L. auratum*, the stem of which, two to five feet high, bears a dozen or more magnificent flowers, each as much as a foot across, studded with purple spots and blotches on an ivory-white ground, their sepals and petals being also marked with a conspicuous stripe of yellow down their middle. Other Japanese species, such as *L. laucifolium*, *L. speciosum*, and *L. japonicum*, are also in much request in our gardens on account of the beauty of their flowers. *L. candidum*, the White Lily and the *Krisan* of the Greeks, and *L. chalcidonicum*, are both found in Palestine, Syria, and other Eastern countries, and are sometimes pointed out as the Lilies of the Field; but as the true lilies do not form a very conspicuous feature in Eastern scenery, it has been suggested that the plant alluded to by our Saviour was *Anemone coronaria*, which is there extremely abundant, and would be more likely to attract attention. The bulbs of several species are eaten, such as those of *L. kamschatkense* in Kamtschatka, of *L. Martagon* by the Cossacks, of *L. tigrinum*, the Tiger Lily, and others, in China and Japan. Some medicinal uses have also been ascribed to various species, but none have any very marked properties in that respect.

All Lilies are herbs with scaly bulbs, whence arise tall slender stems, furnished with alternate or somewhat whorled leaves, and bearing upon their summit a few large, showy, erect or drooping flowers. These

flowers have a perianth of six distinct or very slightly cohering segments, which are narrow and erect at the bottom, but broader, and spread or curve outwards towards the top; and at the base of the perianth the six stamens are inserted. Their three-celled ovary terminates in an elongated style bearing a three-angled or three-lobed stigma; and ripens into a three-valved capsule containing numerous horizontal winged seeds. [A. S.]

LILY. *Lilium*. —, AFRICAN. *Agapanthus umbellatus*. —, ATAMASCO. *Zephyranthes Atamasco*. —, BARBADOS. *Hippeastrum equestre*. —, BELLADONNA. *Amaryllis Belladonna*, the *Belladonna purpurascens* of some modern botanists. —, BLACKBERRY. An American name for *Parlathus chinensis*. —, BOURBON. *Lilium candidum*. —, BRISBANE. *Euryclis australasica*. —, CAPE COAST. *Cri num spectabile*. —, CORFU. *Punkia subcordata*. —, CURAN. *Scilla peruviana*. —, DAY. *Hamorcallite*. —, FIRE or FLAME. *Pyrolisum*. —, FLAX. *Phormium tenax*. —, GOLDEN. *Lycoris*. —, GUERNSEY. *Nerine carolinensis*. —, IXIA. *Ixiolirion*. —, JACOB. *Bea. Spheerita Amaryllis formosissima*. —, KNIGHT'S-STAR. *Hippeastrum*. —, LENT. *Narcissus Pseudo-Narcissus*. —, MEXICAN. *Hippeastrum regina*. —, OF THE VALLEY. *Convallaria majalis*. —, PERSIAN. *Fritillaria persica*. —, POND. *Nymphor*. —, ROCK. *Scilla ginelei convoluta*. —, ROCKWOOD, of N. Zealand. *Ranunculus Lyallii*. —, ST. BRUNO'S. *Anthericum Liliaceum*. —, SCARBOROUGH. *Yallota purpurea*. —, SUPERB. *Methonica superba*. —, SWAMP. *Zephyranthes*. —, TRUMPET. *Richardia cethiopica*. —, TURK'S CAP. *Lilium Martagon*. —, WATER. *Nymphaea*. —, WHITE. *Lilium candidum*. —, WHITSUN. *Narcissus poeticus*.

LILY-PINK. *Aphyllanthes*.

LILY-THORN. *Catesbaea*.

LILYWORTS. Lindley's name for the *Liliaceæ*.

LIMATODIS. A genus of *Orchidaceæ*, nearly allied to *Calanthe*, from which it differs in having the lip quite free from the column instead of being united with it. It contains a few terrestrial species, natives of India and Java, the most familiar of them being *L. rosea*, a Moulmein plant with fusiform pseudobulbs, oblong lanceolate plaited leaves, and a many-flowered scape of very handsome bright rose-coloured flowers, having a straight blunt spur, and an oblong flat lip. [T. M.]

LIMA-WOOD. The finest description of Nicaragua wood (*Crescentipia echinata*) produced in South America.

LIMB. The flat expanded part of a petal.

LIMBATE. Having one colour, surrounded by an edging of another

LIME. *Citrus acidula*. —, OGEECHIE. *Nyssa candicans*. —, SWEET. *Citrus Limetta*. —, WILD. *Atalantia monophylla*.

LIME TREE. *Tilia europæa*.

LIMETTE. (Fr.) *Citrus Limetta*.

LIMEUM. A genus of *Phytolaccaceae*, differing from most of the order in having a membranous seed-coat, and by the presence of petals, which, however, are often suppressed. They are African annuals or undershrubs, with branched procumbent stems, alternate fleshy entire leaves, and flowers in compact cymes, having a five-parted calyx, often coloured within, five petals when present, usually seven stamens, two styles, and a subglobose indehiscent fruit. [J. T. B.]

LIMNANTHEMUM. This name, Marsh-
flower, is applied to a genus of *Gentianaceae*, consisting of aquatic plants, with roundish floating leaves, and yellow flowers. The calyx is five-cleft; the corolla rotate, or funnel-shaped, fringed with hairs in the interior; and the capsule bursts irregularly when ripe, by which latter circumstance the genus is distinguished from *Villarsia*, to which otherwise it is very closely allied. *L. nymphæoides* is one of our most beautiful water plants, having leaves like those of a waterlily, but smaller, and large funnel-shaped yellow fringed flowers. [It is a native of England, from Norfolk and Gloucester to Sussex; and is naturalised farther north, and in Scotland and Ireland.] [M. T. M.]

LIMNANTHES *Douglasii*, a sweet-scented ornamental annual, introduced from California by Douglas, belongs to the *Tropæulaceae*, and is distinguished from *Tropæolum* by having the flowers regular. The stems are prostrate; the leaves pinnate, with an odd or terminal three-cleft leaflet; the peduncles one-flowered, and the petals five, yellow and white, emarginate. The whole plant partakes of the pungent properties of the Indian cresses, or, as they are often popularly called, nasturtiums. [C. A. J.]

LIMNOBIUM. A genus of American *Hydrocharitaceae*, of which *L. spongiosum*, the North American Frogbit, and *L. Sinclairii*, from Guatemala, are the only known species. They very closely resemble our English frogbit in appearance, so much so indeed that without flowers it is difficult to distinguish them: and like it, they are aquatic plants, floating in stagnant water and propagating themselves freely by means of runners. Generally they are distinguished by the spathe of the male plants being one-leaved, and producing about three long-stalked flowers, which have the stamens completely united into a central column, bearing from six to twelve narrow anthers at unequal heights. In the female plants the spathe is two-leaved, and produce a single short-stalked flower. [A. S.]

LIMNOCHARIS. A perennial herbaceous aquatic, belonging to the order *Butomaceae*. The leaves are broadly heart-shaped, oblong; and the flowers on long stalks, with three sepals, and as many delicate yellow radaceous petals, shaded with orange near the claw. Two species are

cultivated, *L. Plumieri* and *L. Humboldtii*, both South American. [C. A. J.]

LIMNONESIS. A genus of *Pistiacæ*, consisting, as the name implies, of plants growing in wet marshy places, chiefly in tropical America. The genus is closely allied to *Pistia*, but is distinguished by the stalked leaves, and by the spadix, which does not extend beyond the attachment of the anthers, which latter are two or three in number. The fruits contain two seeds only. [M. T. M.]

LIMODORUM abortivum is a leafless erect terrestrial orchid, forming a genus of the tribe *Neottieæ*. It is found in dry shrubby places and woods, in Central and especially Southern Europe, and is believed to be parasitical on the roots of shrubs. It grows to the height of one or even two feet, and assumes more or less of a purple colour; the stem bears a few sheathing scales or bracts; the flowers are rather large of a dingy purple in a simple loose spike; the sepals and petals are nearly alike and erect; the lip, also erect, is prolonged into a spur at the base; the column is elongated, with an oblong erect anther on the summit.

LIMON. (Fr.) *Citrus acida*. — **DOUX.** *Citrus Limetta*.

LIMONELLIER. (Fr.) *Limonia*.

LIMONIA. A small genus of *Avranciaceæ*, two species of which are natives of India and Ceylon, one of Mauritius, and another of Madagascar. They are shrubs with trifoliate or pinnate leaves, and the flowers with a four or five-lobed calyx, a similar number of whitish petals, twice as many free stamens, and a four or five-celled ovary. The fruit is pulpy.

L. acidissima is a spiny shrub, native of the East Indies, growing eight or ten feet high, and having pinnate leaves with winged stalks, and racemes of white flowers, producing round fruits about the size of damson plums, and of a yellowish colour, changing to a reddish or purplish tint. The Javanese employ the extremely acid flesh-coloured pulp of these fruits as a substitute for soap; and on the coast of Malabar they are used medicinally. [A. S.]

LIMOO. A name used in some of the Pacific Islands for Seaweed.

LIMOSELLA. Mudwort, a genus of humble aquatic annuals belonging to the *Strophilariaceæ*, among which they are distinguished by their campanulate regular corolla, and one-celled capsule. *L. aquatica*, the only British representative of the genus, is a minute plant, growing in muddy places and the banks of ponds, sending up from the creeping roots clusters of narrow smooth leaves, and inconspicuous pale pinkish flowers. [C. A. J.]

LIN. (Fr.) *Linum catharticum*. — **DE LA NOUVELLE ZÉLANDE.** *Pharbitis Linum*. — **VIVAGE.** *Linum abortivum*.

LINACEÆ. (Linen, Flaxwort.) A natural order of dicotyledonous plants belonging to Lindley's geraniol alliance of hypogynous Exogens. Herbs with entire, sessile, alternate opposite or verticillate leaves, which are exstipulate, or which have occasionally a pair of minute glands at the base. Flowers regular and symmetrical; sepals three to five, imbricate; petals three to five, contorted in aestivation; stamens united at the base, three to five, usually with intermediate abortive ones in the form of teeth opposite the petals; ovary three to five-celled; styles three to five. Fruit six to ten-celled; seeds one in each cell; embryo straight. Abundant in Europe and North Africa. The plants yield mullage and fibre. Flax and linseed are procured from *Linum usitatissimum*. There are four genera and about ninety species. [J. H. B.]

LINAIGRETTE. (Fr.) Eriophorum.

LINARIA. A genus of herbaceous plants belonging to the *Scrophulariaceæ*, among which they are well marked by their perianate corolla (the mouth of which is closed by a prominent palate), spurred at the base, and by the capsule opening with teeth at the extremity. The most common English species is *L. vulgaris*, Yellow Toad-flax, characterised by erect stems one to two feet high, numerous glaucous linear leaves resembling those of flax, and terminal racemes of crowded yellow and orange flowers. A singular variety of this species, named *Peloria*, is sometimes found with five spurs and regular flowers. *L. Cymbalaria*, Ivy-leaved Toadflax or Mother-of-thousands, is frequent on ruins and old garden walls. Among the cultivated kinds *L. speciosa* is a popular border annual; and *L. tricornithophora* is remarkable for the singular form of the flowers, which resemble, as its trivial name indicates, three birds seated in the spur. French, *Linaire*; German, *Flackkraut*. [C. A. J.]

LINCONIA. A genus of bruniads, having the border of the calyx in five smooth short divisions; the corolla of five lanceolate pieces, folded and concealing the five stamens, the anthers of which have the two halves separated at the base; and the seed-vessel with two cells, each of which is usually two-seeded. The species are natives of the Cape, with the habit of heaths, the branches numerous and erect, the leaves spirally arranged, and the flowers solitary in the axils of the upper leaves. [G. D.]

LINDACKERIA. Mayna.

LINDELÖFIA. A genus of *Boraginaceæ* from Kashmir, consisting of biennial or perennial plants with the habit of *Anchusa*, but an ovary like that of *Cynoglossum* or *Omphalodes*. The corolla is blue or purplish, funnel-shaped, with a long tube and erect-patent five-parted limb, the throat open, with five erect notched smooth scales. The nuts are depressed ovate-deltoid, rough or prickly margined, with a border of long hooked prickles. [J. T. S.]

LINDEN. The Lime tree, *Tilia europæa*.

LINDENBERGIA. A genus of *Scrophulariaceæ* of the tribe *Gratiolææ*, consisting of annual or perennial herbs, of a weedy aspect, usually more or less hairy, and allied in the shape of their flowers to *Mimulus*, with the stamens of *Stemodia*. The leaves, at least the lower ones, are opposite, the flowers yellow or either solitary in the axils of the leaves or forming terminal spikes; the calyx is five-cleft; the corolla is tubular, with an erect notched upper lip, and a large spreading lower lip with a convex palate; the stamens are didynamous, the cells of the anthers distinct from each other and stipitate. The capsule opens loculicidally in two valves. There are eight species known, natives of the warmer parts of Asia and Eastern Africa.

LINDENBLOOMS. Lindley's name for the *Tiliaceæ*.

LINDENIA. A genus of cinchonaceous plants, represented by a shrub, native of Guatemala. The flowers are arranged in terminal corymbs, with oblong bracts. The calyx tube is roundish, marked by five ribs, its limb divided into five narrow erect segments; the corolla is salver-shaped, with a very long tube, the limb with five oblong spreading lobes; anthers five, sessile; capsule two-celled, crowned by the limb of the calyx. The genus differs from *Aeghæa* in the long slender cylindrical tube of the corolla, and in its smooth style. *L. raiata* is a stove evergreen with large handsome white flowers. The genus is dedicated to M. Linden, a horticulturist of Brussels. [M. T. M.]

LINDERA. See *BERZOIX*. The name *Lindera* is, however, preferred by Meisner, to whom we owe the most recent account of the *Lauraceæ*, and who includes under it about a dozen species.

LINDERNIA pyxiduria is a small European annual, forming a genus of *Scrophulariaceæ* of the tribe *Gratiolææ*, and the type of a subtribe distinguished by the valves of the capsule being entire and parallel to the dissepiment. It is much branched, quite glabrous, and seldom attains six inches in height. The leaves are small, opposite and entire; the flowers small, pale pink or white, on axillary peduncles; the stamens didynamous, with arched filaments; the two-celled anthers cohering in pairs. It is a marsh plant, not uncommon in some parts of the continent, but not extending to Britain. It is named after Lindern, a Swiss botanist.

LINDHEIMERIA. A genus of *Compositæ* allied to *Melanopodium*, *Berlandiera*, and *Engelmanna*, consisting of a single Texan species, an erect dichotomous herb, with showy yellow radiating flower-heads on long slender peduncles. The involucre has four or five outer leaflike bracts, and as many internal flat oblong ones. The achenes of the ray are winged, with a short two-toothed pappus, those of the disk

abortive, enclosed in the scales of the receptacle.

LINDLEYA *mespiloides* is the sole representative of a genus named by Humboldt and Kunth in honour of one of the editors of the present work. It is a small evergreen tree or large shrub, found wild in the mountain regions of Mexico, and belongs to the *Quillaja* group of *Rosaceæ*, separated from the other groups of the order by its follicular or capsular fruits, and winged seeds. Amongst these *Lindleya* is distinguished by its five ovaries being consolidated, but having the styles distinct; and by its fruit being a hard bony five-celled and five-angled capsule, which splits open when ripe down the centre of the cells, each of which contains a couple of thin-winged seeds. It has simple crenulate shining leaves of an oblong-acute form, and solitary large white sweet-scented flowers, borne on the tips of its branchlets. [A. S.]

LINDSÆA. A rather extensive genus of polypodiaceous ferns, typical of the section *Lindsæeæ*, a group in which the transverse more or less elongated sori are indusiate, with the indusium attached along the inner, and opening along the outer margin, the reverse of what occurs in *Pteris*. Among these, *Lindsæa* is known by its veins being free. The fronds are very variable in character, some being simple, others pinnate, and others bipinnate, generally with a more or less adiantoid aspect. They are found in the tropics both of the old and New World. The name is sometimes incorrectly written *Lindsaya*. [T. M.]

LINE (adj. **LINEALIS**). The twelfth part of an inch.

LINEA TRANSVERSALIS. The ostiolum of certain fungi.

LINEAR. Narrow, short, with parallel margins; as the leaf of the yew-tree.

LINEATE. Lined; marked by fine parallel lines.

LING. *Calluna vulgaris*; also a Chinese name for *Trapa bicornis*.

LINGUA CERVINA. *Scolopendrium*. — **DE PIN**. *Casearia lingua*.

LINGUIFORM. Having the form of a tongue.

LINNÆA. This genus was so named by Gronovius in honour of the great Swedish naturalist Linnæus, who himself selected it as the most appropriate plant to bear his name, he having first pointed out its true character, besides which it was also an especial favourite with him, and common in his own native country. There is only one species, *L. borealis*, an extremely elegant little creeping evergreen plant, with slender branches a foot or more in length trailing along the ground, bearing small opposite broadly ovate or obovate leaves slightly toothed at the top, and sending up erect thread-like flower-stalks, which fork near the top and bear two gracefully

drooping highly fragrant bell-like flowers, of a pale pink colour or nearly white, and almost half an inch in length. These very beautiful little flowers have a calyx with a border of five teeth; a bell-shaped corolla narrow at its base but spreading upwards and dividing into five nearly equal lobes; four stamens, two of which are shorter than the other two; and a globular hairy three-celled ovary, which ripens into a dry one-seeded fruit. It grows almost exclusively in woods, and is widely dispersed over Northern Europe and Asia, and North America, occurring also in the mountains of Central Europe. In Britain it is found only in the east of Scotland, and in one place in Northumberland. According to Dr. Clarke, its scent is so powerful, especially at night, that it may be discovered at a considerable distance. The Laplanders use a decoction of its flowers as a remedy in rheumatic complaints, and the Norwegians consider a decoction of the entire plant good against the itch. It belongs to the *Caprifoliaceæ*. [A. S.]

LINOSTIGMA. A genus proposed by Klotzsch for a species of *Vicia*, in which the parts of the flower are reduced to four, those of the pistil to two, and the styles are united nearly to the middle. Like the other species of *Vicia*, it is a native of extra tropical South America.

LINOSTOMA. A genus of Indian shrubs belonging to the *Thymelacææ*. The leaves are opposite, closely feather-veined, leathery, and shining; the flowers perfect, in terminal contracted racemes, the stalks of which are jointed in the middle. The perianth is tubular, coloured, and has ten petaloid scales placed in pairs opposite the five segments of its limb. The fruit is dry, not surrounded by any disk, nor, as happens in some adjacent genera, by the base of the perianth. [M. T. M.]

LINOSYRIS. A genus of *Compositæ* of the tribe *Asteroidæ*, consisting of erect herbs or undershrubs with alternate narrow crowded leaves and yellow flower-heads at the ends of the branches, forming a flat terminal corymb. The involueral bracts are not numerous, imbricated, the outer ones loose, passing into the leaves; the florets are all tubular and hermaphrodite, on a flat honeycombed receptacle without scales. The achenes are oblong, compressed, silky, with a pappus of simple bristles in a double row. There are about a dozen species, natives of Europe, temperate Asia, Northern Africa, or North America, among which *L. vulgaris* is not uncommon in hot exposed stony places in Central and Southern Europe.

LINSÆD. The seed of Flax, *Linum usitatissimum*.

LINUM. A genus which gives its name to the *Linacææ*, consisting of herbs and small shrubs, natives of all the temperate regions of the globe, but rare in the tropics. The leaves are alternate, opposite, or even whorled; and the flowers, which are

variable in colour and very fugitive, grow in panicles or corymba. The calyx consists of five sepals; the corolla of five petals; and the stamens, which are the same in number, are connected into a tube at the base, and between them are five filaments, which are rudiments of stamens. The ovary is from three to five-celled, with the same number of styles and capitate stigmas; the capsule globular, most commonly ten-celled, from each cell being partially or completely divided in two by a spurious dissepiment, and each cell thus formed contains a single pendulous seed.

The species are numerous, but very few of them are of any importance except *L. usitatissimum*, the common annual Flax, which has been an object of cultivation from the earliest times. This plant has, for the most part, solitary quite erect stems, alternate smooth linear-lanceolate leaves, and a corymbose inflorescence; the sepals are ovate-acute with a membranous margin; and the petals are blue, three times longer than the calyx. The finer kinds of the linen of commerce are manufactured from the ligneous fibre of the stems of this plant; and the seed, called Linseed, is scarcely less valuable on account of the large quantity of oil contained in the embryo. The seeds contain a mucilage which dissolved in water is demulcent and emollient, and the meal of the seed is used for poultices. The cake remaining after the oil is expressed is extensively used in fattening cattle. *L. catharticum*, remarkable for its erect much-branched stem, its opposite smooth obovate-lanceolate leaves, and small white flowers, is occasionally used in medicine, being bitter and purgative. [B. C.]

Flax (*L. usitatissimum*) is only known at the present day as a cultivated plant, or as occurring in a semi-wild state in places where it has escaped from cultivation. History tells us that it has been grown for its fibre from the earliest times of which we have any record, it being one of those plants which the wants of civilised man early taught him the use of; and the long period during which it has been an object of culture has doubtless, as in other known instances, so altered the appearance of the plant that it is not recognisable in its original form, if such exists at the present day. The Bible affords ample proof of the antiquity of the use of flax as a material for weaving cloth. We read (Gen. xii. 43) that Pharaoh clothed Joseph in fine linen, and in the account of the plagues with which the Egyptians were visited (Ex. ix. 31), we are told that the flax was smitten; from which passages it would appear not only that the art of weaving had reached a high state of perfection, but also that flax was one of the agricultural plants of Egypt at that early period; and this is confirmed by the representations of its culture which occur in ancient Egyptian pictures which have descended to us. Moreover, microscopists have proved that the cloth used for wrap-

ping round mummies, the antiquity of which is undeniable, was made of flax. Flax and linen formed an article of commerce between the ancient Egyptians and Greeks. The plant was also cultivated by the early Romans; but as their clothing was chiefly made of wool, it did not find much favour.

In modern times the culture of Flax is widely spread in the northern hemisphere, extending from the tropics in India to Egypt to the northern parts of Europe. The principal producing country, and that from which we obtain the greater portion of our supply, is Russia, flax being an important crop in the northern districts of that country; but large importations are likewise received from Belgium, Holland, Prussia, and other countries, our total imports in 1860 amounting to 1,464,810 cwts., in addition to which considerable quantity is annually produced in our own country, mainly, however, in the north of Ireland.

The processes which flax undergoes before it reaches the hands of the spinner, vary in different places, but the general principle is the same in all, and although numerous new processes have been invented for shortening the time occupied by the various stages, none has yet entirely superseded the old modes. They may be said to consist of six operations:—*Rippling*, which consists in the removal of the seed-capsules by drawing the stem through a kind of comb. *Steeping or watering*, the object of which is to facilitate the separation of the fibre from the wood, and to get rid of the mucilage. To accomplish this, the flax-straw is tied in bundles and placed in ponds or rivers, where it is allowed to remain for a period of eight to twelve days, when it is taken out, and then undergoes *Grassing*, the bundles being untied and the straw spread out evenly and regularly on pasture land, and frequently turned so as to expose both sides to be washed and bleached by exposure to the rain and sun. Then follows *Breaking*, by which operation the woody part of the stem is broken previous to *Scutching*, which removes all the broken fragments left adhering after the last process. These two operations are generally effected by machinery, but were formerly performed by hand labour. After scutching, flax finds its way into the market, but before being used by the spinner it undergoes a sixth operation called *Hekling*, which removes all extraneous matter and completely separates and arranges the filaments in parallel order. It consists in drawing the flax over sharp iron spikes arranged in a quincunx manner and inserted into oblong pieces of wood.

Besides the fibre of the Flax plant, its oily seeds, known as Linseed, are a commercial article of considerable importance, no less than 1,330,623 quarters having been imported in 1860, principally from Russia and India, for the supply of our oil-mills. The finest kind of linseed oil is the product of simple pressure, and is called 'cold-drawn'; but the ordinary kind is obtained

by breaking up, beating, and re-pressing the marc or cake left after the last process. It is a non-drying oil, but by boiling with sugar of lead, red-lead, or white vitriol, it is converted into a drying oil fit for the use of painters, by whom it is most extensively employed. The cake is greatly valued by agriculturists for feeding purposes, and in addition to that made in this country, large importations are received from abroad, mainly from the United States. [A. S.]

LIONDENT. (Fr.) *Leontodon*.

LION'S-EAR. A common name in the Andes for some species of *Calceitum*; also *Espeletia*, and *Leonotis*.

LION'S-FOOT. *Leontopodium*; also *Hymenocoma Tournfortii*, *Alchemilla vulgaris*, *Nabalus Fraseri*, and *N. serpentarius*.

LION'S-LEAF. *Leontice*, especially *L. Leontopetalon*.

LION'S-PAW. *Alchemilla vulgaris*.

LION'S-TAIL. *Leonotis Leonurus*.

LION'S-TOOTH. *Leontodon*.

LIPARIA. A genus of *Leguminosæ* of the suborder *Papilionaceæ* and tribe *Leptariæ*, consisting of South African shrubs, with undivided alternate lanceolate rigid and pungent leaves, and bright yellow flowers in terminal heads. The genus differs from *Priestleya* chiefly in the lowest division of the calyx, which is much larger than the others, being coloured and petal-like. There are three or four species, amongst which *L. spherica* is remarkable for the dense nodding flower-heads, fully three or four inches in diameter.

LIPARIS. This genus of small-flowered orchids consists of about an equal number of terrestrial and epiphytal herbs, and is distinguished among the malacodiscous genera by their four collateral pollen-masses, and by their free lateral sepals, entire lip plane at the base, and elongated semiterete column. One or two are European or North American, but the majority are Indian or Javanese. [T. M.]

LIPOCHÆTA. A genus of *Compositæ*, of the tribe *Heliantheæ*, and very nearly allied to the opposite-leaved *Verbesina*, distinguished chiefly by the achenes, which are scarcely winged, those of the ray having usually three angles and short awns, whilst those of the disk have only two and are often abortive. There are about ten species, natives of the Sandwich Islands, and an eleventh from the Galapagos, which has been published under the name of *Mæva*. They are all rough or hoary herbs or undershrubs of little interest or beauty.

LIPPIA. A large genus of *Verbenacæ*, containing nearly a hundred species, natives of America. They are herbs or shrubs, generally with glands containing an aromatic volatile oil, simple opposite or verticillate leaves, and small flowers in heads or spikes. The calyx is two or four-

toothed or two-lipped; the corolla strongly two-lipped, with the upper lip notched and the lower much larger and three-lobed; the stamens included; the ovary two-celled surmounted by a capitate stigma. The small capsular fruit is two-celled and two-seeded. [W. C.]

LIQUIDAMBAR. A genus of *Altingiaceæ*, consisting of trees, with alternate petiolate stipuled leaves, and unisexual flowers in catkins. The flowers are monocious, surrounded by a four-leaved deciduous involucre; the male catkins conical or subglobular with numerous anthers; the female subglobular, surrounded by scales; ovary two-celled, with numerous ovules, the fruit forming a sort of strobilus. They are natives of North America, Java, and Asia Minor. [J. H. B.]

LIQUIDAMBAR COPAL. (Fr.) *Liquidambar styraciflua*. — À FEUILLES DE CÉTÉRACH. *Comptonia asplenifolia*. — DU LEVANT. *Liquidambar orientale*.

LIQUIRITIA. *Glycyrrhiza*.

LIQUOR AMNII. The fluid that is contained in the sac within which the embryo is engendered.

LIQUORICE. *Glycyrrhiza glabra*. —, WILD. *Abrus*; also an American name for *Gallium circæans*.

LIRELLA. A linear shield with a furrow along its middle, in such lichens as *Opegrapha*.

LIRICONFANCY. *Convallaria majalis*.

LIRIODENDRON. A name derived from the Greek words signifying Lily-tree, and applied to a genus of *Magnoliacææ*, the only representative of which is the well-known Tulip-tree of North America. This tree attains a height of 140 feet in America,



Liriodendron tulipifera.

and of 50 to 100 feet in this country. The bark is smooth, the leaves large, bright green, truncate at the point, four-lobed and somewhat like a saddle in shape; hence the tree is sometimes spoken of as the

Saddle-tree. The stipules are large, opposite, flat, and serve the function of scales to the young buds, which are bent downwards, becoming subsequently erect, when the stipules fall off. The flowers are large, somewhat like a tulip in appearance; they have a calyx of three deciduous segments which are turned down, and a corolla of six erect petals forming a kind of cup of bell, and both sepals and petals are greenish variegated with yellow and orange. The fruits of the Tulip-tree do not split when ripe, as those of *Magnolia* do.

The noble appearance of this tree renders it a great favourite in English pleasure grounds, but the flowers are not produced until it has attained an age of from twenty to thirty years. In America the wood, which is yellow or whitish according to age, is employed by the Indians in the construction of their canoes, for which purpose its lightness renders it available. It is likewise used by cabinet-makers, and by coach-builders for the panels of coaches, &c. The tree shares in the bitter tonic principle common to most of the trees of the *Magnoliaceae* family. The foliage of the Tulip-tree assumes in autumn an intensely bright golden yellow hue. [M. T. M.]

LIRIOSMA. A genus of *Oleaceae*, consisting of a Brazilian tree with soft yellow odoriferous wood, alternate elliptical glabrous leaves, and axillary flower-panicles shorter than the leaves. The flowers have a calyx adherent to the ovary, with a truncate tube and nine stamens, of which six are sterile, petaloid, and bifid. [J. T. S.]

LIL. (Fr.) *Lilium candidum*. — ASPHODELE. *Hemerocallis flava*. — D'ANGLETERRE. *Iris zephyroides*. — DE GUERNESEY. *Nerine sarniensis*. — DE MAI. *Convallaria majalis*. — DE PORTUGAL. *Iris zephyroides*. — DE SAINT BRUNO. *Anthericum Liliastrium*. — DE SAINT JACQUES. *Amaryllis* or *Sprekelia formosissima*. — DES ALLOBROGES. *Anthericum Liliastrium*. — DES INCAS. *Alströmmeria Pelegrina*. — DESPAGNE. *Iris zephyroides*. — D'ÉTANG. *Nymphaea alba*. — DES VAL-LEES. *Convallaria majalis*. — ISABELLE. *Lilium testaceum*. — JACINTHE. *Scilla italica*. — JAUNE. *Hemerocallis flava*. — JAUNE DORÉ. *Lycoris aurea*. — MATRIOLLE. *Pancratium maritimum*. — NARCISSE. *Pancratium maritimum*; also *ia bulsa*. — TURBAN. *Lilium*

LISERÉ. (Fr.) *Convolvulus arvensis*.

LISERON. (Fr.) *Convolvulus*. — DE MICHAUX. *Pharbitia hederacea*. — DE PORTUGAL. *Convolvulus tricolor*. — DES HAIES. *Calystegia sepium*. — ÉPINEUX. *Smilax aspera*. — GRAND. *Calystegia sepium*. — NOIR. *Polygonum Convolvulus*. — PETIT. *Convolvulus arvensis*. — SATINÉ. *Convolvulus Onoseris*.

LISÉ. (Fr.) *Convolvulus arvensis*. — PIQUANT. *Smilax aspera*.

LISIANTHUS. A genus of *Gentianaceae*, consisting of tropical American herbs or

undershrubs, with decussate sessile or stalked ribbed leaves. The flowers are more or less clustered, axillary or terminal; the calyx bell-shaped, with five erect segments, membranous at their edges; the corolla funnel-shaped, purple red blue or yellowish-green in colour, withering on the plant, its tube slightly irregular; the stamens five, within the corolla, the anthers ultimately rolled back; the capsule two-celled.

The flowers of *L. Russellianus* are very handsome; while those of *L. princeps* are described as constituting the plant one of the noblest in existence. It is a greenhouse shrub with long hanging flowers of a rich scarlet melting into yellow at either end, and having an emerald green five-lobed limb. [M. T. M.]

LISSANTHE. A genus of *Epicurideae*, entirely confined to Australia and Tasmania. They are small rigid shrubs, sometimes not more than three or four inches high, and seldom exceeding five or six feet, having small scattered sharp-pointed often needle-shaped leaves, and very small usually white flowers, borne either singly or in short spikes from the sides of the branches. The corolla is funnel-shaped, destitute of the hairs upon the limb possessed by its congeners, whence the generic name from *lissos*, smooth, and *anthos*, a flower. The fruit is a small fleshy berry containing a hard stone. That of several species is eatable. *L. sapida*, a native of South-eastern Australia, is called the Australian Cranberry on account of its resemblance both in size and colour to our European cranberry, but its flesh is thin, and more like that of the Siberian crab. *L. strigosa* and *L. montana* are eaten in Tasmania, the latter being a very dwarf mountain species bearing large white transparent fleshy fruits. [A. B.]

LISSOCHILUS. A genus of vandeous African orchids, of terrestrial habit, with striated or plicate leaves, and racemes of rather showy flowers springing from the base of the pseudobulbs. It comes near *Eulophia*, but is distinguished by the great disproportion between sepals and petals. The sepals are small, reflexed or spreading; the petals large, spreading, wing-like; the lip sacrate; the column short, erect; and the pollen-masses two in number, bilobed behind, with a short linear caudicle, and a triangular gland. The species are not very numerous. [T. M.]

LISTERA. A genus of terrestrial orchids, consisting of slender herbs with a rootstock bearing a mass of thickish fibres, and two leaves at some distance from the ground, and so near together as to appear opposite. The flowers are small, green, in a slender raceme; the sepals and petals nearly alike, short and spreading; the lip longer, linear, and two-cleft; there is no spur; and the anther is fixed by its base in a cavity at the top of the short column. There are but few species, natives of Europe, Northern Asia, or North America,

Two are British: *L. ovata*, the common Tway-blade, which has a stem often above a foot high, and broadly ovate leaves two to four inches long; and *L. cordata*, a more northern mountain plant, seldom above six inches high, with the leaves small, and usually slightly cordate.

LITANTHES. A genus of *Liliaceæ*, from the Cape of Good Hope. An extremely small herb, with a bulb almost the size of a pea, a bristle-like scape appearing before the leaves, and a single small drooping flower, with a greenish-white tubular cylindrical perianth, having a six-cleft limb, and six included stamens. [J. T. S.]

LITCHI. The fruit of *Nephelium Litchi*, a plant sometimes referred to *Euphoria* or *Dinocarpus*.

LITHOCARPUS. A genus of *Cupulifereæ*, consisting of lofty trees with alternate entire leaves, and monœcious flowers in caskins. The male caskins are filiform, with a cup-shaped six-cleft perianth, and twelve to twenty stamens inserted at its base; while the female flowers are sessile on a common rachis, surrounded by scales. The fruit is a hard nut, enclosed in scales. *L. javanets* is the only species. [J. H. B.]

LITHOSPERMUM. The Gromwell genus, a large group of *Boraginaceæ*, known by having the corolla regular, funnel-shaped or salver-shaped, without scales at the throat, where are often five plates; and by the nuts not being contracted at the base, and having a flat surface of adhesion to the receptacle. The species are generally distributed, but most numerous in the warmer parts of the temperate zone. They are rough strigosely hairy herbs or undershrubs, with bracteated racemes of purple, blue, white, or yellow flowers. [J. T. S.]

LITHOXYLON. A genus of *Euphorbiaceæ*, established by Endlicher for the *Securinega nitida*, an Otahaitian plant, differing in some slight particulars from the rest of that genus.

LITHY-TREE. *Viburnum Lantana*.

LITMUS. A blue dye prepared from *Rocella tinctoria* and some other lichens, by maceration and occasional agitation in a mixture of urine, lime, and potash. A kind of fermentation takes place, and the lichen becomes first reddish, and then blue. When dried it has, if rubbed with the nail, a coppery tint like indigo. Litmus is of great importance to chemists, as it affords a delicate test for acids and alkalies, since blue litmus acquires from acids a red tint, which is restored by alkalies. For this purpose paper is steeped in a solution of litmus, and then dried and bound up in packets; when so prepared, it is sold under the name of test-paper. [M. J. B.]

LITOBROCHIA. A genus of pteroid ferns, closely allied indeed to *Pteris* itself, from which it is separated by the reticulation of the veins of the fronds. From *Amphidictya*, another reticulated genus of *Pteridæ*, it is known by the absence of

free veinlets from the areoles; while *Lonchitis*, which also agrees with it in this particular, is known by its sori being for the most part confined to the sinuses of the segments, whence it takes a lunate form, those of *Litobrochia* being continuous along the whole margin of the segments. The group *Doryopteris*, with simple or palmate fronds, which is sometimes separated as a distinct genus, has the veins hidden in the substance of the fronds; while in true *Litobrochia* the fronds are once, twice, or thrice pinnate, and the veins are more distinctly visible. They are nearly all of them natives of tropical climates, and are found in considerable numbers in both hemispheres. [T. M.]

LITSEÆ. A genus of Indian trees of the laurel family, with reticulated leaves and flowers in axillary tufts, protected by numerous overlapping scales which fall off after a time. The flowers are unisexual, both males and females having a four to six-parted deciduous perianth: the former with six stamens having four-celled anthers, and some of the stamens glandular at the base; the latter with four or six sterile stamens, and a number of glands surrounding the ovary. The fruit is fleshy, and placed upon the thickened top of the flower-stalk. [M. T. M.]

LITTEÆ. Under this name Tagliabue, an Italian botanist, described a South American *Agave*, which flowered for the first time in Europe in the garden of the Duke of Litta, near Milan, in 1815; but which now bears the name of *Agave geminiflora*. It has a short stout trunk, bearing on its summit a dense crowd of narrow whip-like dull-green leaves, from the midst of which, once in the lifetime of the plant, rises a straight spear-like stem, twenty or more feet high, bearing an immense number of yellowish-green flowers, with long protruding stamens furnished with versatile anthers. [A. S.]

LITTLEGOOD. *Euphorbia helioscopia*.

LITTORAL. Growing on the sea-shore.

LITTORELLA. An herbaceous perennial belonging to the *Plantaginaceæ*, common on the margins of the English and Scottish lakes, where it forms a turf. The leaves, all of which proceed directly from the roots, are grass-like but fleshy; and the flowers are some barren and some fertile, the latter sessile among the leaves, the former elevated in scapes two or three inches high, and remarkable for their four long slender filaments and tremulous anthers. *L. lacustris*, commonly called Shore-weed, is the only species. [C. A. J.]

LITUATE. Forked, with the points a little turned outwards.

LITURATE. When spots are formed by the abrasion of the surface.

LIVÈCHE. (Fr.) *Levisticum*.

LIVELONG, or LIVE-FOR-EVER. *Sedum Telephium*.

LIVER-LEAF. *Hepatica.*

LIVERWORT. *Marchantia polymorpha.* —, **GROUND.** The herbalists' name for *Peltidea canina*, Dr. Mead's once celebrated remedy for hydrophobia. —, **NOBLE.** *Hepatica triloba.*

LIVERWORTS. Lindley's name for the *Marchantiaceae*.

LIVID. Clouded with intermingled greyish brownish and bluish tints.

LIVISTONA. The geographical range of this genus of palms extends from Upper Assam and Southern China, through Malacca and the islands of the Indian Archipelago, to the continent of Australia, reaching as far south as the colony of Victoria. Of the eight or ten known species, two are noble trees attaining the height of eighty or a hundred feet, while the others seldom exceed twenty or thirty feet. Their leaves are terminal and fan-shaped, divided into numerous segments, which are split at the apex; and frequently have threads hanging between them, while the footstalks are sheathed at the base in a mass of netted fibres, and are often prickly along the edges. Their branching flower-spikes grow out from amongst the leaves, and have several incomplete leathery spathes surrounding their stalks. The flowers have a three-cut calyx, and a three-parted corolla, and are all perfect. The fruits are dry and one-seeded.

L. australis, also called *Corypha australis*, is one of the few palms belonging to the Australian continent, and is principally found along the east coast to as far as latitude 37° S. It is the tallest of the species, occasionally attaining upwards of a hundred feet in height, with a trunk about a foot in diameter. Its unexpanded leaves, prepared by being scalded and then dried in the shade, are used for making hats; while the still younger and more tender leaves are eaten like cabbages. In Assam the leaves of *L. Jenkinsiana*, the Toko Pat of the natives, are used for making the peculiar umbrella hats worn in that country, and also for thatching roofs, &c. [A. S.]

LIZARD'S HERB. *Goniophlebium trilobum.*

LIZARD'S TAIL. *Saururus.*

LIZARD'S TONGUE. *Sarracoeum.*

LLAVEA. A very interesting genus of polypodiaceous ferns, belonging to the section *Platyloper*, and sometimes known by the name *Ceratodactylis*. The only species, *L. cordifolia*, has tripinnate glaucous fronds, the lower parts of which have broadly cordate-ovate sterile pinnules, and the upper parts long linear siliquiform fertile ones, forming a marked contrast to each other. The sori are in simple or forked contiguous lines near the ends of the free veins, the frond-margin being somewhat revolute and attenuated, so as to become a spurious indurium. The plant is Mexican, and is found at considerable elevations. [T. M.]

LLITHI, or LITHRI. *Lithrea caustica.*

LLOYDIA. A liliaceous plant, from five to six inches high, with flowers composed of six nearly equal spreading persistent petals, or rather sepals, which are white, veined with red or green; stamens not bearded, the anthers and style erect. 'The flower-stalk is invested with its own sheath, and separated by an elongation of the root from the leaves, of which the most distant encloses within its fleshy base the rudiment of the plant of the following season. The plant is increased by offsets or creeping shoots with a bulb at the extremity, the point of the bulb being directed towards the parent root.' *L. serotina* was named in honour of Mr. Edward Lloyd, who first discovered the plant on the higher mountains of North Wales. [C. A. J.]

LOASACEÆ. (*Loasacæ, Loasacæ*.) A natural order of dicotyledonous plants belonging to Lindley's natural alliance of epigynous Exogens. Herbs with rigid or stinging hairs, opposite or alternate exstipulate leaves, and showy flowers. Calyx adherent; limb four to five-parted; petals five or ten, often hooded; stamens numerous, distinct or united in bundles; ovary one-celled, with several parietal placentas; style single. Fruit capsular or succulent; seeds albuminous. American plants, some of which from their stinging qualities are called Chill Nettles. There are about a score of genera, of which *Loasa* is the best known. [J. H. B.]

LOASA. The typical genus of *Loasacæ*, and one of those having ten petals in a double series, the five inner or smaller of which in this case are furnished with three bristles on their backs. It is best distinguished from the allied ten-petaled genera by its triad stigma, with acute conniving lobes; and by its capsules opening by three valves at their shortly exserted summits. All the species belong to the cool regions of Peru and Chili, and thrive in the open air during summer in this country, several being grown in our gardens on account of their conspicuous yellow or orange flowers. Many are furnished with bristly hairs secreting an acrid fluid, and inflict a sharp sting when incautiously handled. [A. S.]

LOBBIA. A genus of *Aristolochiaceæ*, named after Mr. Lobb, a botanical traveller, and comprising a climbing pepper-like shrub, with wavy knotted branches, stalked leaves without stipules, and pendulous spikes of flowers placed on a thread-like four-sided receptacle. The perianth is brownish-red, bell-shaped, with a three-lobed limb, the tube having a prominent rim running round the interior; stamens sixteen to eighteen, inserted on a disk surmounting the ovary, and united with the base of the style, the filaments free; ovary inferior, linear, four-celled. The shrub is a native of Singapore. [M. T. M.]

LOBEBERRY. A common name for *Coccoloba*.

LOBELIACEÆ. (*Lobeliads*.) A natural order of dicotyledonous plants, belonging to Lindley's campanul alliance of epigynous Exogens. Milky herbs or shrubs with alternate exstipulate leaves; calyx superior, its limb often five-lobed; corolla irregularly five-lobed, often deeply cleft; stamens epigynous, the anthers united; stigma fringed. Fruit capsular, one or more celled, opening at the top; seeds numerous, with albumen. Found chiefly in tropical and subtropical climates. Acid and narcotic qualities prevail in the order, which contains about twenty-nine genera, and nearly four hundred species. Examples: *Lobelia*, *Siphocampylus*. [J. H. B.]

LOBELIA. This genus commemorates Matthew Lobel, a physician and botanist of the seventeenth century, who was attached to the court of James I. It also forms the typical genus of *Lobeliaceæ*, and consists of a large number of herbaceous plants, widely distributed over the tropical and subtropical regions of the globe, especially in America, less abundantly found in Northern Europe and Asia. In general habit the species vary much, but are more constant in the characters presented by the flowers, which have a five-lobed calyx with a variously-shaped tube; a corolla whose tube is slit along the upper side, and whose limb is divided into two lips, the upper of two, the lower of three divisions; anthers united into a tube round the style, two, or sometimes all of them, hairy at the top; and an ovary more or less adherent to the calyx.

As is very frequently the case with milky-juiced plants, some of the species of this genus have acrid properties. Such are *L. cardinalis*, *L. siphilitica*, and especially *L. inflata*, a North American plant, sometimes called Indian Tobacco, the symptoms to which it gives rise, as well as its flavour, being not unlike those of tobacco. Given in small doses it operates as a diaphoretic and expectorant, in larger ones as an emetic, while in excessive doses it acts as a powerful acrid narcotic poison, causing great prostration, convulsions, and death. Serious results have followed the injudicious administration of this drug by so-called 'medical botanists,' who deny that the plant is a poison. In medicinal doses, the drug has been, and still is, occasionally used in spasmodic asthma with advantage.

Numerous species of this genus are cultivated in English gardens for the splendour of their flowers, among which *L. cardinalis*, *L. splendens*, and *L. fulgens* are especially conspicuous. Several varieties of these species are now cultivated, the flowers of which present every shade of scarlet, purple, and blue. *L. Erinus* is a low-growing trailing plant, with small pale blue flowers, much used as a bedding plant. Two species are British: *L. Dortmanna*, found in shallow lakes, and *L. urens*, which grows in heathy places. [M. T. M.]

LOBESTENS. The fruits of *Cordia Myxa* and *latifolia*.

LOBIOLE. One of the small lobes into which the thallus of some lichens is divided.

LOBULE. A small lobe. Thus *lobulate* means divided into small lobes.

LOBLOLLY WOOD. The wood of *Ocupania glabra*; also of *Pisonia cordata*.

LOBLOLLY SWEETWOOD. A West Indian tree for *Scudophyllum Jacquinii*.

LOBOCARPUS. A little-known genus described by Wight and Arnott as belonging to *Anonaceæ*. More recent investigations, however, show that it must be referred to *Eschschoriaceæ*; and Müller suggests that it may be a species of *Glochidion*. It is a native of the Indian peninsula. [J. Br.]

LOCELLI, LOCULL. The peridia of certain fungals.

LOCELLUS. A secondary cell; a small cell within a larger.

LOCHERIA. One of the subgenera of *Achimenes*, consisting of erect herbs with axillary or subpaniculate flowers, the peculiar features of which are an oblique funnel-shaped corolla much larger than the calyx, a nearly entire five-angled fleshy ring round the ovary, and a two-cleft stigma. *A. hirsuta* and *podunculata* are illustrations. [T. M.]

LOCULATE, LOCULAR. Divided into cells.

LOCULUS, LOCULAMENTUM. A cell or cavity. Usually the cell of a fruit or ovary; that is to say, the cavity of one or more carpels. Also the peritheciium of certain fungals.

LOCULICIDAL. That mode of dehiscence which consists in ripened carpels splitting or dehiscing through their backs.

LOCULOSE. Divided by internal partitions into cells, as the pith of the walnut-tree. This is never applied to fruits.

LOCUSTA. A spikelet of grasses; that is to say, one of the collections of florets formed in such plants.

LOCUST-BERRY. *Malpighia coriacea*.

LOCUST-TREE. *Ceratonia Siliqua*; also *Robinia Pseud-Acacia*. —, **BASTARD.** *Clethra tinifolia*. —, **HONEY.** *Gleditschia triacanthos*. —, **SWAMP or WATER.** *Gleditschia monosperma*. —, **WEST INDIAN.** *Hymenaea Courbaril*; also *Byrsonima coriacea* and *cinerea*.

LODDIGESIA. A small glabrous undershrub with trifoliate leaves, and small purple and white flowers in short terminal racemes. It is a native of the Cape, and forms of itself a genus of *Leguminosæ* in the section *Papilionaceæ*, nearly allied to *Hippocalyptus*, but differing chiefly in the very short vexillum or upper petal and in the very flat ovate acute pod. It is a rather pretty species, and has been in cultivation, though now apparently abandoned.

LOMOULE. The hypogynous scale of a grass.

LOBOICEA. Prior to the discovery in 1748 of the Seychelles Islands, the existence of the palm, *L. sechellarum*, upon which this genus is founded, was unknown, but its immense woody nuts were frequently found floating upon the sea, or were thrown up on the shores of the Maldivé Islands, and gave rise to many absurd fabulous tales. It was called the Double Cocoa-nut Palm, Coco de Mer, or Coco des Maldives. The tree has a nearly cylindrical trunk, scarcely exceeding a foot in diameter, and bearing a crown of large fan-shaped leaves, some of which are upwards of twenty feet long, and twelve feet wide. They are of two sexes, both of which have three sepals and three petals to the flowers, those of the females being large, thick, and fleshy. The fruits externally are covered with a thick fibrous husk, and contain usually one, but sometimes two or even three immense stones or nuts with excessively hard and thick black shells, each being divided half-way down into two lobes, whence the popular name.

In olden times important medicinal virtues were attributed to these nuts, water drunk out of vessels made of them being supposed to preserve people from all complaints, and extravagant prices were consequently paid for them. At the present day they are converted into various domestic utensils, while the wood serves many useful purposes, and the leaves are made into hats and beautiful baskets, cigar-cases, &c., besides being used for thatching. [A. S.]

This magnificent palm, which is found only in two small islands, Praslin and Curieuse, belonging to the Seychelles group, requires a great length of time to arrive at maturity. The shortest period before it puts forth its flower-buds is thirty years, and a hundred years elapse before it attains its full growth. From the age of fifteen to twenty-five years it is in its greatest beauty, the leaves at this period being much larger than they are subsequently. The stem grows quite upright, straight as an iron pillar, and in the male trees frequently attains a hundred feet in height, the females being shorter. At the age of thirty it first puts forth its blossoms, the males forming enormous catkins about three feet in length and three inches in diameter, while the females are set on a strong zigzag stalk, from which hang four or five, or sometimes as many as eleven nuts, averaging about 40 lbs. weight each. From the time of flowering to the maturation of the fruit, a period of nearly ten years elapses, the fullsize, however, being attained in about four years, at which time it is soft and full of a semi-transparent jelly-like substance. The apparently peculiar formation of the root portion of this tree attracted much attention a few years since, but upon comparison with other palms it seems to be explained as an extraordinary development of a common system. The base of the stem is

rounded and fits into a natural bowl or socket, which is pierced with hundreds of small oval holes about the size of a thimble, with hollow tubes corresponding on the outside, through which the roots penetrate the ground on all sides, never however becoming attached to the bowl, their partial elasticity affording an almost imperceptible but very necessary 'play' to the parent stem when struggling against the force of violent gales. This bowl is of the same substance as the shell of the nut, only much thicker; it rots very slowly, for it has been found quite perfect and entire in every respect sixty years after the tree has been cut down. The reprehensible practice of destroying the trees for the sake of their nuts will, it is to be feared, lead to the extinction of the Coco de Mer, which will become in reality as rare as it was supposed to be by the voyagers who picked up the first known specimens of its nuts floating on the sea. [T. M.]

LOEFLINGIA. A small genus of *Ilcebraceae*, consisting of small annuals from the Mediterranean region and California. They have awl-shaped opposite leaves, bristle-like half-adhering stipules, and very small sessile flowers in pairs or threes in the axils of the leaves and the forks of the dichotomous branches, forming small dense fasciculate cymes. [J. T. S.]

LOGANIACEÆ. (*Spigeliaceæ, Strychnæ, Potelliaceæ, Cælostylææ, Loganiadæ.*) A natural order of dicotyledonous plants, belonging to Lindley's gentianial alliance of perigynous Exogens. Herbs, shrubs, or trees, furnished with opposite entire stipulate leaves; calyx inferior, four to five-parted; corolla four, five, or ten-cleft, with convolute or valvate aestivation; stamens varying in number, not always equal to the parts of the corolla. Fruit a two-celled capsule with loose placentas, or a berry, or succulent with one or two nucles; seeds usually peltate, with albumen. They inhabit chiefly tropical and warm countries. The plants are bitter and highly poisonous. The poison-nut, *Strychnos nuxvomica*, belongs to the order. There are upwards of thirty genera and nearly two hundred species. Examples: *Logania, Spigelia, and Strychnos*. [J. H. B.]

LOGANIA. A genus of *Monopetalæ* which has given its name to the order *Loganiaceæ*. It consists of fifteen or sixteen Australian species, and one from New Zealand, all herbs or small shrubs, with opposite entire leaves, and small flowers in axillary or terminal cymes or panicles. In botanical characters they differ chiefly from *Buddleia* (by some referred to *Scrophulariaceæ*) in the parts of the flower being usually in fives instead of in fours, in foliage and habit, and in the absence of that stellate down or tomentum so universal in *Buddleia*. None of the species are of any particular interest either as useful or ornamental plants.

LOGGERHEADS. *Centaurea nigra*.

LOGWOOD. The wood of *Hæmatoxylon*

campechianum. —, BASTARD. *Acacia*
Berteriana. —, WEST INDIAN. *Ceano-*
thus Chlorocylon.

LOISELEURIA. A genus of *Ericaceae*, the only species of which, *L. procumbens*, is sometimes called *Azalea procumbens*. It is a low trailing evergreen shrub, with small opposite ovate or oblong leaves, and small rose-coloured flowers in terminal clusters, these having a calyx of five sepals, a campanulate five-lobed corolla, and a capsule with two or three cells containing several seeds. It is found on mountain moors in the northern parts of Europe, Asia, and America, and in our own country on the Scottish Highlands. [T. M.]

LOLIUM. A genus of grasses belonging to the tribe *Hordeae*, distinguished chiefly by the inflorescence being in close spikes, with the solitary spikelets placed edgewise along the rachis; glumes solitary, or with that next the rachis very minute, having three or more flowers. The Ray or Rye Grasses are among the most valuable species cultivated in Britain, alike useful as parts of a mixture of grass seeds for sowing on land intended for permanent pasture, and for growing singly as crops in alternate husbandry cultivation. *L. perenne* and the variety called *L. italicum* are the best kinds, especially the latter, which is now extensively grown in all districts where good farming is carried on. By proper management the first crop may be ready for cutting in April, and three more cuttings of after-grass during the season. One of the few deleterious grasses is *L. temulentum*, or Darnel, which sometimes



Lolium temulentum.

prevails to a dangerous extent among white crops, particularly wheat. When ground up with the corn and made into bread, it is said to produce poisonous effects on the system, such as headache, drowsiness, vertigo, &c. [D. M.]

LOLO. The name in some parts of the Pacific for cocoa-nut oil.

LOMAGRAMMA. A genus of ferns of the section *Tantidese*, found in the Philippine Islands. They have pinnate fronds, with the pinnae articulated, and the fertile ones contracted, the venation uniformly reticulated, and the fructification forming non-indusiate linear continuous marginal lines of sporocases. There is only one species described. [T. M.]

LOMANDRA. *Xerotes.*

LOMARIA. An extensive genus of polypodiaceous ferns typical of the section *Lomarietæ*. They are various in size and character, but agree in having free veins, with linear continuous sori, on a broadish linear receptacle occupying nearly the whole under surface of the contracted fertile fronds. The indusium is marginal, opening on the inner side, while from the contraction of the parts the sorus is costal, that is, close to the midrib. They are closely allied to *Blechnum*, with which indeed some botanists propose to unite them, the most marked distinction being the marginal sori of *Lomaria* as opposed to the evidently intramarginal sori of *Blechnum*. *Lomaria* always has contracted fertile fronds, while those of *Blechnum* are generally not at all contracted, but this is not an absolute distinction. The species occur in most parts of the world, and comprise examples with simple pinnatifid and pinnate fronds, while one species, *L. Fraseri*, has a slender tree-like caudex and bipinnatifid fronds, but it is quite exceptional in the genus. The close affinity between *Lomaria* and *Blechnum* is indicated by the fact that our native *Blechnum Spicatum* is frequently included in the former genus. [T. M.]

LOMARIOPSIS. A genus of acrostichoid ferns having altogether the aspect of *Lomaria*, that is to say, bearing coarse pinnate fronds, the fertile ones contracted; but differing in the sporocases occupying the whole under surface of the fronds instead of being confined to the margin, and in the absence of a true indusium. They are mostly scandent ferns, climbing up the trees of tropical forests, both in the Old and New World. [T. M.]

LOMATIA. A genus of *Proteaceae*, consisting of shrubs or small trees, natives of extra-tropical Australia, Tasmania, and South-west America. They have simple pinnate or bipinnate leaves, generally toothed, and of a leathery texture; and flowers of a brownish-yellow colour, occasionally red, and having an irregular spreading calyx of four sepals, four sessile anthers, and a siltform style with an oblique dilated stigma. The seed-vessel is an ovate two-valved leathery follicle, containing several partially winged seeds. [R. H.]

LOMATOPHYLLUM. A genus of *Ericaceae* from the Isle of Bourbon, allied to *Aloë* and *Jucca*, having a tubular corolla like the former, but differing in the fruit, which

is not membranous, but soft and leathery; also in the seeds, which have a thick black seed-coat. From *Yucca* it is known by the perianth not having the leaves all separate. It has an arborescent stem or caudex, with the leaves collected at the top, elongate-lanceolate, with cartilaginous spiny-scabrate margins, and axillary peduncles bearing paniculate flowers. [J. T. B.]

LOMENTACEÆ. A suborder of *Cruciferae* characterised by the silique or pod being lomentaceous, that is, having complete transverse partitions separating each seed from those next to it. Sometimes the true silique is barren, and the seeds are placed in the partitioned beak of the pod. Among British plants this suborder is represented by *Cakile maritima*, *Crambe maritima*, *Raphanus Raphanistrum*, and *R. maritimus*. [J. H. B.]

LOMENTUM (adj. **LOMENTACEOUS**). An indehiscant legume, which separates spontaneously by a transverse articulation between each seed.

LONGITIS. A pteroid genus of ferns, having large herbaceous twice or thrice pinnate fronds, and a thick short rhizome, the fructification forming marginal indurated lines as in *Pteris*, but differing in being of a lunate figure from their occupying the rounded sinuses between the segments rather than the margins of the segments themselves. This is the prevailing character, but occasionally the sort are extended up the sides of the segments. They occur in the Mauritius, Madagascar, the Cape, and South America. [T. M.]

LONGHOCARPUS. An extensive genus of Leguminous plants, of which the greater number are tropical American, seven tropical African, and one Australian. Some are small trees, seldom exceeding thirty or forty feet in height, and others tall climbing shrubs with woody stems. They have alternate pinnate leaves, except in a solitary species from Southern Mexico, in which they are reduced to a single leaflet; and their pea-like flowers are in racemes and either purple reddish or white, but never yellow. The genus is solely distinguished from its congeners by its pods, the structure of its flowers not differing from that of *Pisidia* and other allied genera. The pod is flat, much longer than broad, varying from a thin paper-like to a hard woody consistency, and without wings along the edges, the seed-bearing edge being merely thickened or flattened.

The leaves and young branches of several species of this genus are employed by the Indians of South America for poisoning fish, or rather for intoxicating them, so that they float upon the surface of the water in an insensible state, and are thus captured, but afterwards recover and are good food. One species used for this purpose by the Indians of Guiana was called *Nicon*—its Indian name, but it now bears the name of *L. rupestris*. [A. B.]

LONGHOSTOMA. A genus of the hy-

drophyllaceous order, having the border of the corolla in five lanceolate divisions; and the styles two, and shorter than the tube of the corolla. The species are Cape shrubs, with alternate entire ovate leaves; the flowers solitary in the axils of the upper leaves. [G. D.]

LONDESIA. A genus of *Chenopodiaceae* from the eastern shore of the Caspian Sea. *L. eriantha* is a branched annual covered with white wool; the leaves alternate, oblong or lanceolate, entire; and the flowers on short axillary branches, in involucre bracteated small globose heads: they are polygamous, the females more abundant than the perfect ones. [J. T. S.]

LONDON PRIDE. *Su. 'nqa umbrosa*.

LONGAN, or LONG-YEN. The fruit of *Nephelium Longanum*.

LONG-BEARD. *Tillandsia usneoides*.

LONG-GLAND. *Macradenia*.

LONGITUDO. In the direction of growth.

LONG-PURPLE. Shakspeare's name for *Orchis mascula*.

LONICERA. An extensive genus of climbing or upright shrubs inhabiting both eastern and western hemispheres, and much cultivated for the sake of ornament and the fragrance of their flowers. The genus is by some botanists divided into two subgenera, *Caprifolium* and *Xylosteum*. In its widest extent it includes all plants belonging to the order *Caprifoliaceae* marked by the following characters: Calyx small, five-toothed; corolla tubular, five-cleft, generally irregular; stamens five; style filiform; stigma capitate; ovary one to three-celled, few-seeded. *L. Periclymenum*, the common Honeysuckle, the Woodbine of Shakspeare, the twisted Eglantine of Milton, is too well known to need any description, though it may be noticed in passing that the varieties with red and yellow buds are both of the same species. *L. Caprifolium* is distinguished from the preceding by having the upper pairs of leaves united at the base so as to form a cup. These two species have red berries which are glutinous and sweet, but unpalatable. The latter is sometimes found apparently wild, but is not considered to be a true native. *L. Xylosteum* bears its flowers in pairs, and has an upright mode of growth. It is indigenous to Britain, but of unusual occurrence. Besides these, many foreign species are described by botanists, of which *L. sempervirens*, Trumpet Honeysuckle, a handsome climbing species with evergreen foliage and scarlet flowers, is a native of North America; *L. struca* has orange-coloured flowers; and *L. japonica*, so often figured in Chinese drawings, has evergreen foliage and orange-coloured flowers in terminal pairs. By some botanists the genus *Lonicera* is limited to those Honeysuckles which have upright stems, the climbers being placed in the genus *Caprifolium*, Fr. *Chocorenullis*; Ger. *Geloblatz*. [G. A. J.]

LONTAR. The Palmyra Palm, *Borassus Akeikiformis*.

LOODE. An Indian name for *Symplocos racemosa* or *laurina*, the bark of which forms a mordant for red dyes.

LOOP. *Luffa aegyptiaca*, the interior netted fibres of which are used in Turkish baths as flesh-rubbers.

LOOKING-GLASS TREE. *Heritiera*.

LOOSESTRIFE. *Lysimachia*. —, COMMON. *Lythrum Salicaria*. —, FALSE. *Ludwigia*. —, SWAMP. *Decodon*. —, TUFTED. *Naumburgia*. —, WEST-INDIAN. *Jussiaea suffruticosa*.

LOPEZIA. A genus of annuals belonging to the *Onagraceae*, and distinguished by having two filaments, of which one bears an anther, the other is petal-like and abortive; the seed-vessel is four-valved, four-celled, many-seeded. There are several species, all natives of Mexico, bearing alternate rarely opposite toothed leaves, and terminal racemes of small purple or red flowers. [C. A. J.]

LOPHANTHERA. The name of two Brazilian trees, constituting a genus of *Mulphiaceae*. The leaves are opposite, with two stipules combined into one long axillary scale. The stamens are double the number of the petals, their anthers surmounted by a crestlike appendage; and the fruit is stalked, smooth, not winged, and divided into three lobes, each of which divides into two pieces. [M. T. M.]

LOPHANTHUS. A genus of the labiate order, distinguished by having the tube of the corolla as long as the calyx, its upper lip slightly notched, the lower having its middle lobe broad, with prominent convex divisions on its edge. The species are herbaceous, natives of North America and Eastern Siberia. The name is from the Greek words signifying crest and flower, to indicate the peculiar character of the corolla. [G. D.]

LOPHIOLA. A genus of the group *Wachendorfer*, which is sometimes referred to the *Liliaceae*, but more usually to *Hæmodoraceae*. It is a slender perennial, found in the warmer parts of the United States, with creeping rootstocks, narrow equitant root-leaves, and flowers in a crowded cyme at the top of a leafless scape, the upper part of which and the exterior of the yellowish perianth are densely woolly. The perianth is deeply six-cleft, with spreading divisions. [J. T. B.]

LOPHIRACEÆ, LOPHIRA. A natural order and genus of dicotyledonous plants belonging to Lindley's guttiferous alliance of hypogynous Exogens. Branching trees with alternate entire stipulate leaves, jointed petioles, and panicle regular yellow flowers with jointed pedicels. Sepals five, the three inner smaller, the two outer becoming expanded like wings; petals five, twisted in aestivation; stamens numerous, the filaments short, and the anthers

adnate; disk none; ovary conical, one-celled; ovules numerous on a free basal placenta; stigmas two. Fruit a coriaceous nut, spindle-shaped, one-celled, one-seeded. Trees from tropical Africa. There is only one known genus, viz. *Lophira*. [J. H. B.]

LOPHODIUM. *Lastrea*.

LOPHOGYNE. The name of a genus of Brazilian *Podostemaceæ*, having the appearance of liverworts or mosses. It would seem as though they had no true stem or leaves, but in their place a frond or thallus variously divided, on which are placed at irregular intervals the flowers, supported by little nerves or bundles of cells hidden in the substance of the frond. The flowers have a small number of free stamens, and a striated ovary, the stigmas of which are dilated and membranous, forming a sort of crest. [M. T. M.]

LOPHOLENA. A South African glabrous undershrub with entire leaves, forming a genus of *Compositæ* closely allied to the discoid species of *Senecio*, but differing chiefly in the involucre, which has only five broad leafy scales, and in the long subulate appendages to the branches of the style.

LOPHOLEPIS. *Goniophlebium*.

LOPHOPETALUM. A genus of *Celastraceæ*, consisting of three or four shrubs from tropical Asia, allied to *Euonymus*, but differing chiefly in the cells of the ovary always containing more than two ovules.

LOPHOPHYTUM. A genus of *Elaeagnaceæ*, consisting of fleshy species with a thick rootstock attached to the roots of trees, and clothed in its upper part with overlapping scales. From this rises the flower-stalk, which at its upper end is divided into pimple-like branches provided with deciduous bracts; along these branches the flowers are arranged, the males having free stamens, and the females two styles. The inflorescence and flowers are stated by Dr. Hooker to resemble those of *Gunnera scabra*. One species is said to be eaten in Bolivia. [M. T. M.]

LOPHOSORIA. *Alcophila*.

LOPHOSPERMUM. A genus of *Serophulariaceæ*, of the tribe *Antirrhineæ*, distinguished by a five-cleft herbaceous calyx; by a large tubular corolla, without any spur or pouch, and not closed at the throat as in *Antirrhinum*, but marked with two longitudinal hairy lines; by the globose capsule, each cell opening in an irregular pore below the apex; and by the seeds surrounded by a fringed wing. There are two species, *L. crubescens* and *L. scandens*, both natives of Mexico, and both introduced into our gardens, where they are highly ornamental as herbaceous climbers with showy pink or red flowers. They support themselves by the petioles of their softly hairy triangular or cordate coarsely toothed leaves, and by their long often twisted axillary

LOPHOSTEMON. A Myrtaceous genus founded on an Australian shrub (now referred to *Fraxinea*), with alternate entire leaves, and white flowers in corymba. The calyx limb is divided into five reflexed deciduous segments provided with appendages at their base; petals five; stamens numerous, aggregated into five parcels, opposite the petals; fruit capsular, inferior, three-celled, many-seeded. [M. T. M.]

LOPHOSTYLIS. A name given by Hochstetter to the African species of *Securidaca*, in which the style is more dilated at the top than in the American ones.

LOPSEED. *Phryma*.

LOQUAT. *Eriobotrya japonica*.

LOQUE. (Fr.) *Solanum Dulcamara*.

LORANTHACEÆ. (*Viscoideæ*, *Mysodendrea*, *Loranthæ*.) A natural order of dicotyledonous plants belonging to Lindley's acaul alliance of epigynous Exogens. Parasitic shrubs, with articulated branches, opposite exstipulate fleshy leaves, and hermaphrodite or unisexual flowers. Calyx tube adherent to the ovary, with bracts; petals four to eight, or confounded with the calyx; stamens four to eight, opposite the petals; ovary one-celled, with a solitary pendulous ovule. Fruit superior, succulent. Natives chiefly of the equinoctial regions of Asia and America, but a few are European and African. The mistletoe is *Viscum album*. There are 30 genera and above 400 species. Examples: *Loranthus*, *Viscum*. [J. H. B.]

LORANTHUS. A genus of dicotyledonous plants belonging to the *Loranthaceæ*, consisting of dichotomous branching shrubs, usually parasitic, with opposite or alternate entire leaves, and flowers in spikes, corymba, or panicles, sometimes unisexual. The calyx tube is ovate or top-shaped; the petals four to eight or five to six, free or united; the stamens equal in number to the petals and opposite to them, with introrse anthers dehiscing lengthwise. The berry is ovate or top-shaped, with one seed. They are natives of tropical and subtropical regions, and comprise nearly 300 species. [J. H. B.]

LORATE. Strap-shaped: the same as Ligulate.

LORDS-AND-LADIES. *Arisæ maculatum*.

LORD-WOOD. *Liquidambar orientalis*.

LORICA. The skin of a seed.

LOROFETALUM. A genus of the witch-hazel order, having the petals long narrow and three-nerved; the lobes of the anther deciduous. *L. chinensis* is a native of China, with ovate entire leaves, unequal at the base, and covered with fine down. The plant is placed by some in the [G. D.]

The filamentary branched lichens.

LOTIER ARBORESCENT. (Fr.) *Carmichaelia australis*. — **ODORANT** *Melilotus carulea*. — **ROUGE.** *Tetragonolobus purpureus*.

LOTOS. *Sisyrhus Lotus*.

LOT-TREE. *Pyrus Aria*.

LOTUS. A genus of *Leguminosæ*, of the suborder *Papilionaceæ*, easily known by its leaves consisting of five leaflets, of which two are close to the stem, and assume the appearance of stipules. There are about twenty species known, all herbaceous, the flowers on axillary peduncles, either solitary or in little umbels, yellow, red, or of a deep purple almost black; the calyx five-toothed, the corolla remarkable for its very pointed keel, the stamens diadelphous, and the pod cylindrical or somewhat flattened, with several seeds. The species are most of them European or North African, but a few are spread over Asia and Australia.

L. corniculatus, a decumbent perennial, with umbellate yellow flowers and a cylindrical pod, is the most common British species, and is found in the greater part of Europe, in Northern Africa, Northern and Central Asia, and in Australia. The larger varieties form a very good ingredient in our meadows and pastures. *L. purpureus*, formerly cultivated in our gardens for its dark red flowers, *L. biflorus*, and some allied species, constitute a considerable portion of the meadows of Sicily and other parts of Southern Europe; they, with *L. siliquosus*, a more common European maritime species, are often separated as a distinct genus under the name of *Tetragonolobus*, on account of the ripe pod having four longitudinal ribs or wings. *L. Dorycnium*, and some allied species from Southern Europe, constitute the genus *Dorycnium* of some botanists. *L. hirsutus*, with a few others, also South European, have been detached under the name of *Bonjeania*; and *L. glaucus*, with some other Canary Island species, under that of *Pedrosia*; but all these genera are founded on characters too trifling for general adoption.

LOTUS. A mythic name for the flower of *Nelumbium speciosum*. — **EGYPTIAN.** *Nymphaea Lotus*. — **HUNGARIAN.** *Nymphaea thermale*. — **INDIAN.** *Nymphaea pubescens*.

LOTUS-BERRY. *Byrsotoma coriacea*.

LOTUS-TREE, or **LOTE-TREE.** *Sisyrhus Lotus*; also reputed to be *Celtis australis*. The true Lotus-tree of the ancients is, however, more probably referred to *Nicotia tridentata*. — **EUROPEAN.** *Diospyros Lotus*.

LOUDONIA. A genus of *Haloragacæ* from Australia, comprising three glabrous erect perennial herbs. *L. aurea* has the stem leafy at the base; the leaves alternate, leathery, linear, entire; the panicles terminal, corymbose; the flowers yellow, with the calyx tube four-winged, and its limb

four-parted; four petals, and eight stamens; and a fleshy clavate-tetragonous fruit. [J. T. S.]

LOUFF. *Luffa aegyptiaca*.

LOUREA. A genus of *Leguminosae* *Hedy.* *sarces*, nearly allied to *Desmodium*, but with a broadly campanulate calyx, enlarged after flowering, and a pod consisting of two or more joints folded upon each other, as in *Urvia*. It comprises three or four species, natives of tropical Asia, one extending to Australia, herbs or undershrubs, with the habit of some *Desmodium*s. The leaves have one or three leaflets; the flowers are small, in terminal racemes or panicles. *L. vesperilionis*, from the Indian Archipelago, is remarkable for the form of its leaflets, transversely oblong, and three or four times as broad as long, such as to have been compared to bat's wings.

LOUREIRA. A name applied to a shrub or small tree, native of Cochin China, in honour of a Portuguese missionary who published a Flora of Cochin China in the latter part of the last century. It is very imperfectly known, and its place in the natural arrangement is not defined. Meisner, who founded the genus, placed it in *Anacardiaceae*; but it was transferred by Lindley to *Amyridaceae*, with which, so far as one may judge by description, it has more affinity. Benthani and Hooker do not refer it to any order, but speak of it as 'genus omnino ignotum.' According to Loureira (who calls it *Folusfera cochinchinensis*), the whole plant is sweet and aromatic, and is employed medicinally by the natives. [J. Br.]

LOUSEBERRY-TREE. *Eunymus europaeus*.

LOUSE-BURR. *Xanthium Strumarium*.

LOUSEWORT. *Pedicularis*.

LOVAGE. *Levisticum officinale*; also *Achillea ligustica*, and a common name for *Ligusticum*.

LOVE. *Clematis Vitalba*.

LOVE-FLOWER. *Apapanthus*.

LOVE-IN-A-MIST. *Nigella damascena*.

—, WEST INDIAN. *Passiflora foetida*.

LOVE-IN-A-PUZZLE. *Nigella damascena*.

LOVE-IN-IDLENESS. *Viola tricolor*.

LOVE-LIES-BLEEDING. *Amaranthus caudatus*.

LOVEMAN. *Galtum Aparine*.

LOVE-TREE. *Cercis Siliquastrum*.

LOWEA. *berberidifolia* is a very singular and rare rosaceous plant, native of Northern Persia, and the Soongari desert, first described by Pallas, and by him referred to *Rosa*, in which genus it is now replaced. It is a little shrub, with yellow rose-like flowers, and simple obovate-cuneate serrated glaucous foliage. It agrees perfectly in the characters of its flowers with *Rosa*, but differs strikingly in its foliage. All true roses have pinnate leaves and stipules, whereas *Lowea* has either no leaves or no

stipules, according to the view taken of the nature of its leafy organs: for it is a matter of doubt whether these are true leaves without stipules, or stipules of suppressed leaves become confluent and putting on the appearance of leaves. In either case it is a remarkable plant. [A. S.]

LOWRY. *Daphne Laureola*.

LOXOGRAMMA. One of the genera of gymnogrammoid ferns, consisting of a few species with simple coriaceous fronds; uniformly reticulated venation, with free included veinlets in the areoles; and non-indusiate oblong or linear sori, the oblique receptacles occurring at intervals on each side the midrib. It comes near *Selliguea*, but has not the pinnate venation found in that genus. [T. M.]

LOXOSCAPHE. A group proposed to be separated from *Davallia*, in consequence of the oblique and subterminal position of the sori, which gives to them something of a darsoid character. The ultimate segments of the fronds are narrow, single-veined and soriferous obliquely at the apex, so that the indusium forms with the margin of the segment a short oblique boat-shaped cavity, instead of the usual straight terminal cyst of *Davallia*, with which in other respects these plants agree. The species are found in South America, South Africa, and the Pacific Islands. *L. gibberosa* is the type. [T. M.]

LOXSOMA. A genus of Australian ferns, closely related to *Trichomanes*, though having none of the pellucid character which belongs to that genus. It has, in fact, creeping rhizomes, with subcoriaceous decompound fronds, dark above and paler beneath, the general aspect much more nearly resembling that of *Davallia*. The sori, however, are involucre in ex-torse marginal cysts, the veins run out into free filiform receptacles, and the sessile oblique-ringed spore-cases indicate that it should be placed with the *Trichomanes*. It has free veins. [T. M.]

LOZANIA. An imperfectly-known genus from New Grenada, formerly referred to *Pochyocera*, but stated by Triana to be a species of *Lacistema*. [J. Br.]

LUBINIA. A genus of primworts, having the corolla almost salver-shaped, the border in five deep divisions, the two posterior of which are shorter than the others; the seed ovate, acute at the end, one-celled, and opening by two valves. *L. atropurpurea*, the only species, is an annual, a native of Mauritius, with fleshy, smooth, and obovate leaves. [G. D.]

LUCEE. Some myrtaceous tree whose leaves are used in Guiana for dyeing black.

LUERNE. *Medicago sativa*.

LUCHE. A Chilean name for *Urea latissima*.

LUCID. Shining.

LUCRABAN SEED. An unrecognised oil-seed exported from Siam.

LUOULIA. The name given by the Nepales to a tree of the *Cinchona* family, and latinised to form the generic title of a tree highly esteemed for the exceeding beauty and fragrance of its rose-coloured, somewhat fleshy flowers, which are borne in terminal corymba. The linear segments of the limb of the calyx are deciduous; the corolla is salver-shaped, its limb five-cleft, with ovate-obtuse lobes; the anthers five, almost sessile on the throat of the corolla; stigmas two, fleshy, surmounting a thread-like style; capsule two-celled, two-valved, with many winged seeds. *L. gratissima* is the best known species. [M. T. M.]

LUCUMA. A genus of *Sapotaceæ*, containing between thirty and forty species, all natives of the American continent and the West Indian Islands, extending from Buenos Ayres to Mexico. Some are shrubs, others large trees, sixty to eighty feet high, or more, and, like most plants of the order, possessing a milky juice, and leathery entire leaves. Their flowers grow in clusters upon the sides of the branches, and are succeeded by large roundish fleshy eatable fruits. *L. mammosum*, one of these large trees, is a native of the West Indies and tropical America, where it is cultivated for the sake of its fruit, which is called Marmalade, or Natural Marmalade, on account of its containing a thick, agreeably flavoured pulp bearing some resemblance in appearance and taste to quince marmalade. This fruit is somewhat egg-shaped, three to five inches long, covered with a rusty-coloured skin, and contains usually a single hard seed. *L. Caimito*, whose fruit is called Caimito in Peru, is smaller than the foregoing, being only about three inches long, but its pulp is softer and superior in point of flavour. [A. S.]

LÜDDEMANNIA. A genus of orchids proposed to be separated from *Cynoches*, and distinguished by its sessile pollen-masses and minute caudicle, as well as by the form of the lip. It is allied to *Lacana*, from which the sessile depressed spherical pollen-masses and minute caudicle also distinguish it. *L. Pescatorei* is a Venezuelan species with the habit of *Acineta*, producing long pendent spikes of buff-yellow flowers, brown inside, with the petals and lip bright yellow. The lip is concave, wedge-shaped at the base, quadrate above, with the sides erect, and with a triangular lobe or tooth in front. [T. M.]

LUDWIGIA. A genus of *Onagradæ*, distinguished from its allies by having the stamens four, equal to the number of petals; and the seed-vessel long and cone-shaped at the end. The species are Indian herbs, growing in marshes; the leaves alternate, narrow, entire, and shortly stalked; the flowers yellow, solitary, in the axils of the leaves. The name was given by Linnaeus in honour of Ludwig, Professor of Medicine at Leipzig. [G. D.]

LUFFA. A genus of *Oucurbitaceæ*, consisting of monoecious or dioecious herbs, with alternate petiolate rough leaves, simple tendrils, racemose male flowers, and solitary female flowers. The males have a bell-shaped five-toothed calyx, a five-parted corolla, and five stamens inserted in the calyx distinct or in bundles, with one-celled wavy anthers. The females have the calyx tube club-shaped and five-cleft, five petals, abortive stamens, and an inferior three-celled ovary with numerous ovules. The pepo is ovate or oblong, fibrous within, containing many compressed seeds. The species are natives of tropical Asia and Africa. [J. H. B.]

LUGAR. An unrecognised tanning bark imported from Singapore.

LÜHEA. A genus of *Tiliaceæ*, consisting of South American or Mexican trees or shrubs, clothed more or less with stellate down, alternate leaves usually toothed, and showy white or pink flowers either in axillary cymes or terminal panicles. Each flower is enclosed in an involucre of several linear bracts, often longer than the calyx; the petals are thickened at the base, but without any pit or scale; the stamens very numerous, the outer ones barren; the capsule hard and woody, opening at the top in five valves, and containing several winged seeds in each cell. There are about sixteen species known, most of them very handsome when in flower. The wood of *L. divaricata*, which is white and light, but very close-grained, is used in Brazil for musket-stocks, wooden shoes, &c., and the bark of *L. grandiflora* for tanning leather.

LUISIA. A genus of inconspicuous epiphytal caulescent erect orchids of tropical Asia and America, with terete rigid rush-like leaves, and small dingy green or purplish or yellowish flowers of very little interest. [T. M.]

LULUP. A vegetable touchwood or tinder, exported in large quantities from Labuan.

LUMBANG. The nuts of *Aleurites triloba* and *moluccensis*, from which an oil is expressed. They are called Candle Nuts.

LUMBRICAL. Worm-shaped; a term applied to the worm-like lobes of the frond of certain seaweeds.

LUNAIRE. (Fr.) *Lunaria*. — **GRANDE.** *Lunaria biennis*.

LUNANIA. A genus of woody plants inhabiting the West Indies and South America, and belonging to the *Sampodaceæ*, though hitherto erroneously placed in *Flacourtiaceæ*. In habit and inflorescence it resembles *Osmelia*. The leaves are ovate, the flowers racemose and often emitting a disagreeable odour. The calyx is from four to five-cleft, the corolla wanting, the number of stamens is from six to ten, and there are scales or staminodia (abortive stamens) interspersed among them. The fruit is an ovate capsule. According to

Benthon's recent revision, there are five species of this genus. [B. S.]

LUNARIA. A genus of *Cruciferae* natives of Central and Southern Europe, and consisting of tall biennials or perennials with erect stems, large alternate or opposite cordate-acuminate leaves, and terminal racemes of large purple flowers having the two outer calyx segments bulging at the base. The pouch is very large, stalked, oval or oblong, flattened in the direction of the back, the partition silvery. *L. biennis* is the Honesty of gardens. [J. T. S.]

LUNARIE. *Botrychium Lunaria*.

LUNASIA. *Rabellata*.

LUNATE (dim. **LUNULATE**). Crescent-shaped.

LUNETIÈRE. (Fr.) *Biscutella*.

LUNG-FLOWER. *Gentiana Pneumonanthe*.

LUNGS-OF-THE-OAK. *Sticta pulmonacea*.

LUNGWORT. A name given to *Sticta pulmonacea*, a lichen which in moist sub-alpine countries grows abundantly on the trunks of trees. It is occasionally used, like Iceland moss, in diseases of the lungs, and for other medical purposes. It is also said to be employed in Siberia as a substitute for hops. The name is also given to *Pulmonaria officinalis* and *Hieracium pulmonarium*. —, **BULLOCK'S.** *Verbascum Thapsus*. —, **SMOOTH.** *Mertensia*. —, **TREE.** *Sticta pulmonacea*.

LUNULARIA. A remarkable genus of *Marchantiaceae*, belonging to the natural order *Lunulariales*, with crescent-shaped involucre to the gemmae, and a pedunculate capitate fruit, which consists of four capsules, each of them surrounded by a proper involucre, and opening, like that of a *Juncgermannia*, with four valves. *L. vulgaris* has been found both in England and Ireland, but is more common southward. It occurs also in Chili. [M. J. B.]

LUPINASTER. A section of *Trifolium*, characterised by having large red white or yellow flowers in heads, with coriaceous persistent petals, and subulate erect calyx segments. The leaves are composed of from three to seven coriaceous leaflets, with numerous veins.

LUPINE. *Lupinus*. —, **BASTARD.** *Trifolium Lupinaster*. —, **SMALL.** *Psoralea Lupinella*.

LUPINUS. A genus of *Leguminosae* of the suborder *Papilionaceae*, like *Gentiana*, characterised chiefly by the two-lipped calyx, monadelphous stamens, and the keel-petal ending in a point or beak as in *Orotalaria*, but differing from that genus in the flattened pod. The species are very numerous in America, especially towards the western side, extending from Oregon to South Chili, but more rare within the tropics excepting in the mountainous districts. In the Old World the genus is confined to a few annual species in the

countries bordering on the Mediterranean. The species are all herbs of undershrubs. The leaves consist of five or more digitate leaflets, or in some species are simple and entire; the flowers are blue, white, purple, or yellow, in terminal racemes or spikes, and often very handsome.

The genus is one of the most puzzling to botanists, who would distinguish its numerous species by positive characters, and cultivation appears in many instances to obliterate those distinctions which may be observed in the wild state. The following are the most remarkable among those found in gardens:—*L. albus*, an annual attaining two three or even four feet in height, with five or seven leaflets to its leaves, and rather large white or pale-coloured flowers. It is probably of Egyptian or East Mediterranean origin, and has been cultivated since the days of the ancient Egyptians. It is now very extensively sown in Italy, Sicily, and other Mediterranean countries for forage, for ploughing in to enrich the land, and for its round flat seeds, white outside but yellow internally, which when boiled, so as to remove the bitter somewhat deleterious principle, form a great article of food in some districts. It used also to be much grown in flower gardens, together with *L. luteus* with sweet-scented yellow flowers, and *L. varius* with differently coloured flowers, but usually of a rich blue, both of them annuals of Mediterranean origin. These have now been mostly superseded by some of the American and especially Californian kinds. Above a hundred of these are known, and most of them are ornamental. More than thirty have been at different times introduced. *L. arboreus*, from California and Oregon, will, when well trained, produce a branching stem several feet in height that will live through four or five years, forming a trunk of light soft wood of the thickness of a man's arm. *L. polyphyllus*, and a few allied species from the same country, are tall erect herbaceous perennials with very handsome richly coloured spikes of flowers, which have become permanent inmates of our gardens. *L. variegatus* (or *L. Orszakshankstii*), a tall annual from Peru, *L. affinis*, *L. nanus*, &c., Californian annuals, are also now common with us, and scarcely one of the genus can be considered as worthless in a flower garden.

LUPIS. The fine inner fibre of *Musa textilis*.

LUPULINE. Waxy globules, resembling pollen, found on the bracts of the female flowers of the hop.

LUPULINE. (Fr.) *Medicago lupulina*.

LUPULINOUS. Resembling a head of hops.

LURID. Dirty brown, a little clouded.

LUS-A-CHRAOIS. (Gael.) The plant of glutinous, *Cornus suecica*.

LUSTRE D'EAU. (Fr.) *Chara*.

LUSTWORT. *Drosera*.

LUTEOFUSCIOUS. Between yellow and fuscous.

LUTEOLUS. Pale yellow. The same as *Flavescens*.

LUTESCENS. Yellowish.

LUTEUS. Such yellow as gamboge.

LUVUNGA. A genus of Indian auran-tiaceous shrubs of climbing habit, often spiny, having ternate leaves, and flowers in axillary clusters or tufts. The calyx is cup-like; the petals four or five, oblong; the stamens eight to ten, free or combined into a tube, with linear anthers; the ovary two to four-celled, with two ovules in each cell. *L. scandens* has clusters of flowers whose appearance and fragrance resemble those of the orange. [M. T. M.]

LUXEMBURGIA. A genus of *Ochnaceæ*, consisting of showy branching smooth shining trees or shrubs, with alternate leathery serrulate stipulate leaves, and terminal racemes of yellow flowers, having five unequal deciduous sepals; five imbricate-convolute petals; and hypogynous stamens, eight or indefinite, with linear anthers biporate at the apex. The capsule is leathery, one-celled, with numerous seeds. They are natives of Brazil. [J. H. B.]

LUXURIA, LUXURIES. Rankness; an unnaturally exuberant growth.

LUZERNE. (Fr.) *Medicago sativa*. — **DE SUËDE, FAUCILLE, JAUNE, or SAUVAGE.** *Medicago falcata*.

LUZULA. A genus of perennial herbaceous plants allied to the rushes, from which they may be distinguished by their seed-vessels each containing three seeds only, and by their flat leaves which are generally furnished with sparse long hairs. Several species are British. One of them, *L. campestris*, is popularly called a grass, but may at once be detected by its pilose leaves. *L. sylvatica* is a large species, bearing on leafy stalks, two feet high, its spreading panicles of rush-like flowers collected into small tufts. *L. spicata* is a sub-alpine species a few inches high, having its flowers in a nodding spike, which is somewhat compound at the base. There are many foreign species. [C. A. J.]

LUZURIAGA. A genus of *Liaceæ* from Chili and Peru, consisting of branched undershrubs, creeping on the stems of trees, and adhering to them by rootlets, having alternate leaves, and solitary axillary peduncles bearing umbels of yellowish-white flowers with purple dots; the perianth six-leaved, spreading and deciduous; the stamens six; and the berry three-celled, with two seeds in each cell. [J. T. S.]

LYALLIA. A genus of *Portulacacææ*, consisting of a small undershrub from Kerguelen Land, with somewhat the habit of *Lycopodium Selago*, the stem, however, being much branched, with imbricated adpressed leaves, small solitary terminal flowers with a four-parted calyx, and a one-celled subglo-

bular utricular fruit with three seeds, two of which are abortive. [J. T. S.]

LYCASTE. The orchids now associated in this genus were formerly referred to *Maxillaria*, from which they are well distinguished by the two pairs of pollen-masses being seated on a long caudicle attached to a small roundish gland; while from the other allied genera they are distinguished by the middle of the lip being furnished with a transverse fleshy entire or notched appendage. They number a score or more of species, exclusively tropical American; but some, being found in the cool mountain regions, are suited for growing in green-houses or even in dwelling-rooms, and of these *L. Skinneri*, decidedly the finest of the genus, is the best example. The *Ly-castes* have short unjointed pseudobulbs, and plicate leaves. Their flowers, borne singly upon the top of stalks rising from the base of the pseudobulbs, are showy and often of large size, with their sepals and petals frequently dissimilar, and with two of the former combined at the base and protruded in front like a chin. [A. S.]

LYCHNIDE DES JARDINS. (Fr.) *Lychnis coronaria*. — **LACINIÉE.** *Lychnis Flos-cuculi*. — **ROSE DU CIEL.** *Viscaria Cœli-rosa*.

LYCHNIS. The Campion, a genus of *Caryophyllacææ*, distinguished by having five styles. As this character is artificial, various attempts have been made to divide the genus into others, but in many instances the proposed divisions are founded on characters as artificial as those which are assigned to the group as a whole. The following may be taken as genera or sub-genera:—1. Those in which the capsule opens by as many teeth as there are styles:—*Eulychnis*, calyx membranous in front; capsule septicidal; seeds stalked, rough with small tubercles. The Scarlet Lychnis (*L. chalcedonica*) and the Ragged Robin (*L. Flos-cuculi*) with pink flowers are examples of this. *Petrocoptis* differs from the last only in having the seeds sessile and quite smooth, as in *L. pyrenaica*, a white-flowered species. *Viscaria*, distinguished from the two preceding by the capsule splitting loculicidally; to this belong two British species, *L. Viscaria* and *L. alpina*, both having rose-coloured flowers. *Coronaria*, in which the calyx is thickened in fruit; the Rose Campion (*L. coronaria*) is a good example. *Agrostemma*, same as in the last, but without the scale-like appendages which occur at the base of the limb of the petals, forming the so-called crown; the Corn Cockle (*L. Githago*), and a closely allied species *L. gracilis*, are the only species which answer to this character. 2. Those in which the capsule opens by twice as many teeth as there are styles; nearly allied to *Silene*:—*Melandrium*, calyx teeth regular; calyx ovoid, with the veins not prominent in fruit, as in *L. vespertina* and *L. dioica*, the common wild Campions. *Wahlgbergella*, like the last, but the calyx teeth are combined in pairs, and the petals

are small or absent; they are all arctic plants. *Eudianthe*, calyx clavate, with the veins prominent in fruit, and often roughened, as in *Viscaria Cohn-rosa*. [J. T. S.]

LYCHNIS, ROCK. *Viscaria*.

LYCIOPLESIUM. A few South American shrubs constituting a genus of *Solanaceae*. They have spiny stems, rather thick leaves somewhat closely packed together in tufts, and solitary or axillary flowers, with a bell-shaped five-toothed calyx, and a tubular reddish-coloured corolla, whose limb is divided into five acute lobes. The fruit is succulent, enclosed within the persistent calyx, and of a red or orange colour. The generic name is expressive of its close affinity to the genus *Lycium*. [M. T. M.]

LYCIUM. A name applied to some thorny shrub by Dioscorides, and now adopted for one of the genera of *Solanaceae*. The species are shrubs, natives of the Mediterranean region, and of some parts of tropical America. Their inflorescence is various. The calyx is cup-shaped, five-toothed, sometimes irregular; the corolla funnel-shaped or tubular, with a five-cleft limb; stamens five, the anthers opening lengthwise; ovary two-celled; fruit succulent in the cup-like calyx.

The species are numerous. Some are grown in greenhouses, whilst others are hardy. Among the latter is *L. barbarum*, a plant which, from its rapid growth, green foliage, and small lilac flowers, which are succeeded by scarlet or orange fruits, is often met with in gardens. It is well adapted to cover trellises, walls, &c., and is known as the Duke of Argyll's Tree, its leaves being recommended for use in place of tea—a piece of advice not generally acted upon, it would seem. The plant may sometimes be found in a semi-wild state in hedges, having escaped from cultivation. *L. europæum* is made use of as a hedge plant in Tuscany and Spain, and the young shoots are employed as a vegetable. *L. atrum*, a spiny species with violet flowers, forms a handsome plant on a sheltered wall. [M. T. M.]

LYCOGALA. A genus of myxogastrous Fungi, familiar to many from one of its species giving out in its young state, when divided, a rich blood-like pulp. When dry, *L. epidendrum* forms globose somewhat furfuraceous bodies about the size of a nut, filled with dull pinkish-grey cinereous dirty white or yellowish spores, and a few threads which are attached to the walls. It occurs on sticks in woods, and has a wide geographical range. The variability in the colour of the spores is singular, though a parallel example occurs in the genus *Albatium*. [M. J. B.]

LYCOPERDE DES BOUVIERS. (Fr.) *Lycoperdon Bovista*.

LYCOPERDON. One of the principal genera of the natural order *Trichogasteres*, among the gasteromycetous Fungi. The peridium is double, but the outer coat, which breaks up into warts, spines, scales,

&c., is intimately connected with the inner coat, and the spores are mostly sessile, though occasionally stipitate as in *Bovista*, from which it is distinguished by its less persistent inner peridium, and more adnate outer coat. The species are produced abundantly in almost every country, but are so variable that it is often very difficult to distinguish them. *L. Bovista*, when quite young, in which state even, it attains a large size, is one of the best of fungi if cut in slices and fried, but we cannot say much in favour of other large species. The dry mass of threads and spores is used as a styptic, and its fumes answer the purpose of chloroform. The spores are generally more or less olivaceous, but occasionally they assume a purple tint. [M. J. B.]

LYCOPERDON NUTS. The name under which the herbalists sell our common species of *Blaphomyces*. [M. J. B.]

LYCOPERSICUM. A genus of *Solanaceae* established by Tournefort, but afterwards combined with *Solanum* by Linnaeus, although now generally recognised by modern botanists as distinct. Ten species, all natives of South America, chiefly of the Peruvian side, are described. They are either annual or perennial herbaceous plants, generally with weak stems trailing upon the ground or supporting themselves on other plants; they have irregularly pinnate leaves, and stalks bearing many flowers growing from the sides of the stems. The flowers are easily distinguishable from those of the allied *Solanum*, by their stamens having the anthers connected together by a thin membrane which is prolonged upwards, and by their cells opening by means of a long slit down the inside, instead of by two pores or holes at the top. The fruits are fleshy, usually red or yellow, and very glossy, and are divided into two, three, or many cells, containing numerous seeds imbedded in pulp.

L. esculentum is the Tomato or Love Apple. It is an annual plant, native of the warmer parts of America, but long ago introduced into most other warm or temperate countries, where it is cultivated for the sake of its wholesome fruit. It was brought to Europe in the early part of the sixteenth century, soon after the discovery of America, and is now extensively grown in many parts; but in this country, owing to the shortness of our summers, its fruit does not always come to perfection. Several varieties are cultivated, differing only in the size and shape and red or yellow colour of their fruits. Two, however, are considered by some botanists as distinct species, and are named *L. cerasiforme* and *L. pyriforme*—the sole distinction between them being that the first-mentioned has a round two-celled fruit rather larger than a cherry, and the other a pear-shaped two-celled fruit about an inch and a half long; while the more common *L. esculentum* has a large irregularly shaped furrowed fruit, divided into several cells, the irregularity and multiplicity of cells, however, being frequently owing to two or more flowers

having joined together so as to produce only one fruit.

Tomatos are much more commonly used for food in the south of Europe and other parts of the continent than they are in this country. Near Rome and Naples whole fields are covered with it, the fruit being one of the most common articles used in Italian cookery. Now that their agreeable qualities are better known, they are beginning to be more generally appreciated with us, and, in addition to those grown in this country, considerable quantities are imported from the continent. Although they belong to a family usually looked upon with suspicion, on account of the narcotic poisonous properties of so many plants belonging to it, they, in common with the fruits of many *Solanums*, are perfectly wholesome, and may be freely eaten. In a green state, Tomatos form an excellent pickle, and when ripe, various delicious sauces and ketchups are made of them; besides which they are largely eaten either raw, or when cooked in various ways. Used as an article of diet, they are considered beneficial in affections of the liver, indigestion, diarrhoea, and other complaints. The word Tomato is derived from the Spanish-American name *Tamate*; and the other common English name, Love Apple, has arisen from their supposed power of exciting tender feelings. [A.S.]

LYCOPODE. Vegetable brimstone, the highly inflammable powder contained in the spore-cases of *Lycopodium clavatum* and *L. Selago*.

LYCOPODIACEÆ. A natural order of Acregens, consisting of two very distinct groups, one of which contains numerous species with the habit of the larger mosses or conifers, and the other of aquatics which have a more or less herbaceous aspect. *Phylloglossum*, consisting of a single species, is, however, nearly intermediate. They are distinguished from ferns by the absence of a ring to the capsules, which are either bi-tri-valved or altogether anomalous (see *ISOETES*); by their different mode of germination; and, as far as is known, by the very different character of their antheridia. In *Selaginella* there are two distinct kinds of capsules, the one producing large four-sided (globose-tetrahedric) spores, and the other smaller antheridia. The spores germinate by cell-division on one side, a quantity of archegonia being produced in the cellular stratum formed during the process of germination; the antheridia, which at first have quite the appearance of spores or pollen grains, after several weeks produce spiral spermatozooids from their cavity, by means of which the embryo cell in each archegonium is fertilized. This in due time becomes further organized, acquires a distinct root and axis, and finally produces a dicotyledonous embryo strongly resembling that of phanerogams. In the other genera whose fruit has been examined, the process of reproduction is essentially the

In *Lycopodium* there is no distinct second fruit, and the details of germination are at present unknown. It is conjectured that the cellular stratum produced during germination, or in other words the prothallus, produces antheridia together with the archegonia as in ferns. This is, however, very uncertain. The stem, when well developed, consists of a mass of thick-walled often dotted cells, enclosing one or many bundles of scalariform tissue, which send off branches to every leaf and bud. This is occasionally accompanied by distinctly reticulated cells. There is, however, no crossing of bundles as in Endogens, and there are no medullary rays. In many respects the structure is that of ferns.



a. *Selaginella spinulosa*.
b. *Lycopodium clavatum*.

Lycopodiaceæ occur in all parts of the world, but far the finest species and the most abundant occur in the tropics or in countries where there are no very striking distinctions of temperature. The finest modern lycopods, however, cannot bear comparison with the *Sigillaria* and *Lepidodendron* of ancient strata, which vie with tree-ferns in their stem and with conifers in their fruit. In essentials their stems agree in structure with modern lycopods, that of *Lepidodendron* consisting of a central mass made up principally of large scalariform vessels which send off branches to the leaves through the surrounding thick-walled cells. *Sigillaria*, however, takes a step towards phanerogams, having, instead of a nearly uniform central mass, wedges of vessels interrupted by rays from the surrounding cellular tissue. [M. J. B.]

LYCOPODIUM. One of the two great genera of lycopods, known more especially by the name of Clubmosses. They are distinguished from *Selaginella* by the coniferous habit, and single form of capsules. The species vary greatly in size, and while some are quite prostrate, others are erect,

and some again attain such dimensions that they might at first sight be really taken for conifers. The leaves vary from mere threads to broad imbricated scales. The heads of fruit are mostly distinct and cylindrical, and sometimes branched. The same species may assume such various forms under different circumstances as to be recognised with difficulty. Dr. Hooker has given a remarkable instance of this in *L. densum*, a common New Zealand species. Species of *Lycopodium* occur in cold, temperate, and tropical countries, and six occur in our own islands. *L. cernuum*, one of the most widely diffused species, ascends as far north as the Azores, where it is found in the neighbourhood of warm springs; and it is found again as far south as St. Paul's.

Some of the species are cathartic when fresh, but they seem to lose their virtue when dry. One is commonly used as a medicine in Madeira, and *L. catharticum* has, as the name implies, a medical reputation in South America. A blue dye is prepared from some species, and the spores of our common *Cladonia* are used on the stage to produce artificial lightning, from their highly inflammable nature. They are also employed by apothecaries to keep pills from sticking together. They have such a strong repulsive power, that if the hand is powdered with them, it can be dipped in water without becoming wet. *L. alpinum* is the badge of the McRae's, *L. clavatum* that of the Sinclairs. [M. J. B.]

LYCOPSIS. A genus of *Borraginaceæ*, now united to *Anchusa*, from which it differs only in the tube of the corolla being slightly curved. *L. arvensis*, a hispid annual with small blue flowers, is a common weed in cultivated ground. [J. T. S.]

LYCOPUS. A genus of labiates, having the corolla scarcely longer than the calyx, bell-shaped and four-cleft; the two lower stamens alone perfect, the upper wanting or imperfect; and the ripe fruit with thick margins. The species are herbs usually inhabiting marshes, in Europe, Asia, North America, and Australia. [G. D.]

LYCORIS. The plants separated under this name by Herbert are now regarded as forming a section of *Amaryllis*, technically distinguished by the undulated divisions of the spreading perianth being curved upwards, and by the style having likewise a curve upwards and bearing a simple fringed stigma. They are natives of Eastern Asia and Africa. [A. S.]

LYCOTROPAL. An orthotropical ovule curved downwards like a horse-shoe.

LYGEUM. A genus of grasses belonging to the tribe *Phalarideæ*. The inflorescence is contained in large sheath-like bracts, which have two or three florets, without glumes, with the base of the pales hardening into a two-celled seed-vessel. *L. Spartum*, the only species, [is one source of the valuable Esparto grass, which is so largely imported and extensively employed for paper-making]. It is

a rather handsome grass, which has extensive underground stems or rhizomes, and hard wiry leaves. [D. M.]

LYGODICTYON. *Hydroglossum*.

LYGODIUM. A genus of scandent ferns of the group *Schizæneæ*. The species are rather numerous, and widely dispersed over the warmer parts of the world, extending to New Holland, Japan, and North America. The fronds are branched, with a scandent rachis, and they usually bear conjugate branches, which are variously divided in a digitate or palmate manner, or else they are 1 unatifid, or sometimes pinnate. The fructifications form compressed distichous spikelets, somewhat resembling in aspect those of *Selaginella*, but exerted on marginal teeth of the fronds. These spikes consist of bract-like indusia, each covering a single spore-case which is resupinate, and furnished with a many-rayed apical ring. The veins are free, which distinguishes this genus from *Hydroglossum*. They are plentiful in our hothouse collections of ferns. [T. M.]

LYGODYSODEA. This harshly sounding name seems to be derived from the Greek words *lynos*, a slender branch or twig, and *dysodos*, pathless, in allusion probably to the obstruction caused by the climbing habit of the plants to which it is applied by botanists. The genus consists of Mexican and Peruvian shrubs of the *Cinchonaceæ*, characterised by an ovate calyx tube, having a five-toothed limb; a funnel-shaped corolla, with five revolute limb segments; five sessile anthers; and an inferior two-celled ovary, surmounted by a disk. The fruit consists of two carpels, crowned by the teeth of the calyx, and separating when ripe. [M. T. M.]

LYMPH. Sap; the crude unelaborated fluid of vegetation. *Lymphæducts* are sap-vessels.

LYONIA. *Eubotrys*.

LYONETIA. A genus of *Compositæ*, closely allied to *Anthemis*, from which it is scarcely separable. It includes four annual species, natives of the Mediterranean region; and a fifth perennial species is doubtfully placed in the same genus by De Candolle. They have pinnatifid alternate leaves, and naked stems surmounted by solitary heads of yellow flowers. They have been referred by various authors to *Cotula* and *Anagælus*. [J. Br.]

LYONSIA. A genus of the dogbane order, distinguished by having the stigma of a conical form, and the fruit a cylindrical capsule with two cells. *L. straminea*, a native of Australia, the only species, is a twining shrub with opposite leaves, named in honour of Mr. Lyons, who published a Flora of Cambridge. [G. D.]

LYPERIA. A genus of *Scrophulariaceæ* of the tribe *Gratiolææ*, and nearly allied to *Manilla*, but distinguished chiefly by the slender tube of the corolla, which is more or less curved or gibbous at the back near the top. There are about thirty species,

natives of the Cape Colony in Southern Africa. They are all herbs or low branching undershrubs, the leaves opposite or the upper ones alternate, usually small, entire toothed or divided, and often clustered in the axils. The flowers are axillary or in terminal spikes or racemes, usually more or less viscous, and always turn black in drying; when fresh, they are usually yellow or purple, or in some species of that peculiar greenish-yellow, with a brown tinge outside, which is usually accompanied by a tendency to exhale a sweet scent at the close of the day. [The flowers of *L. crocea* have been imported under the name of African saffron.]

LYRATE, LYRESHAPED. Pinnatifid, with the upper lobes much larger than the lower.

LYROCARPA. A genus of *Cruciferae* from California, distinguished by its fiddle-shaped two-lobed pouch. [J. T. S.]

LYSILOMA. A genus of *Leguminosae* of the tribe *Mimoseae*, formerly combined with *Acacia*, from which, however, it is distinguished by the stamens, which seldom exceed thirty in number, being united at the base into a tube unconnected with the corolla, and also by the thin flat pods having, as in *Mimosa*, *Entada*, &c., a thickened margin, which remains entire, while the thin inner portion breaks away in the centre, so as to allow of the escape of the seeds. The eight or ten species are inhabitants of tropical America, and are either shrubs or large trees, destitute of prickles, and resembling in general appearance the acacias of the same regions, having twice pinnated leaves, and round or cylindrical heads of small flowers. The genus is of considerable importance in an economic point of view, on account of one of its species yielding the valuable hard timber known as Sabelu, Savacu, or Savicu wood, the origin of which was long unknown, but which has now been ascertained to be the produce of a species of this genus to which the name *Sabicea* has been given. Sabelu timber is imported in considerable quantities from Cuba, where only the tree is known to exist. It is a dark-coloured wood, very heavy, excessively hard, and extremely durable, the two latter qualities rendering it of great value to the ship-builder, by whom it is much esteemed. On account of its hardness it was selected for the stairs of the building for the Great Exhibition in 1851, and, notwithstanding the immense number of people who passed up and down, the stairs were found, at the close of the Exhibition, to be scarcely at all the worse for wear. [A. S.]

LYSIMACHIA. A genus of herbaceous mostly perennial plants belonging to the *Primulaceae*, and allied to *Anagallis*, from which they are distinguished by having glabrous, not hairy, filaments, and a capsule which opens at the summit with five or ten valves. *L. nemorosum*, the commonest British species, approaches in size and habit the scarlet pimpernel, but has

bright yellow flowers; from this resemblance it is often called Wood Pimpernel. *L. Nummularia*, Moneywort or Herb Twopence, is a trailing plant common on the margins of rivers, the banks of which it often fringes with pendent stems, thickly set with roundish glossy leaves, and large bright yellow flowers. It is often cultivated in gardens as a decoration to rock-work, especially where water is introduced, or is grown as a window plant and allowed to droop over the sides of the pot. There are many foreign species, most of which bear yellow flowers and affect moist situations. French, *Lysimachie*; German, *Gelbe weidenrich*. [C. A. J.]

LYSINEMA. A small genus of *Epacridaceae*, natives of New South Wales and South-west Australia, and having a coloured calyx surrounded with bracts of the same texture as the calyx; a salver-shaped corolla, the tube of which is often divisible into five parts, the segments of the limb smooth and inclined to the right; and the stamens attached below the ovary, and having petalate anthers. They are handsome shrubs, with white or rose-coloured flowers in sessile axillary spikes; the leaves smooth and sharp-pointed. [R. H.]

LYSIONOTUS ternifolia is an erect glabrous herb inhabiting Nepal, and the sole representative of a genus of *Cyrtandraceae*. The leaves are ovate-lanceolate and arranged in whorls; the flowers are of a fine rose-colour, and arranged in terminal umbels. The calyx is five-cleft, the corolla bell-shaped, and the stamens five, two of which are fertile. The fruit is capsular, bivalved, and encloses an indefinite number of seeds. [B. S.]

LYSIOSTYLES. A genus of *Convolvulaceae*, containing a single species, a native of British Guiana. It is a climbing shrub, with alternate petiolate oblong leaves, and flowers in axillary panicles. The calyx is five-cleft, with imbricated lobes; the corolla tube short, and the limb rotate and five-parted; there are five stamens; and the ovary is one-celled, with four erect ovules, surmounted by two styles, completely separate, and each with a capitate stigma. The genus is nearly related on the one hand to *Maripa*, on the other to *Erycibe*, yet abundantly distinct from either. It belongs to the group which Decandolle has raised to the rank of a natural order under the title of *Erycibea*. [W. C.]

LYSIPOMA. The name of a genus of small herbaceous plants of the *Lobeliaceae*, natives of the Andes. The genus is known by the calyx, which has a five-nerved tube and a five-parted somewhat two-lipped limb; by the funnel-shaped corolla, with an entire distended tube and two-lipped limb, the upper lip of two, the lower of three divisions; by the five stamens united into a tube, the two lowermost anthers hairy, and by the inferior one-celled ovary. The capsule opens by a little lid at the top. [M. T. M.]

LYSURUS. A genus of phalloid *Fungi*, in which the receptacle of the fruit is split into a few free laciniæ. In other respects it resembles *Phallus*. The ashes of *L. Mokusii* are applied in China as a remedy to ulcerous sores. It is also sometimes eaten, but often proves poisonous. [M. J. B.]

LYTHRACEÆ. (*Salicariæ*, *Calycanthæma*, *Lythradæ*, *Loosestrifæ*.) A natural order of dicotyledonous plants, belonging to Lindley's saxifragal alliance of perigenous Exogens. Herbs, rarely shrubs, often with square branches, and usually opposite entire exstipulate leaves. Among the allied perigenous exalbuminous orders, it is distinguished by its tubular calyx, enclosing a two to six-celled ovary which is free from it; its united styles; its membranous capsular fruit; and its stamens inserted in the calycine tube below the petals. The plants are chiefly tropical, but some are found in Europe and North America. They have astringent qualities. Examples: *Lythrum*, *Cuphea*, *Lagerströmia*. *Lawsonia alba* yields the henna of the Arabs. There are forty genera, and upwards of three hundred species. [J. H. B.]

LYTHRUM. A genus of herbaceous plants, mostly perennials, giving name to the *Lythraceæ*. In these plants the tubular calyx has eight to twelve teeth, the alternate ones awl-shaped; the petals are four to six, and the capsule is two-celled. The genus is well represented in Britain by *L. Salicaria*, the Purple Loosestrife, a tall and very handsome plant, three to four feet high, with opposite lanceolate leaves, and long terminal leafy spikes of densely whorled purple flowers, common in most parts of Britain, often occupying a large space in marshy meadows, or lining a watercourse for a considerable extent, and thus to be classed among the few plants which, by breadth of colour, tend to characterise a landscape. There are many foreign species, of which *L. virgatum*, a native of Austria, sometimes cultivated, resembles *L. Salicaria* in habit, but is more branched above, and bears its flowers, which are large, in whorls of three or four. French, *Salicaire*; German, *Braune weidenrich*. [C. A. J.]

MABA. A genus of *Ebenaceæ*, differing from *Diospyros* in the calyx and corolla having each only three lobes, instead of four or more. It consists of nearly twenty species, dispersed over tropical Africa and Asia, the Pacific Islands, and North Australia, all shrubs or trees with alternate entire leaves, and small flowers, almost sessile, in their axils. The Ebony wood of Cochín China is believed to be the produce of a tree of this genus.

MABEA. A genus of *Euphorbiaceæ* of the tribe *Crotonææ*, consisting of tropical American shrubs, sometimes climbing, with alternate usually oblong entire or toothed leaves, and flowers in terminal racemes or panicles, the majority usually males, with a few females at the base. The perianth is valvate, without petals;

the males have numerous stamens, and the females a long three-cleft style with one ovule in each cell of the ovary. There are nine or ten species known, all of which yield a copious acrid milky juice. The bark of one of them is, according to Martius, considered in the diamond district of Brazil as a febrifuge, and the straight hollow young shoots of several species are used for tobacco-pipes in Gulana and North Brazil under the name of Tacuári.

MACAHUBA. A Brazilian name for *Acrocomia sclerocarpa*.

MACARTHURIA. A genus of South-west Australian herbs or undershrubs with erect rush-like stems, few small alternate leaves either linear or reduced to minute scales, and small flowers in lateral or terminal compact cymes. [It is allied to *Molugo*, from which it principally differs in the definite (eight) stamens united into a cup at the base: and the ovules, which are one, two, or three in each cell.] There are only three species known, and none are deserving of cultivation.

MACARY-BITTER. A West Indian name for *Picramnia Antidesma*.

MACAW-BUSH. *Solanum mammosum*.

MACAW-FAT. A West Indian name for the Oil Palm, *Elæis guineensis*.

MACAW-TREE. *Acrocomia fusiformis* and *sclerocarpa*. —, **GREAT.** *Acrocomia lasiocarpa*.

MACE. The aril of the nutmeg, *Myristica moschata*; also an Indian name for the gall-nuts formed on *Tamarix indica*. —, **RED.** The aril of *Pyrrhosa tinpera*. —, **WHITE.** The aril of *Myristica Otoba*.

MACERON. (Fr.) *Smyrnum*.

MACFADYENA. A genus of *Dignonitaceæ*, named after Dr. Macfadyen, author of a Flora of Jamaica. The genus has a spatheaceous calyx, funnel-shaped corolla, four fertile stamens of unequal length with glabrous divergent anthers, an elongated flat and smooth capsule, divided into two cells by a partition running parallel with

rous winged seeds arranged in single rows. There are about a dozen species, all inhabitants of the West Indies and the tropical parts of South America. They are climbing shrubs, with trifoliate and conjugate leaves, in the latter instance furnished with tendrils, and large bright yellow or more or less purplish flowers, appearing in the axils of the leaves, or in corymba at the end of the branches. *M. uncatata* has for many years been an inmate of our hot-houses. Many of the species, from being imperfectly known, had until lately been classed with *Spathodea*. [B. S.]

MACHÆRANTHERA. A generic name proposed by Nees for the *Aster tanacetifolius*, described from specimens grown in the Botanic Garden of Mexico, and differing in some slight points from the majority of the species of the great genus *Aster*.

MACHERINA. A genus of cyperaceous plants, belonging to the tribe *Rhynchosporer*. The inflorescence is in panicles; scales of the flowers two-rowed, keeled; stamens three; styles three, cleft, thickened conically at the base; seeds or nuts pear-shaped. There are two species, one of which belongs to the West Indies, the other to New Holland. [D. M.]

MACHERIUM. An extensive genus of leguminous plants belonging to Central and South America, some forming large timber trees, others shrubs of moderate height, while others again are tall creepers, often armed with prickles. Their leaves are pinnate, and their flowers small, and purple violet or white. Their most obvious generic character resides in the fruit, which is compressed, but more or less thickened at the base where the solitary seed is situated, while the upper part is drawn out into a thin tapering wing terminated by the remanent of the style.

Some of these trees are supposed to yield a portion of the Rose-wood of commerce. Notwithstanding the length of time Rose-wood has been known to our cabinet-makers, and the large quantities of it annually imported, its botanical history is very obscure, and it has been at various times referred to trees of widely different natural orders. The best description of true Rose-wood comes from Rio Janeiro, and is now said to be chiefly the produce of *Dalbergia nigra*, a tree belonging to the same section of leguminous plants as the present genus; but there are also several inferior sorts derived from the same country, and these are probably produced by different species of *Macherium*, three of which, viz. *M. armum*, *M. tucorruptibile*, and *M. legale*, are large trees, and, moreover, bear the same Brazilian name (Jacaranda) as the true Rose-wood. *M. Schomburgkii*, a British Guiana species, produces the beautifully mottled wood called Itaka, Itiki, or Tiger-wood, used for furniture in that country. [A. S.]

MACHEL (Fr.) The salad plants, *Faleria mella olitoria* and *coronata*.

MACHOOTL. An Indian name for *Polygonum aviculare*.

MACKAYA bella is a lovely shrubby plant forming a genus of *Acanthaceae*, dedicated by Harvey to Dr. J. T. Mackay of Dublin. It is a native of the rocky bed of the Tongat river, Natal, and is described by its discoverer, Mr. J. Sanderson, as forming a beautiful object, being one mass of most delicate pendant pale lilac campanulate flowers, which grow in racemes four to six inches long. It belongs to the tribe *Asplatanee*, and is nearly related to *Asplatan*, from which it differs in having two of the four stamens barren; and in the absence of a mucro at the base of the anther-cells. The name has also been bestowed upon an *Ulmaceus* tree of tropical Asia, but that is now referred to *Erythrapatum*. [J. Br.]

MACLEANIA. A genus of Peruvian shrubs, referred to the *Facelinaceae*. They have alternate leaves, and axillary flower-stalks terminated by a single flower, which has a five-winged calyx tube, a tubular co-

lla with ten monadelphous stamens attached to its base, and whose anthers are elongated into a tube, and an ovary adherent to the calyx tube, and with five many-seeded compartments. The flowers are reddish or yellow, and possess great beauty. The genus commemorates Mr. Maclean, a patron of Botany. [M. T. M.]

MACLEAYA. A genus of *Papaveraceae*, closely allied to *Bocconia*, but differing from it in the fruit, which is sessile and one-celled, with four to six seeds. The cotyledons of the embryo are three in number and equal, or two or four and then unequal, in size; in germination they are stalked. *M. cordata*, better known perhaps under its old name of *Bocconia*, is a handsome herbaceous plant frequently grown in English gardens, but native of China. The leaves are stalked, somewhat cordate, irregularly toothed at the margin, and glaucous. The flowers are borne in terminal panicles. The genus is named in honour of Mr. Macleay, colonial secretary in New South Wales. [M. T. M.]

MACLURA. This genus, which is peculiar to the western hemisphere—one species being found in the United States, one in Mexico, and five in Brazil and the West Indies—belongs to the *Moraceae*, and consists of middle-sized, sometimes spiny, deciduous trees, with smoothish entire or coarsely serrated leaves, and unisexual flowers upon distinct trees, the males being in cylindrical or globular spikes or in racemes, and the females forming dense globular heads. The fruits are numerous small seed-like achenes, enveloped in the enlarged calyxes, which are packed closely together upon the globose somewhat fleshy receptacle, so that the fruits of a single flower-head form a round aggregate fruit.

M. aurantiaca, the Osage Orange, is a native of the Southern United States, and forms a spreading tree from thirty to sixty feet high, but it is frequently kept dwarf and used as a hedge plant, for which purpose its strong spines render it suitable. It has large entire egg-shaped leaves, and inconspicuous yellowish-green flowers, producing large round fruits from three to five inches in diameter and of a fine golden colour, very beautiful to the eye, but scarcely eatable. Its elastic yellow wood is called Bow-wood, from its being used by the Indians for making bows.

M. tinctoria, the Fustic-tree, is a large usually unarmed tree, with nearly entire oblong taper-pointed leaves, a native of the West Indies and tropical America, from whence large quantities of its bright yellow wood are exported for the use of dyers, who obtain from it shades of yellow, brown, olive, and green. There are two kinds of Fustic, technically termed the Young and the Old, the former being the wood of *Rhus Cotinus*, and the latter that of the present plant. [A. S.]

MACNABIA. A genus of heathworts, distinguished by having the calyx four-cleft, two of the divisions keeled, the others

plain; eight stamens, with beardless anthers; and nearly circular flat winged seeds. The genus was named in honour of the late Mr. McNab, of the Edinburgh Botanic Garden. There is but a single species, a Cape shrub, with the habit of a henth, having leaves in whorls of three, and flowers solitary or in pairs, borne by the shorter branches. [G. D.]

MACODES *Polakii* is a beautiful little orchid from Java, belonging to the group *Physochloa*. Its oval leaves are clouded on the upper surface, and elegantly marked with netted golden veins; but its flowers are small and inconspicuous, having free convolving green sepals and thread-like petals. As a genus, it is distinguished from *Myoda*, one of its closest allies, by its free lip; and from another, *Hemaria*, by its column having a two-lobed appendage at its base. [A. S.]

MACOYA. A Guiana name for *Acrocomia sclerocarpa*.

MACRADENIA *Intescens* is a little Trinidad orchid, forming a genus allied to *Oncidium*, from which it differs by its cucullate-concave undivided taper-pointed lip, by its free perianth divisions, by its column having the two lobes at its top converging into a hood, and by its two furrowless or unindented pollen-masses. The plant is only about four inches high, and has one-leaved pseudobulbs, from the base of which arises a stalk bearing a raceme of four or five dingy yellow flowers spotted with brownish purple. [A. S.]

MACREA. This name was given first to a Chilean genus of *Virganiaceae*, which proved to be identical with *Virgania*; and afterwards to a composite plant from the Galapagos Islands, which has since been reduced to *Lipochæta*. The former is now included by Bentham and Hooker in the *Geraniaceae*, under which they place the *Virganiæ*, as a minor group.

MACRE. (Fr) *Trapa natans*.

MACROCEPHALOUS. Big-headed: the term is sometimes applied to dicotyledonous embryos whose cotyledons are consolidated.

MACROPODAL. Big-footed: applied by Richard to the embryo of grasses, whose cotyledon was mistaken by that author for a radicle.

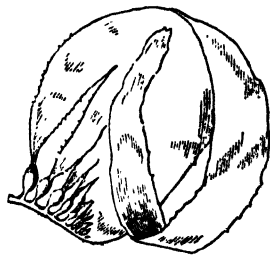
MACROS. In Greek compounds long; sometimes, large.

MACROCHILUS. The name of a small tree of the Sandwich Islands, forming a genus of *Lobeliaceae*, and described as having a straight trunk of ten to twelve feet in height, terminated by a crown of leaves and flower stalks, the former sharp-pointed and wavy, the latter longer than the leaves, drooping, and bearing the flowers in terminal globose heads, surrounded by densely overlapping bracts. The calyx tube is inversely conical, the limb five-cleft; the corolla has an elongated curved tube, cleft

on the upper side, and with a limb divided into five equal linear pendulous segments, whence the name of the genus, from *makros*, long, and *cheilos*, a lip. [M. T. M.]

MACROCHLOA. A genus of Grasses, belonging to the tribe *Stipeæ*, and included by Steudel in the genus *Stipa*, of which it forms a sub-section. *M. tenacissima*, a native of Spain and the North of Africa, is one of the sources of *Esparto* used for paper-making, &c. [D. M.]

MACROCYSTIS. A remarkable genus of dark-spored *Algae*, belonging to the natural order *Laminariaceae*. From a much-branched root springs, in the first instance, a small forked frond which alone bears the fruit in clouded patches, the endochrome of whose spore-cases ultimately breaks up into four spores, as in many other laminarioid *Algae*. Besides this, however, arise one or more tall slender stems, several feet in length, with a vertical terminal lanceolate frond, which is repeatedly split from the base upwards in such a way as to form new leaves, the attenuated base of which gradually passes into a short petiole, which becomes inflated above into a bladder. The original frond is thus repeatedly divided in a second manner, till the plant becomes hundreds of feet long. As, however, the stem does not increase in strength as the plant elongates, the strain is at length so great, notwithstanding the numerous bladders, that it at last gives way, and the plant floats. Many species have been proposed by authors, but all are reducible to one, *M. pyrifera*, which girds the



Macrocytis pyrifera var. *luxurians*.

southern temperate zone, and stretches up from thence along the Pacific to the Arctic regions, through 120 degrees of latitude. This plant, like the *Sargassum*, has been celebrated by all voyagers, to whom it is of great service in indicating the presence of rocks, acting, as it does, like a great buoy. Vast masses are thrown up on exposed coasts, where it is rolled by the waves till it forms cables as thick as a man's body. Single plants have been estimated on reasonable grounds as attaining a length of 700 feet. It is apparently indifferent to cold, if not extreme, but inasmuch as like

its near allies it is a deep-sea *Alga*, it requires a depth of at least six fathoms for its growth. [M. J. B.]

MACROMERIA. A genus of *Boraginaceae*, allied to *Lithospermum*, from which it differs by the exerted stamens, and by having the corolla with a long tube, dilated at the throat. They are Mexican strigose herbs, with simple stems, lanceolate serrated leaves, and terminal few-flowered bracteated racemes. [J. T. S.]

MACROPIPER. This word, signifying large pepper, is applied to a genus of *Piperaceae*, consisting of shrubs, natives of the islands of the Pacific, and having erect wavy knotted stems, alternate leaves on stalks that are dilated at the base, and provided with stipules, the blades of the leaves roundish or cordate with radiating venation. The male flowers are arranged in solitary catkins, the females in numerous catkins, placed in the axil of a leaf. *M. methysticum*, formerly called *Piper me-*



Macropiper methysticum.

thysticum, furnishes the root called by the Polynesians *Ava* or *Kava*, which has narcotic properties, and is employed medicinally in rheumatism and other complaints, but is chiefly remarkable for the value attached to it as a narcotic and stimulant beverage, of which the natives partake before they undertake any important business or religious rites. The approved method of preparing the *Kava* is to chew the root, and thus extract the juice. Dr. Seemann, in some letters from the Feejee Islands, printed in the *Athenæum* (1861), gives some amusing information concerning this plant and its uses. It appears that *Kava* has, like tobacco, a calming effect, rather than an intoxicating one, unless indeed the juice be fermented, as is done by the European residents in some of the islands of the South Sea. Dr. Seemann, however, tells us that the Feejeans pride themselves on the non-intoxicating properties of *Kava*, that it does not make the partakers quarrelsome, and that drunk in moderation it does not appear to have any ill effect upon the system, but when used in excess it produces numerous skin

diseases. All the lower classes of whites in Feejee are *Kava* drinkers, and most of them prefer the drink prepared in regular Polynesian fashion. The more respectable of the population refrain from touching the filthy preparation. Another species of this, or some allied genus, is used similarly in the formation of a beverage, differing from *Kava*, and having, according to Dr. Seemann, a flavour of soap-suds combined with jalap and magnesia. [M. T. M.]

MACROPODIUM. A genus of *Cruciferae*, allied to *Cardamine* and *Parrya*, from both of which it differs in the pod, which is oblong-linear with plane one-nerved valves, being stipitate. A perennial Alpine plant from the Altai, with a terminal raceme of white flowers. [J. T. S.]

MACRORHYNCHUS. A genus including about a dozen annual or perennial stemless herbs of the composite family, found in Oregon, California, and Chili. They have much resemblance to and affinity with *Taraxacum*, differing chiefly in the cylindrical ribbed achenes being destitute of any roughness, and being produced into a long beak, terminating in a pappus of numerous soft white hairs. [A. A. B.]

MACROSTYLIS. A genus of rutaceous shrubs, natives of the Cape of Good Hope, and nearly allied to *Barosma*. The distinctive characters reside in the presence of five stamens only, and in the three carpels, terminated at their points by a single style, longer than the stamens. The reddish flowers are arranged in a kind of umbel on the ends of the branches. The orchidaceous genus of this name is synonymous with *Corymbis*. [M. T. M.]

MACROZAMIA. A genus of *Cycadaceae*, consisting of Australian trees, living in swampy places near the sea. The genus is described as intermediate between *Cycas* and *Encephalartos*. The rachis of the leaves is twisted in the young condition, the leaflets themselves being flat. The male flowers are borne on spoon-shaped pointed spikes, the pollen being collected in two spaces on the under surface of the anthers, and not diffused over the whole surface as in *Encephalartos*. The female spikes bear only two flowers. [M. T. M.]

MACULA (adj. **MACULATE**, **MACULOSE**). A broad irregular spot or blotch.

MACUSON. (Fr.) *Lathyrus tuberosus*.

MADAR, or **MUDAR.** The produce of *Calotropis gigantea*.

MADARIA. A genus of *Compositae*, comprising two Californian annuals, closely allied to *Madia*, distinguished chiefly by the longer and more expanded ray florets, and by the florets of the disk being constantly sterile. The flower-heads form a loose terminal corymb with yellow florets.

MADAROGLOSSA. *Layia*.

MADDER. The root of *Rubia tinctoria*, which is sometimes called *Dyer's Madder*. —, **BENGAL.** *Rubia cordifolia*. —, **CHILI.**

Rubia Rothem. —, FIELD. *Sherardia* or-
ensis. —, INDIAN. *Oldenlandia umbellata*.
—, WILD. *Rubia peregrina*.

MADDERWORTS. A name for the *Ga-
laceae*.

MADHUCA, or MADOOKA. *Bastia bu-
tyracea* and *latifolia*.

MADIA. A coarse hairy more or less
viscous erect annual, forming a genus of
Compositae of the tribe *Heliantheae*. The
lower leaves are opposite and entire, the
upper ones alternate; and the flower-heads
nearly globular, in a terminal raceme, with
yellow florets. The involueral bracts are
in a single series, each one folded so as to
enclose one of the ray florets, which are
ligulate or irregularly enlarged; between
these and the disk is a single row of
scales, but the centre of the receptacle,
bearing the tubular disk florets, is entirely
without scales. The achenes are flattened,
without any pappus. *M. sativa*, the only
species known, is a native of Chili and of
North California, and is there cultivated
for the oil extracted from its seeds.

MADOORKATI. An Indian name for
Cyperus Pangoret, from which Indian mat-
ting is made.

MADOTHECA. A genus of *Jungerman-
iaceae*, belonging to the division *Platy-
phyllae*, which has incubous leaves with the
lower lobe simply folded upon the upper,
an involucre of the same shape as the
leaves, and a perianth neither winged nor
angular as in *Frullania*. The lobes do not
throw out roots from their under surface,
as in *Radiola complanata*. *M. platyphylla*
forms elegant tufts upon old wall-tops, and
is very common. [M. J. B.]

MADWORT. *Alyssum*; also *Asperugo
procumbens*. —, GERMAN. *Asperugo pro-
cumbens*.

MÆRUA. A genus of *Cyperaceae*, con-
sisting of small shrubs, natives of tropical
Africa, Arabia, and India. The flowers have
a funnel-shaped calyx, the tube of which is
peristant, while the limb is divided into
four equal deciduous segments. There is
no corolla, but standing up from the throat
of the calyx is a short crown deeply and
irregularly divided. The stamens are very
numerous, on an elongated receptacle;
and the pod is one-celled. [M. T. M.]

MÆSA. A genus of *Myrsinaceae*, consisting
of trees or shrubs with alternate entire or
toothed leaves, and small flowers in simple or
compound racemes, either axillary or very
rarely terminal. It is distinguished from all
others of the order by the ovary, which is
wholly or partially inferior. There are
several species, natives of the tropical regions
of Africa, Asia, and Australia, but none of
them present any special interest.

MAFUNA. A vegetable wax, suitable for
making candles, obtained in Mozambique
from a tree whose native name is *Mutiana*.

MAGHET. *Pyrethrum Parthenium*, and
many other ray-flowered *Compositae* with
white ray-florets.

MAGALLANA. A plant described by Ca-
vanilles as forming a genus of *Protopseae*,
and inhabiting Central America in the
neighbourhood of Port Desire. Benthams and
Hooker, however, state their conviction that
the figure illustrating the supposed genus has
been made from a depauperated specimen of
Protopseum pentaphyllum, to which has been
added some alien fruit. This supposition is
strengthened by an obvious inaccuracy in the
position of the fruit, and by the fact that *P.
pentaphyllum* is abundant in the places where
Magallana is said to grow. [J. Br.]

MAGNOLIACEÆ. (*Magnolia*, *Wintera*,
Illiciæ.) A natural order of dicotyledonous
plants belonging to Lindley's natural alliance
of hypogynous Exogens. Trees or shrubs
with alternate leathery sometimes dotted
leaves, and convolute stipules which cover
the buds and are deciduous. Flowers frag-
rant; sepals usually three to six, deci-
duous; petals three or more, imbricated;
stamens numerous, distinct, with adnate
anthers; carpels one-celled, numerous, on
an elevated receptacle. Fruit of nume-
rous dry or succulent dehiscent or inde-
hiscent carpels; seeds often arillate, and
suspended from the fruit by a long funi-
culus; albumen fleshy homogeneous; em-
bryo minute. *Magnolias* abound in North
America. They possess bitter, tonic, and
aromatic qualities. *Drims Winteri* yields
Winter's bark. *Allicium anisatum* is called
star-anise, from its flavour, and the star-
like arrangement of its carpels. *Lirioden-
dron tulipifera*, the tulip-tree, is remarkable
for its truncate leaves. There are about
a dozen genera, and upwards of seventy
species. Examples: *Magnolia*, *Drims*, *Li-
riodendron*. [J. H. B.]

MAGNOLIA. Few botanists have their
name and fame commemorated by so splen-
did a genus of plants as that which derives
its title from Pierre Magnol, Professor of
Medicine and Botany, at Montpellier, in
the latter part of the seventeenth and
beginning of the eighteenth century. The
genus gives its name to the order *Magno-
liaceae*, and consists for the most part of
large trees with fine foliage, and handsome
fragrant flowers. They are natives of the
southern states of North America, of North-
ern India, China, Japan, and other parts of
Asia. The leaves are alternate, entire, deci-
duous or evergreen, rolled round in the
bud, in which state they are protected by
the stipules, which originally adhere to the
sides of the leaf-stalks, but ultimately fall
off. The flowers are large, terminal, pro-
tected in the young state by scales that
seem to be of a stipulary nature, as the
writer has not unfrequently seen a leaf de-
veloped from them in the same manner
and in the same situation as with the scales
of the leaf-bud, which are acknowledged to
be stipules. Moreover, Drs. Hooker and
Thomson describe one species, *M. Camp-
bellii*, as having constantly these leaf-bear-
ing scales surrounding the flower. The
calyx consists of three deciduous sepals;
the corolla of six to twelve petals like the
sepals; stamens and ovaries numerous, on

a prolonged receptacle. The fruit consists of a number of foliicles, in a compact spike, and opening along their outer edge to allow of the escape of the scarlet or brown seeds, which are suspended from the carpels by long slender threads.

Most of the species have aromatic tonic properties, which has led to their employment in fevers, rheumatism, and other complaints. The beauty of the foliage and flowers of these trees gives them yet greater claims to our regard than their medicinal properties, which, although not slight, are excelled by those of other plants. The noblest of all is perhaps *M. grandiflora*, a native of North Carolina, where it forms a tree sixty to one hundred feet high. In this country it is commonly grown against a wall, and has generally proved hardy in the south of England, in such a situation, with little or no other protection. But the severe winter of 1860-61 proved fatal in many cases to this, as to so many other reputedly hardy plants. The leaves of this species are evergreen, nine to ten inches long, much like those of a cherry-laurel, but rusty-brown on the under surface. The flowers are large, cup-shaped, white or pale lemon-coloured, and having an exquisite fragrance; they bloom in the latter part of the summer, and occasionally produce their rich brown spikes of fruit in October. There are several varieties of this tree in cultivation, differing in the shape of the leaves, the period of flowering, &c.

M. glauca is a low-growing deciduous tree, called in America Swamp Sassafras, from the nature of the localities in which it grows, and from the resemblance in its properties to *Laurus Sassafras*. It is also known by the name of Beaver-tree, because the root is eaten by beavers, which animals also make use of the wood in constructing their nests. *M. tripetala* has very large leaves and flowers, the latter with so potent a perfume as to produce sickness; fever and gout even have been attributed, doubtless erroneously, to the strong smell of the flowers. The young wood is of a dark brown colour. *M. acuminata* and *M. Fraseri* are called Cucumber-trees in America, on account of the appearance of the unripe fruit. *M. conspicua*, or *M. Yulan*, is a tree attaining a height of forty to fifty feet in China, but not more than half that height in this country. It is remarkable for producing its white flowers in spring, before the leaves are developed. *M. purpurea*, a Japanese species, has deciduous leaves and fragrant flowers, the outer segments of which are purple, the inner white. It forms a splendid bush in the south of England. *M. Campbellii*, a native of Sikkim, is described by Dr. Hooker as a superb species, flowering before the leaves appear, and attaining a height of 150 feet.

There are a few species and varieties that need the protection of a greenhouse in this country; that most frequently met with is *M. fuscata*, a low-growing shrub with evergreen leaves, and dull purple flowers of exquisite fragrance. [M. T. M.]

MAGONIA. A genus of *Sapindaceae*, consisting of two trees, natives of Brazil, occupying extensive tracts of land to the exclusion of other trees, and forming what the Brazilians term *Catingas*, i.e. woods consisting entirely of deciduous trees. They are middle-sized trees, with abruptly pinnate leaves, and large panicles of perfect and imperfect flowers mixed together, appearing before the leaves. The fruit is a large woody three-sided three-celled capsule, containing six or eight broad flat winged seeds in each cell, and opening longitudinally through the middle of the cells when ripe.

M. glabrata, which usually attains the height of thirty or forty feet, covers tracts of land some miles in extent in the province of Ceara. It is called *Tingi* by the Brazilians, who employ an infusion of the bark of its root for poisoning or stupefying fish, while that of the bark of the stem they use for curing old ulcers, or the sores in horses caused by the stings of venomous insects. From the broad flat seeds they manufacture a kind of soap, which answers very well for washing clothes; it is prepared by soaking the seeds in water until they are soft, and then boiling them with a small quantity of tallow, till a homogeneous mass is formed. [A. S.]

MAGUAY, or MAGUAY DE COCUTZA. *Agave americana*. — DE COCAY. *Agave cubensis*. — METL. *Agave americana*, and *A. mexicana*.

MAGYDARIS. An umbelliferous genus of one or two species, found in Spain, Sicily, and North Africa, technically distinguished from *Conium* by its seeds being covered on both sides with numerous very thin vittæ. They are hoary plants, with pinnately cut leaves, the segments of which are lobed and toothed. [A. S.]

MAHALEB. (Fr.) *Cerasus Mahaleb*.

MAHARANGA. The three species forming this genus of *Boraginaceae*, at one time included in *Onosma*, are small hairy or bristly herbaceous plants, natives of Northern India, with entire leaves and terminal racemes of clustered flowers. These latter have a five-parted calyx, and a corolla with a short cylindrical tube widened out suddenly, and having five deep longitudinal furrows, and as many clefts round the closed mouth, the fringed of the tube above its insertion being furnished with a plaited coronet, which distinguishes the genus from its congeners.

The Nepalese apply the name *Maharanga* to *M. Buxodi* only, but botanists have adopted it as a generic name. The word is said to signify 'a strong or intense colour,' in allusion to the dyeing properties of the roots. These are thick, and of a tapering form, of a deep purple colour outside, and yield a brilliant red to oil, but only a dirty brown to water; they are the same as the Rutton root of the Indian bazars, used for colouring oils for staining wood of a mahogany colour. [A. S.]

MAHERNIA. A genus of *Sterculiaceae* only differing from *Hermannia* in the filaments of the stamens being dilated in the middle; also very slightly in the inflorescence, the peduncles being usually two-flowered and terminal or opposite to the leaves. There are above thirty species, all, like the majority of *Hermannia*, natives of the Cape Colony.

MAHLIB. The fragrant kernels of *Cassia Mahaleb*, which are strung as necklaces, and much valued by the women of Scinde and other parts of India.

MAHOE. *Paritium tiliacum*; also *Sterculia caribaea*. —, BLUE or COMMON. *Paritium elatum*. —, BOMBAST. *Ochroma Lagopus*. —, CONGO. *Hibiscus clypeatus*. —, GREY or MOUNTAIN. *Paritium elatum*. —, NEW ZEALAND. *Melicope ramiflorus*. —, SEASIDE. *Theopesia populnea*.

MAHOE-PIMENT. *Dephlopsis caribaea*.

MAHOGANY. *Swietenia Mahagoni*. —, AFRICAN. *Khaya senegalensis*. —, BASTARD. *Ratonia apelta*. —, BAYWOOD. A Honduras name for *Swietenia Mahagoni*. —, EAST INDIAN. *Soymdia febrifuga*. —, INDIAN. *Cedrela Toona*. —, MOUNTAIN. *Betula lenta*. —, MADEIRA. *Persea indica*. —, SENEGAL. *Khaya senegalensis*. —, SPANISH. *Swietenia Mahagoni*. —, QUEENSLAND SWAMP. *Angophora*. —, WHITE or WILD. *Stenostomum bifurcatum*.

MAHONILLE. (Fr.) *Malcolmia maritima*.

MAHOREE. A Bengal name for Antiseed.

MAHYA-TREE. *Bassia butyracea* and *latifolia*.

MAI-DENG. A hard heavy red wood of Siam, well adapted for furniture.

MAIDENHAIR-TREE. *Salsburia adiantifolia*.

MAIDEN-LIP. *Echinoppermum Lappula*.

MAID'S-HAIR. *Galium verum*.

MAIMUNNA. A fruit-bearing rhamnoid of Afghanistan.

MAIS. (Fr.) *Zea Mays*. — DE GUINÉE. *Milium nigricans*.

MAI-TAKLOU. A heavy timber of Siam, supposed to be that of *Nauclea orientalis*, considered to be incorruptible, and bearing a sacred character from being much used in the construction of temples.

MAI-TIKIEN. A valuable timber of Siam, obtained from *Metrosideros vera*.

MAITHES. *Pyrethrum Parthenium*. —, RED. *Adonis autumnalis*.

MAIZ DEL AGUA. *Victoria regia*.

MAIZE. *Zea Mays*. —, WATER. *Victoria regia*.

MAIZENA. A fine flour prepared from the Maize or Indian corn, *Zea Mays*.

MAJOE-BITTER. *Picramnia Antidesmia*.

MAJOON. A confection of Hemp, being a compound of butter, sugar, flour, milk, and bhang.

MAJORANA. *Origanum Majorana*, the Sweet Marjoram.

MAKANA. An Indian name for *Euryale ferox*.

MAKEBATE. *Polemonium caruleum*.

MAKKER, or MAKER. An Abyssinian name for *Boscovia papyrifera*.

MALABAR LEAF. *Cinnamomum malabathrum*.

MALACH. A Turkish name for Hemp, *Cannabis sativa*.

MALACHADENIA clavata. An orchid from Rio de Janeiro, of which Mr. Bate-man remarks: 'It is the only epiphytal orchideous plant I know which emits a positive stench, and that too at all hours by night and day. In the stove it resembles the foulest carrion.' It is the only species of the genus, and has a creeping rhizome bearing one-leaved pseudobulbs, and slender scapes with five or six small greenish brown-spotted flowers turned upside down. These latter have the side sepals joined, except at their reflexed apices, and the other one large, heart-shaped, and pointed; extremely minute petals; a fleshy ovate reflexed lip, articulated with the column, which has a prolonged foot and two cirri in front; and two waxy pollen-masses sessile on a large soft cubical gland. [A. S.]

MALACHIUM. A genus of *Caryophyllaceae*, founded on *Cerastium aquaticum*. It differs from *Cerastium* in having the capsule ovoid, and the teeth joined in pairs; and from *Stellaria*, of which it has the habit, by the latter character, and by having five styles. *M. aquaticum* is a common English plant, resembling chickweed, but larger; and also *Stellaria nemorum*, but the flowers are not so large, and the ovate leaves have shorter stalks. [J. T. S.]

MALACHODENDRON. *Stuartia Malachodendron*.

MALACHRA. A genus of malvaceous plants, consisting of herbs or undershrubs, natives usually of marshy places in tropical regions. The stems have lines of hairs running down them, and the leaves are likewise covered with pungent hairs, while the yellowish flowers are grouped in heads, surrounded by an involucre. The calyx is five-cleft, the corolla five-petaled, the staminal tube divided into about twenty filaments, the ovary five-lobed and five-celled, and the fruit of five carpels. [M. T. M.]

MALAOOID. Having a mucilaginous texture.

MALAPOO. The dried flowers of *Cedrela Toona*.

MALAGUIE. (Fr.) *Malachium*.

MALAXIS *paludosa* is a small delicate terrestrial orchid, forming of itself a genus, distinguished from *Liparis* by the proportion of the petals, and by the pollen-masses, which are club-shaped, in two pairs, both suspended from a gland which terminates the column. It grows to three or four inches in height, the rootstock producing a small solid bulb out of the ground, and three or four ovate or oblong leaves. The flowers are very small, of a greenish-yellow, in a loose slender raceme. It grows in spongy bogs in Northern Europe and Asia, and is sparingly dispersed over a great part of Britain.

MALCOLMIA. A genus of herbaceous plants, mostly annuals, belonging to the cruciferous order, and distinguished by having a roundish pod, and a simple pointed stigma. The species are mostly natives of the south of Europe, and agree in having roughish toothed or sinuated leaves, and purplish or white flowers disposed in racemes, and destitute of bracts. [C. A. J.]

MALESHERBACEÆ. (*Crownworts*.) A natural order of dicotyledonous plants, belonging to Lindley's violal alliance of hypogynous Etoгена. Herbs or half-shrubby plants, with alternate exstipulate leaves, and solitary yellow or blue flowers. Calyx tubular, five-lobed, inflated; petals five, convolute in aestivation, persistent, arising outside a short membranous rim or coronet; stamens five to ten, perigynous, with versatile anthers, the filaments often connected with the stalk of the ovary; ovary superior, stalked, one-celled, with parietal placentas; ovules numerous, pendulous, anatropal; styles three, the stigmas club-shaped; fruit a one-celled three-valved capsule; albumen fleshy. These plants, found in Chili and Peru, are allied to the passion-flowers. The two genera, *Malesherbia* and *Gynopleura*, contain about half a dozen species. [J. H. B.]

MALESHERBIA. One of the two genera of *Malesherbaceae*, and consisting of two or three species, small pubescent shrubs, natives of Peru, with long narrow deeply sinuate-toothed leaves, and yellow sessile flowers, solitary in the leaf-axils, but forming a long raceme or thyrses. It is distinguished from its ally by its long cylindrical tubular calyx, and by the corona at the mouth of the calyx being deeply ten-lobed, with truncate denticulate lobes. [A. S.]

MALE SYSTEM. All that part of a flower which belongs to the stamens.

MALHERBE. (Fr.) *Plumbago europæa*; also *Thapsia villosa*.

MALICOIRUM. An old name for the woody rind of the pomegranate fruit, used medicinally.

MALKUNGUNEE. An Indian name for *Celastrus paniculatus*.

MALLEA *Rothii* is the sole representative of a genus of *Malvaceae* peculiar to the East Indies. It is a shrub with impari-pinnate leaves, axillary paniculate or

racemose flowers, a cup-shaped five-toothed calyx, five lanceolate petals, ten stamens, and a fleshy drupe containing five stony kernels. Uses unknown. [B. S.]

MALLER. The native name of *Eucalyptus dumosa*, which forms the dreary Mallee scrub of South Australia. — of Victoria. *Eucalyptus oleosa*.

MALLEOLUS. A layer; a shoot bent into the ground and half divided at the bend, whence it emits roots.

MALLETT. (Fr.) *Capsella Bursa-pastoris*.

MALLOW. *Malva*; also *Malvastrum*. —, **GLADE**. *Napæa*. —, **GLOBE**. *Sphaeralcea*. —, **INDIAN**. *Sida*; also *Urena*, and an American name for *Abutilon*. —, **JEWS**. *Corchorus olitorius*, and *C. capsularis*. —, **MARSH**. *Aithya officinalis*. —, **TREE**. *Lavatera arborea*. —, **VENICE**. *Hibiscus Trionum*.

MALLOWWORTS. Lindley's name for the *Malvaceae*.

MALOO CREEPER. An Indian name for *Bauhinia racemosa*.

MALOPE. A genus of herbaceous plants belonging to the *Malvaceae*, and closely allied to *Malva*, from which it may be distinguished by the broadly cordate leaflets of the calyx. *M. trifida* is an annual from North Africa, growing about two feet high, bearing during the whole of summer large deep rose-coloured or white flowers. *M. grandiflora* is taller and more robust, with larger flowers. [C. A. J.]

MALORTIEA. There are three species of this genus of palms, all natives of Central America. They have slender reed-like



Malortia simplex.

stems, long-stalked irregularly pinnate or sometimes simple jagged leaves, and simply branched spikes of unisexual flowers

springing from the axils of the lowermost leaves, and producing small roundish or egg-shaped one-seeded fruits. Two Guatemalan species, *M. gracilis* and *M. simplex*, are cultivated in our hothouses. [A. S.]

MALPIGHIACEÆ. (*Nitrariaceæ*, *Malpighiada*.) A natural order of dicotyledonous plants belonging to Lindley's sapindal alliance of hypogynous Exogens. Trees or shrubs, sometimes climbing, with simple opposite or very rarely alternate stipulate leaves, without dots; hairs, when present, petiole. Flowers either perfect or unisexual; sepals five, slightly united, persistent, often glandular at the base; aestivation imbricated; petals five, unguiculate, with convolute aestivation; stamens usually ten, often monadelphous, the anthers roundish, with a projecting process from the connective; ovary formed by three (rarely two or four) carpels, more or less combined; ovules solitary, with a long pendulous cord; styles three, distinct or united. Fruit dry or fleshy, sometimes winged; seeds solitary, orthotrupal, suspended, exalbuminous; embryo straight or curved in various ways; cotyledons foliaceous or thickish. They are inhabitants of tropical countries chiefly, and a great number of them are found in South America. *Malpighia*, *Banisteria*, *Hiptage*, *Hircea*, and *Gaudichaudia*, offer examples of the forty-five genera, which contain nearly 600 species. [J. H. B.]

MALPIGHIA. A genus of tropical American shrubs, with opposite leaves, either entire or slightly toothed, not infrequently having petiole, and sometimes stinging hairs. The flowers are of a reddish-yellow or white colour, usually grouped in axillary or terminal tufts, the stalks themselves jointed and bracteate. The calyx is five-cleft, some of the segments having two glands at their base; petals five, longer than the sepals, stalked; stamens ten, all fertile, united into a tube at the base; ovary three-celled, each cell with a single pendulous ovule; styles three, distinct. Fruit fleshy, with three crested stones. The genus derives its name from Malpighi, a celebrated Italian anatomist, one of the first to employ the microscope in physiological researches. He was Professor of Medicine at Bologna in the latter part of the seventeenth century. The order *Malpighiaceæ* takes its name from this genus. The fruits of *M. glabra* and *M. urens* are eaten in the West Indies, those of the latter being called Barbados Cherry. Some of them are of twining habit, and the singularity of their flowers renders them desirable in our hothouses. [M. T. M.]

MALT. Barley which has been steeped in water so as to excite germination, and then kiln-dried.

MALVACEÆ. (*Mallowworts*.) A natural order of dicotyledons belonging to Lindley's malval alliance of hypogynous Exogens. Herbaceous plants, trees, or shrubs, with alternate stipulate leaves more or less divided, and often with stellate hairs. Sepals

five, rarely three or four, more or less cohering at the base, with a valvate aestivation, often bearing an external calyx (epicalyx) or involucre; petals equal in number to the sepals, with twisted aestivation; stamens indefinite, hypogynous, all perfect, their filaments monadelphous or polyadelphous, and the anthers monotheical, reniform, with transverse dehiscence; ovary formed by the union of several carpels round a common axis, either distinct or cohering; styles as many as the carpels, united or free. Fruit capsular or baccate; carpels one or many-seeded, sometimes closely united, at other times separate or separable, their dehiscence loculicidal or septicidal; albumen none, or in very small quantity; embryo curved; cotyledons twisted or doubled. Found in tropical countries and in the warm parts of temperate regions. They are mucilaginous and demulcent, and yield fibres. *Aithæa officinalis* (marsh mallow) yields mucilage. *Gossypium* furnishes various kinds of cotton. *Hibiscus cannabinus* supplies Indian hemp. *Portulaca oleracea* gives Cuba bast. There are nearly fifty genera, including *Malva*, *Lavatera*, *Hibiscus*, and *Sida*, and upwards of one thousand species. [J. H. B.]

MALVA. The typical genus of *Malvaceæ*, embracing a large number of species widely spread through the northern hemisphere, being found in most European countries, in Northern and Central Asia, and in North America, while the few species belonging to the southern hemisphere are confined to South Africa. These numerous species differ greatly in appearance, some being small annual or perennial herbaceous plants, others shrubs of variable height, but they all agree in possessing tough fibre, and an abundance of mucilage. Their flowers, which are frequently very showy, but of short duration, have an outer calyx or involucre, consisting of three distinct leaves attached to the lower part of the true calyx, which is more or less deeply cut into five broad lobes; and the numerous single-seeded carpels are disposed in a circle round a central axis, but become detached when ripe.

M. moschata, the Musk Mallow, derives its name from the peculiar musky odour given off by all parts of the plant when kept in a confined situation, particularly in warm dry weather, but it is seldom powerful enough to be smelt in the open air. The plant is a perennial, and has large rose-coloured flowers clustered together at the ends of the erect slightly branched stems. It is found along hedges, roadsides, and borders of fields in the British Isles. *M. rotundifolia* is an annual, with tough downy stems lying upon the ground, and has roundish lobed leaves, and small pale-blue flowers clustered in their axils. It is common in waste places in most parts of Europe, including Britain, and in Western Asia. In Egypt, especially upon the banks of the Nile, it is extensively cultivated, and used by the natives as a pot-herb. *M. sylvestris*, the Common

Mallow, or *Mauve* of the French, is employed medicinally on account of its highly mucilaginous properties, a decoction of it being used as an outward application to bruises, and internally in dysentery. It is in great repute amongst herb-doctors and rustic practitioners generally, particularly in France, where its dried flowers are largely used in the preparation of a drink called *Tisane*, or *Ptisan*, held to be a cure for headache, feverish colds, and many other complaints; its leaves are also made into poultices. It is a biennial, spread through Europe and Russian Asia, having erect somewhat hairy stems, roundish long-stalked leaves, and reddish-purple flowers. [A. S.]

MALVASTRUM. A genus of *Malvaceæ*, consisting of Amer can herbs with axillary garlet or orange flowers, usually solitary, but rarely clustered. Ovary usually unprovided with any involucrel, but sometimes with a few deciduous hairy bracts, or three persistent leafy bracts; tube of the stamens simple; stigmas button-shaped, small; carpels with or without a beak. [M. T. M.]

MALVAYISCUS. A genus of *Malvaceæ*, consisting of shrubs, with entire or slightly lobed leaves, and crimson flowers. The calyx is surrounded by a many-leaved involucre; petals erect; stigmas ten; carpels five, berry-like, one-seeded, slightly separated one from the other, or more generally combined into a five-celled fruit. The species are natives of tropical America and Mexico. [M. T. M.]

MALVO DO CAMPO. The Brazilian name of *Kielmeyera speciosa*.

MAME. The seeds of *Soja hispida*.

MAMILLA. The apex of the nucleus of an ovule.

MAMILLARIA. Mexico may be looked upon as the head-quarters of this genus of *Cactaceæ*, the great majority of the species being confined to that country, comparatively few belonging to Southern California, Guatemala, Texas, Louisiana, and Missouri; some, however, are indigenous to South America, and are found as far south as Buenos Ayres and Chili. The genus is, in most instances, readily distinguished from its allies by the fleshy stem, of which the plants solely consist, being entirely covered with tubercles of a teat-like form, giving rise to the generic name, from *mamilla*, a little teat. These are disposed in a series of spirals, each teat being furnished at the top with a tuft of radiating spines proceeding from a kind of cushion. The entire plants assume various forms, some species being more or less cylindrical, others nearly round, some pear-shaped, and others club-shaped, but the majority seldom exceed six or eight inches in height. The flowers are produced towards the summit of the plants, and usually in a transverse zone, each flower growing from the axil of one of the teats; they are white, yellow, or of different shades of red or rose-colour, and remain open only during the day, closing at night and opening again

the following morning. They have the tube prolonged beyond the ovary, smooth and contracted below; the numerous segments in several series, the outer or calycine ones being smaller than the inner or petaline; and the stamens, which are also in several series, grow to the inside of the tube, being shorter than the thick style, which is terminated by a three to seven-rayed stigma. The fruit is an oblong or club-shaped smooth berry, containing numerous small seeds.

M. Clava is a native of Mexico, and is columnar or club-shaped, attaining a foot or more in height, with the mamillæ large, projecting, and of a pyramidal form, with bluntly-angled sides, and having tufts of white wool between them, and likewise upon their summit. The straw-coloured flowers are very large and showy. *M. coronaria* is the tallest species of the genus, growing, it is said, as high as five feet. In our gardens, however, it is seldom more than a foot high and three inches thick, of a cylindrical form, with large conical mamillæ bearing from thirteen to sixteen pellucid white spines radiating from a little tuft of white wool, and four inner brown ones. The flowers are of a fine crimson colour. *M. pusilla* is a very pretty little species, growing in crowded tufts usually of a hemispherical shape. The mamillæ, which are about the size of grains of wheat, have little tufts of white hairs between them, and bear bundles of spines, consisting of from four to six straight stiff inner ones, and from twelve to twenty outer ones like white hairs; the flowers are yellow tinged with rose-colour, and are succeeded by beautiful bright crimson berries about the size of the mamillæ. [A. S.]

MAMMEFORM, MAMMILLARIS. Teat-shaped; conical, with a rounded apex.

MAMMEA. A genus of *Clusiaceæ*, characterised by the globular calyx, which opens in two valvate sepals; by the ovary, which contains four ovules, distributed into two or four cells; and by the fruit, which is an indehiscent drupe, containing one to four large seeds with very thick almost consolidated cotyledons and a very short radicle. The principal species, and the only American one, is the *M. americana*, a large tree, with opposite coriaceous leaves marked with very numerous transverse but reticulated veins, and with pellucid dots, and bearing white sweet-scented showy flowers on short peduncles, solitary or clustered in the lower axils of the young shoots. The fruit, known under the name of Mammee Apple, or South American Apricot, is very much esteemed in tropical countries. It often attains the size of a child's head, and is of a yellow colour. The outer rind and the pulp which immediately surrounds the seeds are very bitter, but the intermediate flesh is sweet and aromatic, and is eaten cut into slices and steeped in wine, or made into preserves of various kinds. The seeds, often as large as hen's eggs, are used as anthelmintics; an aromatic liqueur called *eau de créole* is distilled

from its flowers; and the acrid resinous gum distilled from its bark is used to destroy the chiggers, little insects that attack the naked feet of the negroes. The tree is a native of the West Indies and of continental tropical America, but is cultivated for its fruit and almost naturalised in some parts of tropical Africa and Asia. The genus is now sometimes made to include two or three tropical Asiatic species, with smaller flowers and fruits, but similar in structure, which had previously been published under the name of *CALYSAOION*: which see.

MAMMEE. *Lucuma mammosum*.

MAMMEE-TREE. *Mammea americana*.

MAMMOTHE-TREE. *Wellingtonia gigantea*.

MANA. An Indian name for *Paspalum acrobulatum*.

MANAOÁ. A Brazilian name for *Franciaea uniflora*.

MANAWA. A New Zealand name for an aromatic resin reputed to be obtained from *Avicennia tomentosa*.

MANCHINEEL. The virulently poisonous *Hippomane Mancinella*. —, **BASTARD.** *Cameraria latifolia*.

MANCIENNE. (Fr.) *Viburnum Lantana*.

MANCUS. Deficient in something; wanting.

MANDAVALLI. An Indian name for the purgative *Convolvulus reptans*.

MANDEVILLA. A genus belonging to the order of dogbanes, distinguished by its calyx having internally a pectinate ring; by the five stamens enclosed in the corolla, their anthers lanceolate, membranaceous at the top, and forming a cone round the stigma; and by the single style, its stigma conical, five-lobed below. The only species is a climbing shrub, a native of Buenos Ayres, whence it was first introduced, under the name of Chili Jasmine; its large pure white and sweetly scented flowers render it an acquisition to collections. Named after H. J. Mandeville, H.B.M. minister at Buenos Ayres. [G. D.]

MANDIOC. *Manihot utilisatima*, from which cassava is prepared.

MANDIROLA. A Brazilian gesneriad, related to *Achimenes*, the typical species being the plant known as *Achimenes multiflora*. It is characterised by its scaly stolones, by its subcampanulate corolla with a spreading fringed limb and narrow base, by its crenated membranaceous perigynous ring, and by its two-lobed stigma. *M. lanata* is now called *Eucodonia*. [T. M.]

MANDOBI, MUNDUBL. Portuguese names for *Arachis hypogea*.

MANDRAGORA. This name, derived from two Greek words implying hurtful to cattle, is applied to a genus of *Solanaceae* or *Atropaceae*. The species are natives of

Southern Europe and the East, and have very short stems, with a thick fleshy often forked root, from the summit of which the entire ovate lance-shaped leaves appear to proceed in compact tufts. The flower-stalks spring from among the leaves, and bear a solitary flower with a top-shaped calyx, a bell-shaped corolla, to the base of which are attached five stamens, whose filaments are dilated above their base. The fruit is fleshy, one-celled, from the breaking up of the partition between the two original cells of the ovary, and supported by the slightly enlarged and persistent calyx.

The Mandrakes, like their near ally *Belladonna*, have poisonous properties. They act as emetics, purgatives, and narcotics, and would seem to have been much used as sedatives in olden times, though now disused. Shakspeare is supposed to allude to this plant when he makes Banquo, in *Macbeth*, say: 'Or have we eaten of the insane root that takes the reason prisoner?' And also in *Antony and Cleopatra*: 'Give me to drink Mandragora.' Dr. Silvester has shown that Mandrake was employed in olden times as an anæsthetic, in the same way that chloroform now is.

In the days when the doctrine of signatures was an article of faith among the ignorant at least, the Mandrake root, from its occasional similarity to the lower part of the human figure, was considered to possess great virtues, and was in constant use for amorous incantations and love philtres. Its use in this manner is alluded to in *Genesis*, chap. xxx. (the Dudaim being identified with the Mandrake); and the superstition, kept alive by the craft and ingenuity of the charlatan, has not entirely died out even at present, although the root of *Bryonia dioica* is now employed under the erroneous name of mandrake. Nor was this the only superstitious notion connected with this plant, for Josephus mentions that its chief use is to dispel demons, who cannot bear either its smell or its presence. Shakspeare also alludes to the fanciful belief entertained as to this plant, in the following passage from *Romeo and Juliet*:—

And shrieks like mandrakes torn out of the earth,
That living mortals, hearing them, run mad.

Josephus even relates that it was certain death to touch this plant, except under certain circumstances, which he details (*Wars of the Jews*, book vii. cap. vi.). The same writer mentions that it was taken without danger, in the following manner: 'They dig a trench quite round about it, till the hidden part of the root be very small; they then tie a dog to it, and when the dog tries hard to follow him that tied him, this root is easily plucked up, but the dog dies immediately, as if it were instead of the man that would take the plant away; nor after this need any one be afraid of taking it into their hands.' Dioscorides mentions a male and female kind of Mandrake, which apparently correspond with the spring and autumnal species of modern botanists. In Professor Daubeny's interesting lectures on Roman husbandry, is a plate copied from

the most ancient MSS. of Dioscorides, now at Vienna, 'representing Euresis, the goddess of discovery, presenting in triumph to Dioscorides the root of this mandrake, which she has just had pulled up, whilst the unfortunate dog which had been employed for that purpose is depicted in the agonies of death;' and in some other MSS. of this author, which the writer has had the opportunity of inspecting, representations are given of the mode of extracting male and female mandrakes from the



Mandragora autumnalis.

ground, in the manner before related from Josephus. Indeed, in old herbals similar illustrations are not uncommon. Of the two species previously mentioned, *M. officinarum* or *M. autumnalis* is a very handsome autumn flowering plant, with wavy leaves, and deep blue flowers. [M. T. M.]

MANDRAKE. *Mandragora*; also an American name for *Podophyllum*.

MANETTIA. A genus of *Cinchonaceæ*, so called in honour of Xavier Manetti, Professor of Botany in Florence in the middle of the eighteenth century. The species are undershrubs of climbing habit, natives of tropical America. They have opposite leaves and wide stipules; axillary one or many flowered flower-stalks; a turbinate calyx, with the limb divided into four or five linear lance-shaped lobes, with an equal number of teeth between them in some cases; and a funnel-shaped corolla dilated and hairy at the throat, the limb divided into four or five obtuse segments. There are four or five stamens inserted into the throat of the corolla, and slightly protruding; and a thread-like style. The rind of the root of *M. cordifolia* has emetic properties, and is used by the Brazilians in dysentery and dysentery. Two or three species with scarlet or pink flowers are grown in hot-houses in this country. [M. T. M.]

MAN FUNGUS. *Geaster*.

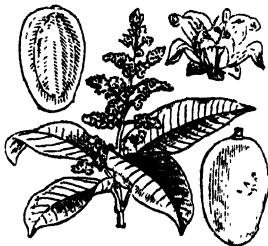
MANGABA, or MANGAYA. A Brazilian name for the fruit of *Hancornia speciosa*.

MANGEL-WURZEL. *Beta vulgaris macrorhiza*. According to Dr. Prior, this was originally Mangold-wurzel.

MANGIER. (Fr.) *Mangifera*.

MANGIFERA. A genus of tropical Asiatic trees, whose fruit is well known by the native name Mangho, whence the technical name has been framed. The genus is included among the *Anacardiaceæ*, and consists of trees with alternate stalked entire leaves, and numerous small pinkish or yellowish flowers in much-branched panicles. The calyx is five-parted, and the petals and stamens five each, one or two only of the latter being fertile. The fruit is externally fleshy, and more or less fibrous, internally hard and bony.

The Mango, *M. indica*, grows abundantly in India, where numerous varieties are cultivated, as also in Brazil, the Mauritius, &c. The fruit of some varieties is esteemed as the most delicious of Indian fruits; but there are very numerous kinds, differing not only in flavour, but also in the size and shape of their fruit. Most of them have more or less of a turpentine flavour; the best varieties are most free from it, while the inferior kinds are stated to be little better in texture and flavour than a mixture of tow and turpentine. The unripe fruits are much used in India in conserves, tarts, and pickles, in which latter state they are frequently imported into this country. The ripe fruits, too, are constantly eaten, and are said in general to be wholesome, but frequently to produce boils in new-comers unaccustomed to their use. When cut with a knife, a blue stain is produced on the blade, from the presence of gallic acid in the pulp, which likewise contains gum and citric acid. The seeds are hulled and eaten in times of scarcity by the natives; they are said to possess anthelmintic properties.



Mangifera indica

The wood is soft and porous, of a grey colour when young, but brownish and harder in old trees: it is burnt together with sandal-wood by the Hindoos in the burning of their dead. The lark is employed medicinally to restrain discharges from the mucous membranes, and has been likewise well spoken of in the treatment of fevers in St. Domingo.

A soft reddish-brown gum-resin exudes from the bark when wounded, and is used

externally in certain skin diseases, and internally for the cure of diarrhoea and dysentery. The leaves and leaf-stalks are used by the natives as tooth-brushes and to harden the gums; the leaves are likewise employed in chest affections and derangements of the liver; while calcined and powdered, they are employed as an application to burns to dry up the discharges, and for the removal of warts. The seeds of the Mango not infrequently possess more than one embryo; and for an account of some curious deviations from the ordinary condition of a germinating seed, the reader is referred to a paper in the *Journal of the Linnean Society*, 1861. The Mango is cultivated as an object of curiosity in hothouses in this country, and has occasionally ripened its fruit.

An edible cake is prepared from the fruit of *M. gabenensis*, which is now referred to *Irvingia Barteri*. It is much used as an article of food by the natives of Sierra Leone, and contains a large quantity of fatty material. [M. T. M.]

MANGKUDU. The red dye root of *Morinda umbellata*.

MANGLESIA. A genus of some authors, but considered by Melasner, in his monograph of the *Protaceae*, to form a section of the large genus *Grevillea*. It contains about eight species, all from South-west Australia; and is distinguished chiefly by its flowers having a thickened style, much swollen on one side, and about as long and thick as the one-sided ovary, from which it is separated by a constriction; and by its terminal conical stigma. [A. S.]

MANGLIETIA. An Asiatic genus of *Magnoliaceae*, consisting of five species, one of which is confined to Java, the remainder being natives of tropical Asia, although *M. insignis* also extends to Java. All are handsome tall trees with large entire leaves, and showy flowers borne singly at the ends of the branches, and scarcely distinguishable from those of *Magnolia*. *M. insignis*, one of the Indian species, attains a height of fifty or sixty feet, its trunk yielding an even-grained wood of a light colour. It has thickish oblong lance-shaped smooth and shining leaves, and large sweet-smelling whitish flowers tinged with rose-colour. The Javanese species, *M. glauca*, likewise has fragrant flowers, but they are of a pale yellow colour. This also produces a light-coloured solid wood of even grain, which is very much employed by the natives for making coffins, owing to its being supposed to prevent the decay of the bodies put into them. [A. S.]

MANGO. The fruit of *Mangifera indica*. —, **MOUNTAIN** or **WILD.** *Cusia flava*. —, **WILD.** The fruits of some species of *Irvingia*.

MANGOLD WURZEL. *Beta vulgaris macrorhiza*.

MANGOSTEEN. A delicious Eastern fruit, produced by *Garcinia Mangostana*. —, **WILD.** *Embryopteris glutinifera*.

MANGROVE. *Rhizophora*: hence Lindley's name of Mangroves for the *Rhizophoraceae*. —, **BLACK** or **OLIVE.** *Avicennia tomentosa*. —, **WHITE.** *Laguncularia racemosa*. —, **ZARAGOZA.** *Conocarpus erectus*.

MANGUAI. *Agave mexicana*. —, **DIVINUM.** *Agave Theomell*.

MANGUIER DE L'INDE. (Fr.) *Mangifera indica*.

MANGURI. An Indian name for *Arum indicum*.

MANI. *Moroneba coccinea*; also a Spanish name of the Ground Nut, *Arachis hypogaea*.

MANICARIA. In nearly all the genera of palms the leaves are either more or less pinnated or fan-shaped; but in the present genus, which consists of a solitary species inhabiting the tidal swamps of the Lower Amazon River, they are entire, or occasionally when old irregularly split. Individual leaves frequently measure as much as thirty feet in length, and four or five in width, having coarsely serrated edges, and transverse furrows; and being of a stiff habit they stand erect upon the summit of the stout crooked stem, which usually attains the height of fifteen or twenty feet, and is deeply ringed with the scars of fallen leaves, or covered with the remains of the fibrous sheaths of the leaf-stalks. The simply branched flower-spikes, measuring three or four feet long, hang down from among the leaves, and are enclosed in an entire brown spathe of a tough fibrous or cloth-like texture, which is ultimately torn open in an irregular manner by the expansion of the confined flower-spike. The flowers are of separate sexes, borne upon the same spike. The fruit is generally three-lobed, and covered with blunt angular tubercles of a dry corky nature.

The Indians call this palm Bussu, and its immense entire leaves are invaluable to them for thatching their huts, each leaf being for that purpose split lengthwise through the midrib, and the halves arranged so that the natural furrows act as gutters for conveying away the water. The fibrous spathe also are converted into capital bags and caps by simply cutting round them near the bottom and pulling them off entire, and afterwards stretching them open as wide as possible without tearing; or, when cut longitudinally down one side, they supply a coarse but strong kind of cloth. [A. S.]

MANICATE. Said of surfaces covered with hairs, so entangled that they can be stripped off like a skin.

MANIHOT. To this genus of *Euphorbiaceae* belongs the celebrated Cassava or Mandioc plant, the fleshy root of which yields the greatest portion of the daily food of the natives of tropical America, and one of the products of which is well-known in this country under the name of Tapioca. A large number of species, all

American, are described. They are woody or shrubby plants growing from fleshy tuberous roots, their stems being without prickles or glands, their leaves generally long-stalked, palmately divided, and their flowers, which are of separate sexes, disposed in panicles in the axils of the leaves or at the ends of the branches.

Cassava or Mandioca meal is yielded by two so-called species, which, however, bear such great resemblance to each other that most botanists combine them. These are: *M. utilisima*, the Bitter Cassava, a shrubby



Manihot utilisima.

Plant growing from six to eight feet high or more, with erect somewhat twisted knotty stems rising from long thick fleshy cylindrical roots of a yellowish colour, containing a poisonous milky juice, and bearing deeply seven-parted leaves on very long slender stalks, crowded together at the tops of the branches; and *M. Atipi*, the Sweet Cassava, which differs principally in having sweet wholesome roots of a reddish colour, and usually only five-parted leaves; but these differences are not of specific value, and the plants must be regarded as varieties of one species. It is quite clear, however, that while the root of one is bitter and a most virulent poison, that of the other is sweet and wholesome, and is commonly eaten cooked as a vegetable. Both of them, especially the bitter, are most extensively cultivated over the greater part of tropical America, and yield an abundance of wholesome and nutritious food, the poison of the bitter kind being got rid of during the process of preparation it undergoes. This consists in first reducing the large fleshy roots to a pulp by grating them, the poisonous juice being then expelled by pressure, and the residual mass pounded into a coarse meal resembling bread-crumbs, which is made into thin cakes, or cooked in various ways, the heat dissipating any remaining poison. The

poisonous expressed juice, if allowed to settle, deposits a large quantity of starch, known as Brazilian Arrowroot or Tapioca meal, from which the tapioca of the shops is prepared by simply torrefying the moist starch upon hot plates, the heat causing the starch grains to swell and burst and become agglutinated together. A sauce called Cassareep, used for flavouring soups and other dishes, particularly the West Indian dish known as pepper-pot, is also prepared from this juice by concentrating and rendering it harmless by boiling.

Another of the products of Cassava is an intoxicating beverage called Piwarrie, but the manner of brewing it is not calculated to render it tempting to Europeans. It is made by the women, who chew Cassava cakes and throw the masticated material into a wooden bowl, where it is allowed to ferment for some days, and then boiled. It is said to have an agreeable taste. [A.S.]

MANIOO. (Fr.) *Manihot utilisima*.

MANINE. (Fr.) *Clavaria digitata*.

MANJACK. *Cordia macrophylla*.

MANISAN. A thick syrup obtained by boiling the saccharine sap of *Nipa fruticans*.

MANISURIS. A genus of grasses belonging to the tribe *Rotboellaceae*, and containing two species, both of which are annuals, natives of the warm parts of Africa and the West Indies. [D.M.]

MANITA. *Ochetostemon platanoides*.

MANJIRIKA. An Indian name for *Ocimum Basilicum*.

MANKUCHOO. An Indian name for *Arum indicum*.

MANNA. A saccharine purgative product discharged from the bark of various species of ash, chiefly *Ornus rotundifolia* and *europaea*. Similar substances are also produced by the cedar, the oak, the cistus, and by *Eucalyptus mannifera*. — of Brinçon. A turpentine saccharine exudation from the larch. — of Mount Sinai. A product of *Tamarix mannifera*. —, HEBREW or PERSIAN. A product of *Alhagi Maurorum*, or, according to others, of *Tamarix mannifera*; see GEN. —, POLAND. *Glyceria fluitans*.

MANNA CROUP. The prepared seeds of *Glyceria fluitans*.

MANNE DE PRUSSE. (Fr.) *Glyceria fluitans*.

MANONIM. A name in Minnesota for *Zizania aquatica*, or Wild Rice.

MANSIENNE. (Fr.) *Viburnum Lantana*.

MANSOA. A genus of *Rignoniacae*, named in honour of A. P. da Silva Manso, a Brazilian botanist, and consisting of only two species, both of which are climbing shrubs with conjugate leaves furnished with tendrils, and handsome white or violet flowers arranged in panicles, having a bilabiate calyx, the segments of which are divided into five long lobes, a funnel-shaped

corolla, and four stamens, with the rudiment of a fifth. The fruit and uses of these plants, both natives of Brazil, are unknown. [B.S.]

MANTELET DES DAMES. (Fr.) *Alchimilla*.

MANTISIA. A genus of *Zingiberaceae*, deriving its name from the resemblance of the flowers to the insect *Mantis*. It is nearly allied to *Glozza*, but is distinguished from it by the lateral inner segments of the corolla being narrow and linear, and adherent to the filament of the stamen above the labellum; the anther, moreover, is dilated on each side into a membranous wing. One of the species has long been grown in hothouses in this country, from the singularity and beauty of its flowers, which



Mantisia saltatoria.

present some resemblance to a ballet-dancer; hence the popular name, Dancing Girls, applied to the plant. The filament and anther with its wing-like margins, represent the head and neck of the lady, the long inner segments of the corolla represent the arms, while the labellum corresponds to the dress. The flowers are purple and yellow. The name, *Mantisia saltatoria*, expresses the resemblance both to an insect and to a dancer. [M. T. M.]

MANULEA. A genus of *Scrophulariaceae*, of the tribe *Gratiolaeae*, distinguished by a five-cleft calyx with narrow lobes; by a corolla with a slender straight tube, and a spreading limb nearly equally divided into five lobes which are often notched or cleft; and by didynamous stamens enclosed in the tube, with one-celled anthers. There are nearly thirty species, natives of Southern Africa, all herbs or rarely low undershrubs, with the leaves usually radical on the lower part of the stem only. The flowers are terminal in racemes, or more frequently clustered in narrow irregularly compound panicles. They are usually yellow, orange, or red, small, but sometimes very numerous.

MANYROOT. A West Indian name for the emetic *Ruellia tuberosa*.

MAOOSA. The fibre of a species of *Ur-tica* used in Ceylon.

MAPLE. Acer. —, BIRD'S-EYE. *Acer saccharinum*. —, ITALIAN. *Acer Opulus*. —, NORWAY. *Acer platanoides*. —, SUGAR. *Acer saccharinum*. —, SWAMP. *Acer rubrum*.

MAPPA. A genus of *Euphorbiaceae*, of the tribe *Aculyphae*, now referred to *Macaranga*, consisting of trees with large usually peltate leaves, and small flowers in axillary or lateral panicles. The calyx is small, without petals; the male flowers in clusters with three to ten stamens bearing small globular four-lobed anthers; the females solitary, usually with a two-celled ovary, growing into a capsule usually bearing soft prickles or subulate processes. There are several species in the tropical regions of Asia and Eastern Africa. Among them *M. Tauraria* is said to yield a good tan in the Indian Archipelago.

MAPROUNEA. A genus of *Euphorbiaceae*, of the tribe *Crotoneae*, consisting of trees with small glabrous alternate ovate entire leaves, and small flowers, the males growing in little oval cone-like heads, at the base of which are some long-stalked female ones. There are only three species known, all from tropical America.

MAQUI. (Fr.) *Aristotelia*.

MARA. A Guiana wood furnished by *Icica altissima*.

MARACAUBA. A Brazilian furniture wood, intermediate in appearance between mahogany and tulip-wood.

MARAM or **MARRAM.** *Amnophila arenaria*.

MARANTACEAE. (*Cannaceae*.) A natural order of epigynous monocotyledons, belonging to Lindley's anomalous alliance of Endogens. Herbacaceous plants, with tuberous rhizomes, and leaves and flowers similar to those of the ginger family. Perianth superior, in two whorls: the outer (calyx) three-lobed short, the inner (corolla) tubular elongated three-parted, the segments nearly equal; stamens in two whorls: the outer sterile petaloid irregular, resembling a tubular tri-lobed corolla with one of the lateral segments different, the inner petaloid, two being sterile, and one lateral fertile, the filament of the latter petaloid; anther on the margin of the filament, one-celled; ovary three-celled, rarely one-celled, the ovules solitary and erect, or numerous and attached to the axis; style petaloid; stigma either the naked apex of the style, or hollow hooded and incurved. Fruit a three-celled capsule, or baccate one-celled and one-seeded; seeds round, without arillus; embryo straight, in hard albumen. They are natives of tropical America and Africa; several are found in India; none are known in a wild state beyond the tropics. The plants contain much starch in the rhizomes and

but are destitute of arina. Arrow-root is the produce of the tuberous rhizomes of *Maranta*; while *Canna coccinea*,

O. Achiras, *O. edulis*, &c., yield *Tous-les-mois*. There are nine genera, including *Canna*, *Maranta*, and *Phrynium*, and upwards of 150 species. [J. H. D.]

MARANTA. Maranti, after whom this genus was named, was a Venetian botanist and physician of the middle of the sixteenth century. The genus, which gives its name to the *Marantaceæ*, consists of herbaceous plants with fleshy tubers, and terminal panicle jointed inflorescence with deciduous scale-like bracts. The flowers have a calyx of three sepals; a corolla of six segments, the central one or lip of the inner series larger than the lateral ones, and cleft; a petaloid stamen with half an anther on one side of it, and a hooded style adhering to a barren petal-like filament.

The species are natives of tropical America, but are cultivated for the sake of the starch in their tubers in both East and West Indies, Sierra Leone, &c. *M. Allouya*, *M. nobilis*, and especially *M. arundinacea*, are cultivated in the West Indies, and, in addition to the above-named species, *M. ramosissima* is cultivated for like purposes in the East Indies. The term Arrow-root is said to be derived from the fact that the native Indians used the roots of these plants as an application to wounds inflicted by poisoned arrows. The tubers whence the Arrow-root is procured are whitish, jointed, and horizontal, and give origin to numerous off-shoots, that are covered with rudimentary leaves or scales; these ultimately appear above ground and throw up new stems. The starch is extracted from the tubers, when these are ten or twelve months old, by reducing them to a pulp with water, straining, allowing the fecula to subside, again washing it, and ultimately allowing it to dry.

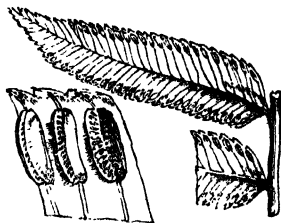
Arrow-root is a very pure kind of starch, and is very nutritious. It is frequently adulterated with other cheaper starches, which fact may readily be detected by the microscope. Other descriptions of Arrow-root are furnished by plants belonging to the following genera: *Arion*, *Canna*, *Curatua*, *Jatropha*, *Tacca*—to which articles the reader is referred for further information. Mats used for shading in India are frequently made of the split stems of *M. dichotoma*. [M. T. M.]

MARASCHINO. A liqueur prepared from the Cherry.

MARASMIUS. A genus separated from *Agaricus* on account of the leathery texture of the species, which revive on the application of water, and other less obvious characters. Two distinct sections occur, in the first of which the spawn is floccose, and in the second resembles fibrous roots. The former group contains the more fleshy species, of which *M. oreades* or Champignon is one of our very best esculent fungi, while *M. scorodoneus* is an excellent condiment. The latter comprises a multitude of thin often splendidly coloured fungi, which abound in tropical countries, and vie with each other in elegance. *M. hamatocarpa*

has occurred in one of the stoves at Kew, and if some of the more showy species could be cultivated successfully, it would be difficult to conceive anything more attractive. Some of our own species, though more modest in point of colouring, are delightful objects; and the little *M. Indusi*, with its long tawny bristles radiating in every direction from the plexus, which is common on holly leaves, is a plant of surprising beauty when closely examined. [M. J. B.]

MARATTIACEÆ. MARATTIA. An order and genus of ferns, separated on the one hand from *Polypodiaceæ* by the absence of a jointed ring to the spore-case; and on the other from *Ophioglossaceæ*, which agree



Marattia fraxinea.

in having ringless spore-cases, by having the sori dorsal, and the venation circinate. The order includes the genera *Marattia*, *Gymnotheca*, *Eupodium*, and *Angiopteris*, which have distinct oblong sori consisting of free or concrete longitudinally bivalved spore-cases; *Kaulfussia*, which has distinct circular sori made up of an annular series of concrete spore-cases; and *Danaea*, in which the sori are connate over the whole dorsal surface of the fronds.

Marattia differs from the other genera of the order in having oblong sessile sori made up of concrete spore-cases, and seated on a fimbriate persistent involucre. It consists of a few coarse-habited plants, with large globose acaly rhizomes, and ample twice or thrice pinnate fronds, with fleshy stipules, and large oblong lance-shaped pinnules, bearing the sori in lines near their margins. They occur in South America, the Eastern and Pacific Islands, in South Africa, the Mascaren Islands, and the Island of Ascension. [T. M.]

MARC. The cake or refuse after expressing the oil or juice from fruits or seeds, as of apples, olives, grapes, &c.; it is mostly used for manure.

MARCASSON. (Fr.) *Lathyrus tuberosus*.

MARCEAU. (Fr.) *Salix Cuprea*. —, **PETIT.** *Salix aurita*.

MARCELLA. A Brazilian name for *Grangea maderaspatana*.

MARCESCENT, MARCID. Not falling

off until the part which bears it is perfected, but withering long before that time, as the flowers of *Orobanchæ*.

MARCEA. Little rigid mostly hairy undershrubs, generally with small heath-like leaves, and small white or reddish flowers in the upper leaf-axils. The genus belongs to *Melastomaceæ*, and numbers about a dozen species, all Brazilian. It has tetramerous flowers, with a campanulate subulate-toothed calyx; mostly acuminate petals; eight stamens with subulate somewhat curved anthers opening by a single pore, and the connective scarcely prolonged at the base; and a four or rarely three-celled ovary bearing a filiform style and punctiform stigma. [A. S.]

MARGRAVIA. (*Muregravids*.) A natural family of dicotyledons belonging to Lindley's eutiferal alliance of hypogynous Etoeas. Trees or shrubs, with alternate entire simple leathery and exstipulate leaves. Flowers often furnished with pitcher-like bracts; sepals two to seven, coriaceous and persistent; corolla hypogynous of five petals, or gamopetalous calyptriform; stamens usually indefinite, very rarely five, hypogynous, the filaments dilated at the base, the anthers long, erect, introrse; ovary single, one-celled; style one; stigma often capitate. Fruit coriaceous, indehiscent, or dehiscing by valves in a loculicidal manner, the placentas being parietal and forming spurious dissepiments; seeds indefinite, minute. They occur chiefly in the warmer parts of America. There are four genera, and about two dozen species. Examples: *Marcgravia*, *Norantea*. [J. H. B.]

MARGRAVIA. One of the few genera of *Murgraviaceæ*, an order now reduced by some botanists to a section of *Ternstroemiaceæ*. There are but few species, all belonging to tropical America, and all large climbing or almost epiphytal shrubs, with thick leathery quite entire leaves on short stalks, and long-stalked flowers in terminal umbels or corymbiform racemes. It is distinguished from its allies by its petals being united into a cap-like corolla, which becomes detached round its base and falls off in a single piece; also by its stamens being indefinite, or never less than twelve; and by its incompletely four to twelve-celled ovary. In the West Indies, *M. umbellata* was formerly considered to possess medicinal properties. [A. S.]

MARCH. An old name of Parsley.

MARCHANTIA. An important section of liverworts, distinguished from other members by very striking characters. The frond is never leafy, frequently forked, with the surface divided into little areas and porous. The male fruit is immersed in sessile or stalked discoid or peltate receptacles. The capsules are disposed symmetrically on the under side of stalked wheel-shaped receptacles, and are either valvate or bursting irregularly, or very rarely solitary and sessile, or merely

grouped together. The stalk is often sheathed; and the spores are mixed with elaters. They are divided into three natural orders:—

1. **TARGONIEÆ:** with single sessile capsules, sometimes grouped together.
2. **JECORARIEÆ:** with capsules on the under side of a common stalked receptacle.
3. **LUNULARIEÆ:** with capsules on a common peduncle.

They grow in moist places, spreading over the ground, stones, &c., and attached by delicate rooting fibres. Besides the regular fruit, there are often separate organs which contain gemmæ, by means of which the plants are multiplied. The archegones are produced on the frond itself, and give rise to the fruit, not to a new plant, and the spermatozoids are like those of *Chara*, but have fewer volutions in the spiral, which is in many cases at length completely expanded. *Marchantia polymorpha*, which occurs everywhere on shady walks and on the soil of garden-pots, is the most familiar example, and will amply reward a close inspection. It is a popular remedy, along with some other allied species, for jaundice and consumption, but its virtues are in all probability imaginary. [M. J. B.]

MARCKEA. A genus named in honour of the famous French naturalist Lamarck, and belonging to the order *Atropnceæ*. The species is a climbing shrub, native of Guiana, with axillary clusters of scarlet flowers, having a tubular calyx; a funnel-shaped corolla, divided into five obtuse segments; five stamens, concealed within the tube of the corolla, to which they are adherent, the anthers opening longitudinally; and a two-celled ovary with numerous ovules in each compartment, and a simple style. Fruit capsular, two-valved, many-seeded. [M. T. M.]

MAREBLOBS. *Caltha palustris*.

MARE'S-TAIL. *Hippuris*.

MARGINAL. Belonging to the margin or edge of anything.

MARGINARIA. *Goniophlebium*.

MARGINATE. Furnished with an edge of a different texture from the remainder of the body.

MARGOSA-TREE. *Melia Azadirachta*.

MARGOTIA. A genus of campylospermous *Umbellifera*, characterised by the inner face of the seed being furrowed instead of flat. Its nearest ally is *Elaeoselinum*, from which it differs in the white deeply bilobed petals with long incurved tongue-like apices. The only known species, *M. laserptioides*, found in Spain, Portugal, and North Africa, is a smooth perennial herb with a tall erect naked stem, bearing many-rayed umbels of small white flowers which, as well as the leaves, are like those of the carrot. The carpels have the five primary ribs obsolete, and the four secondary produced into thin wings, the outer two of which are the broadest. They secrete an abundance of aromatic oil, which

also occurs in the form of tears on the rays of the umbels. [A. A. B.]

MARGOUSIER. (Fr.) *Melia scarperviora*.

MARGUERITE. (Fr.) *Dellis perennis*. — **BÂTARDE.** *Silphium*. — **BLRUE.** *Globularia*. — **DE LA ST. MICHEL.** *Anter Amellus*. — **DORÉE.** *Chrysanthemum argatum*. — **GRANDE.** *Chrysanthemum Leucanthemum*. — **PETITE.** *Hellis annua*. — **REINE.** *Callistephus chinensis*.

MARGYRICARPUS. A much-branched prostrate undershrub, with small pinnate linear-subulate leaves, and small insignificant flowers sessile in their axils, forming a genus of *Rosaceae*, allied to *Acacia*, but without any hooked bristles on the calyx, and the fruit consisting of a small drupe. It is common on arid hills in Chili and Peru.

MARI. A Brazilian name for the fruits of *Geoffroya superba*.

MARIANTHUS. A small genus of Western Australian *Pittosporaceae*, consisting of climbing shrubs. One species, *M. caudatus*, has alternate elliptical attenuate leaves, with revolute margins, and white flowers in terminal heads. These latter have a small five-parted calyx, five spatulate petals slightly coloring at the base, five stamens with ovate anthers, a slightly curved filiform style, and a two-celled ovary containing numerous seeds. *M. ceruleopunctatus* has pretty pale blue spotted flowers, and is sometimes cultivated. [L. H.]

MARICA. This name was first improperly substituted by Schreber for Aublet's name *Oipura*, given to an Iridaceous plant found in Guiana; and was afterwards applied by Ker to a closely allied plant of the same order, which now constitutes the type of a small genus. All the species belong to tropical America, and are herbaceous plants with short rhizomes, flat leaves placed edgewise, and a flat winged flower-stalk ending in a leaf-like spathe. Their perianth has three large spreading outer and three smaller inner segments; the stamens are distinct; the style slender below and triangularly enlarged upwards into three lobes, each with three sharp rigid crests; and the stigma is short and transverse like that of *Iris*. [A. S.]

MARICHU. A Sanscrit name for Pepper.

MARIET. *Campanula urticifolia*.

MARIETTE. (Fr.) *Campanula Medium*.

MARIGOLD. *Calendula officinalis*. — **AFRICAN.** *Tagetes erecta*. — **BURL.** *Bidens tripartita*. — **CORN.** *Chrysanthemum segetum*. — **FIG.** *Mesembryanthemum*. — **FRENOH.** *Tagetes patula*. — of the West Indies. *Pectis punicata*. — **MARSH.** *Caltha*. — **POT.** *Calendula officinalis*; also *Mesembryanthemum calendulaceum*. — **WATER.** *Bidens Beckii*. — **WEST INDIAN.** *Wedelia carnea*.

MARILA. A genus of *Ternstroemiaceae*,

differing from almost all others in its opposite leaves, and on that account placed by some in *Clusiaceae*, and by others in *Hypericaceae*, but the inflorescence and flowers are much more those of *Ternstroemiaceae*. There are four species, South American or West Indian trees, the evergreen leaves elegantly marked with transverse veins between the principal ones. The flowers are in axillary racemes, with four or five sepals and petals, numerous stamens, and an oblong ovary of four or five cells. The capsule contains numerous seeds, with fringed wings at each end.

MARINE SAUCE. A name sometimes given to the common Laver, *Porphyra vulgaris*.

MARISCUS. A genus of cyperaceous plants belonging to the tribe *Cyperaceae*. The spikes of inflorescence are one to two-flowered, rarely three to five-flowered; scales two-rowed, imbricated; stamens three; styles three-cleft; nuts triangular. This extensive genus contains nearly a hundred species, the greater part of which are tropical, or bordering on the tropics. [D. M.]

MARJOLAINE. (Fr.) *Origanum Majorana*. — **À COQUILLE.** *Origanum nervosum*.

MARJOLIN. An early variety of Potato.

MARJORAM. *Origanum*. — **KNOTTED.** *Origanum Majorana*. — **POT.** *Origanum Onites*. — **SWEET.** *Origanum Majorana*. — **WINTER SWEET.** *Origanum heracleoticum*.

MARKING FRUIT. *Scemecarpus Anacardium*.

MARMALADE-TREE. *Lucuma mammosum*.

MARMALADE-BOX. *Genipa americana*.

MARMALA-WATER. A fragrant liquid distilled in Ceylon from the flowers of the Bengal Quince, *Egle Marmelos*.

MARMALEIRO DO MATO. *Casearia ulmifolia*. — **DO CAMPO.** *Mayrounea brasiliensis*.

MARMELOS. *Egle Marmelos*.

MARMORATE. Marbled; traversed by irregular veins of colour, as a block of marble often is.

MAROO. The long fine fibre of *Sansiviera zeylantica*.

MAROUCHIN. (Fr.) An inferior sort of Wood.

MAROUTH. (Fr.) *Anthemis Cotula*.

MARRAM, or MARRUM. *Ammophila arenaria*.

MARROCHEMIN. *Marrubium vulgare*.

MARRON. (Fr.) The fruit of *Castanea vesca*. — **D'EAU.** *Trapa natans*.

MARRONETO. An Italian name for an orchard of chestnut trees.

MARRONNIER D'INDE COMMUN. (Fr.)
Eucalyptus Hypocastanum.

MARROW, VEGETABLE. *Cucurbita ovifera.*

MARRUBE. (Fr.) *Marrubium vulgare.*
— AQUATIQUE. *Lycopus europæus.*
— BLANC. *Marrubium vulgare.* — NOIR.
Ballota nigra.

MARRUBIUM. This name is said to be derived from the Hebrew word Marrob, signifying a bitter juice, and is applied to a genus of *Labiata*, of which the White Horehound is the most familiar example. The genus comprises several herbaceous species, natives of Southern Europe and Western Asia. The calyx is five to ten-nerved, and has an equal number of teeth; the corolla has the upper lip flat, entire or slightly notched, and the lower three-cleft; the stamens are concealed within the tube of the corolla; and the style is cleft.

M. vulgare, the Common or White Horehound, has an erect branched stem densely covered with cottony white hair; the leaves are roundish, crenated wrinkled and soft; the flowers whitish, crowded in the axils of the leaves. This plant is occasionally met with in a wild state in this country, and is widely distributed throughout Europe and Northern Asia, and has moreover become naturalised in America. It has bitter tonic properties, and was once employed in many diseases, but has fallen into disuse except as a domestic remedy in chest complaints. [M. T. M.]

MARSDENIA. A large genus of *Asclepiadaceæ*, spread over the East Indies, Moluccas, New Holland, and tropical America. Only one species, *M. erecta*, inhabits the south-eastern parts of Europe. There are about thirty species, either erect shrubs or twiners, with opposite leaves, and interpetiolar bunches of whitish or greenish flowers. The calyx is five-cleft, the corolla bell-shaped, rotate or urn-shaped, and the fruit quite smooth. *M. tenacissima* yields a fibre which is employed for bowstrings by the mountaineers of Rajmahal. The leaves of *M. tinctoria* and *parviflora* yield by decoction a blue dye resembling indigo. The leaves of *M. erecta* were formerly used by chemists under the name of *Herba Apocyni folio subrotundo*, and are still sometimes employed. The milky juice of the plant raises blisters on the skin, and taken internally it causes violent trembling and convulsions, and ultimately death. [B. S.]

MARSHALLIA. A genus of *Compositæ* of the tribe *Heliantheæ*, consisting of four North American species, perennial herbs, with alternate entire and glabrous three-nerved leaves, and solitary flower-heads of 4 pale purple or rose colour, resembling those of a scabious. The involucrel scales are linear-lanceolate, leaflike, in one or two rows, the receptacle convex or conical and chaffy; the florets are all tubular, and the achenes hairy, with a pappus of five or six ovate or lanceolate scales.

MARSH-BEETLE, or MARSH-PESTLE.
Typha latifolia.

MARSH-FLOWER. *Lamnanthemum.*
MARSHWORT. *Oxyccoccus palustris.*

MARSILEACEÆ. A natural order of pseudoferns, consisting of two distinct groups, to the first of which belong *Marsilea* and *Pilularia*, to the second *Azolla* and *Salvinia*. The vegetation is either straight or circinate, formed of a metamorphosed leaf; the receptacles one or many-celled; the antheridia in the same secondary receptacle with the mostly monosporous sporangia, or in a distinct sac; and the prothallus confluent with the spore itself. All the genera are aquatic, though, after the water is dried up, some of the species are still capable of maintaining life. *Azolla* is extra-European; the three other genera occur in Europe, but have representatives in other parts of the world. The fossil *Sphenophyllum* probably belonged to the same natural order. [M. J. B.]

MARSILEA. A genus of pseudoferns, with a creeping rhizome and erect leaves consisting of a long stalk and two pairs of leaflets, which are circinate when young, disposed in a cross, nerved somewhat after the fashion of those of *Adiantum*, and which at night fold up like the leaflets of many *Leguminosæ*. The fruit consists of hard thick receptacles, divided into several cells arranged on the two sides of the principal septum parallel to the flattened surfaces of the receptacle. Each of these contains two kinds of organs, fixed to a sort of placenta, those at the base containing a single spore, those above granules which at length yield spermatozooids like the small spores of *Salaginella*. The receptacles sometimes spring from the rhizome, but are sometimes attached to the base of the petioles. Species occur in temperate and hot climates, as the South of Europe, Africa, Oregon, Madras, Australia, Brazil, &c. *M. macrospora* is the Nardoo of Australia. [M. J. B.]

MARSYLIANTHES. A genus of labiates, distinguished by its bell-shaped calyx having five equal erect teeth; by the upper lip of the corolla being bifid, the lower three-lobed, the lateral lobes nearly equal in size and ovate, the middle concave with an acute point; and by each piece of the fruit being concave on the inner surface, the border fringed. *M. hyptoides* of tropical America, the only species, is a procumbent annual with heads of blue-purple flowers. [G. D.]

MARTINEZIA. A genus of tropical American palms consisting of six species, all of them small trees with cylindrical trunks seldom more than twenty or thirty feet high, and often armed with spines, as also are the leaf-stalks. The leaves are pinnate, with the segments of a wedge-shaped or three-sided form, the broad upper end being very much jagged or torn. The simply-branched flower-spikes are enclosed in a double spathe, the outer of which is incomplete, the spathe and the

lower part of the spike being frequently covered with black spines; both sexes of flowers have a three-parted or three-sepaled calyx, and a three-petaled corolla. The fruits are globular and fleshy, and contain a hard smooth pitted stone. [A. S.]

MARTYNA. A genus of *Pedaliaceæ*, mostly confined to Mexico. It consists of branching herbaceous plants covered with clammy hairs, and having roundish somewhat heart-shaped leaves, and spikes of flowers of which the calyx is divided into five nearly equal pieces, and the irregular bell-shaped corolla is unequally five-lobed and puffed out below. The fruit is a hard woody wrinkled capsule terminating in two curved beaks or hooks, and is divided into four cells containing several large seeds. *M. jagrans* is an annual, two or three feet high, occasionally seen in our gardens, where it thrives in the open air during the summer months, producing spikes of large rich purplish-red flowers streaked with yellow, and exhaling a most delicious odour. Its singular fruits are prolonged upwards into two curved sharp hooked horns three or four inches long, which cause great annoyance to travellers in Mexico by catching hold of their clothes. Another species, *M. proboscidea*, is called *Testa di Quaglia* by the Italians; while the Mexicans give the name of *Unguis Diaboli* to the short hooked fruit of *M. triloba*. [A. S.]

MARUM. (Fr.) *Teucrium Marum*.

MARUTA. A genus proposed by Cassini, and adopted by De Candolle, for the *Anthemis Cotula*, and one or two other species, which have the ray florets neuter and barren. *M. Cotula* is a common cornfield weed with a very disagreeable smell, closely resembling in all other respects several other species of *Anthemis*, with which genus many botanists reunite it.

MARVEL OF PERU. *Mirabilis*.

MARY-BUD. *Calendula officinalis*.

MARY'S FLOWER. *Anastatica Hieracantha*; also *Marianthus*.

MARZUOTO. A kind of spring corn grown in Tuscany, the straw of which is used for plaiting.

MASCULAR, MASCULINE. Whatever belongs to the stamens.

MASDEVALLIA. A considerable genus of South American orchids, of the tribe *Malaceæ*, consisting of little epiphytes, with creeping rootstocks, and broad leaves narrowed downwards into stalks. It is well distinguished by its flowers, which are borne singly on radical stalks, having the sepals joined into a tube, except at their apices, where they are free and drawn out into long narrow tails. The petals are free, very small, and concealed in the tube of the sepals, as also is the lip, which is sessile and articulated with the incurved half-rounded column. They are very remarkable for the singularity of their flowers, and also for their beauty. [A. S.]

MASER-TREE. *Acer campestre*.

MASH. An Indian name for *Phaseolus radiatus*, a kind of pulse.

MASKED. The same as *Personate*. A body is also said to be masked when its true nature is concealed or disguised.

MASK-FLOWER. *Alonsoa*.

MASSE AU RÉDEAU. (Fr.) *Dunias Erucago*. — **DEAU.** *Typha latifolia*.

MASSES. Collections of anything in unusual quantity; as, for example, *pollen-masses*, which are unusual collections of pollen.

MASSETTE. (Fr.) *Typha*.

MASSONIA. A genus of Cape bulbs, belonging to the *Liliaceæ*. The leaves are commonly two in number, and lie flat on the ground; and the flowers are in an umbel-like head nearly sessile between the leaves and surrounded by a many-leaved scarious involucre. The perianth is salver-shaped, usually white, with a six-parted spreading or reflexed limb. These plants have but little beauty, but their appearance is very singular. [J. T. S.]

MASTACANTHUS. A genus established by Endlicher to receive a verbenaceous plant which has been since referred to *Caryopteris*. [W. C.]

MASTER-WORT. *Imperatoria*; also *Astrantia*. —, **ENGLISH.** *Ænopodium*. —, **GREAT.** *Imperatoria Ostruthium*.

MASTIC DES INDES. (Fr.) *Schinus*. — **DE SYRIE.** *Teucrium Marum*.

MASTICH. The resiniferous *Pistacia Lentiscus*. —, **BARBARY.** *Pistacia atlantica*. —, **WEST INDIAN.** *Bursera gum-mifera*. —, **PERUVIAN.** *Schinus Molla*.

MASTWOOD, YELLOW. *Tobinia coriacea*.

MASTWORTS. Lindley's name for the *Corylaceæ*.

MASUR. An Indian name for *Ervum Lens*.

MATAR. An Indian name for Peas.

MATAYBA. A Guiana tree described as a genus of *Sapindaceæ*, as yet imperfectly known, but supposed to be a species of *Cupania*.

MATÉ. A South American name for *Ilex paraguayensis*.

MATFELLON. *Centaurea nigra*.

MATHEE. An Indian name for *Trigonella fœnum-græcum*.

MATHER. *Anthemis* or *Maruta Cotula*.

MATHEWSIA. A genus of *Cruciferae*, forming a branched Chilean shrub, having somewhat fasciculate linear-lanceolate pinnatifid leaves clothed with fine stellate hairs, and bearing elongated terminal racemes of rather large flowers. The pouch is two-valved, elliptical or lanceolate, sur-

mounted by the sessile stigma, compressed, parallel to the partition, with flat reticulate one-nerved valves. [J.T.S.]

MATICO. A drug obtained from *Artanthe elongata* and *adunca*; also from *Eupatorium glutinosum*, and *Walteria glomerata*; and, according to Martius, from a species of *Phomia*.

MATONIA pectinata is the only species of a genus of *Polypodiaceæ*, distinct in aspect and character from all other known ferns. From a creeping rhizome rises a tall slender erect ebony stalk, on the top of which is a conjugate fan-shaped frond, each half a counterpart of the other, and consisting of several long rigid linear pinnatifid branches. The fronds have something the aspect of the *Mertensia* group of *Gleichenia*, but the suboblique ring of the spore-case indicates relationship with the *Cyatheaceæ*, in the neighbourhood of which it is now classed as a distinct tribe, the *Matoniaceæ*. The sori are globose on compital receptacles, and covered by umbonate-hemispherical indusia with a central stalk, and incurved margins. The veins are free, except where they anastomose to form the receptacles. [T.M.]

MATRICAIRE, or **M. COMMUNE.** (Fr.) *Pyrethrum Parthenium*. — **MANDIANE.** *Anthemis parthenioides*.

MATRICARIA. A genus of herbaceous plants belonging to the tribe *Corymbifera* of compound flowers, of which the characters are: fruit angular, crowned with a large disk; pappus, when present, a membranaceous border; receptacle naked; florets of two colours. The genus is represented by the Corn Mayweed, *M. inodora*, and the Wild Chamomile, *M. Chamomilla*, common weeds with daisy-like flowers, and deeply cut capillary leaves, the latter with a slightly bitter taste, and a smell approaching that of the true Chamomile. French, *Matricaire*; Germ. *Mutterkraut*. [C. A. J.]

MATRIMONY-VINE. *Lycium barbarum*.

MATTHIOLA. A genus of cruciferous plants, of which the characteristic features are: siliques nearly cylindrical; stigmas connivent, thickened or horned on the back; seeds thin and flat, one-rowed, numerous. Two species are indigenous to Britain: *M. incana*, which grows on cliffs in the Isle of Wight, and is the origin of all the garden varieties of Brompton Stock; and *M. sinuata*, the Great Sea Stock, an herbaceous plant with rugged pods, rare on the shores of Cornwall and Wales. *M. tristic*, a humble plant with narrow hoary leaves and dingy brown flowers, a native of the south of Europe, is best known as the Night-scented Stock. *M. annua* is the original of all the varieties of Ten-week Stock, and *M. græca* of the smooth-leaved annual Stocks. French, *Giroflée*. [C. A. J.]

MATTIA. A genus of *Boraginaceæ*, found in South-eastern Europe and Asia Minor, consisting of white pubescent herbs, with

linear-oblong leaves, and umbellate-corymbose blue or yellow flowers. [J.T.S.]

MATUTINAL. Happening early in the morning.

MATWEED. *Ammophila arenaria*, also called Sea Matweed. —, **HOODED.** *Lygum Spartum*. —, **SMALL.** *Nardus stricta*.

MAUDLIN, SWEET. *Achillea Ageratum*.

MAUDLINWORT. *Chrysanthemum Leucanthemum*.

MAULE. *Malva sylvestris*.

MAURANDIA. A genus of *Scrophulariaceæ*, nearly allied to *Antirrhinum*, and like that genus comprising annuals and perennials, either erect, or more frequently climbing and supporting themselves by their twisted peduncles and petioles. They differ from *Antirrhinum* in the tube of the corolla not being swollen into a pouch at the base, in the less prominent palate at the mouth of the tube, and in the capsule, of which each cell opens in several valve-like teeth. Three handsome climbing species, *M. antirrhiniflora*, *M. semperflorens*, and *M. Barclayana*, all natives of Mexico, with cordate or hastate leaves and showy flowers, are frequently cultivated in our gardens. The two remaining erect species are Californian.

MAURITIA. A genus of palms peculiar to tropical South America. They grow to an immense size, some species attaining the height of a hundred or a hundred and fifty feet, and bearing a crown of enormous fan-shaped leaves, from amongst which the pendulous flower-spikes are produced. These spikes, which are often very large and much branched, bear the flowers in numerous catkins, which, as well as the branches, have their bases sheathed in incomplete tubular spathe. The different sexes are on distinct trees, but they are intermingled with perfect flowers. The fruits are covered with hard shiny scales, which give them a tessellated appearance. *M. flexuosa*, the Moriche or Ita Palm, is very abundant on the banks of the Amazon, Rio Negro, and Orinoco rivers. In the delta of the latter it occupies swampy tracts of ground, which are at times completely inundated, and present the appearance of forests rising out of the water. These swamps are likewise frequented by an independent tribe of Indians, called 'Guaranés,' who subsist almost entirely upon the produce of the Moriche Palm, and during the period of the inundations suspend their dwellings from the tops of its tall stems. Various parts are applied to useful purposes. The outer skin of the young leaves is made into string and cord for the manufacture of hammocks. The fermented sap yields palm-wine, and another beverage is prepared from the young fruits, while the soft inner part of the stem yields a farinaceous substance like sago. [A.S.]

MAURITIUS-WEED. *Rocella fuciformis*.

MAUVE (Fr.) *Malva sylvestris*. — **BÂTARDE**, Malope. — **EN ARBRE**, Lavatera. — **DES INDES**, Sida. — **FLEURIE**, *Lavatera trimestris*. — **GRANDE**, *Malva sylvestris*. — **PETITE**, *Malva rotundifolia*.

MAUVISQUE (Fr.) *Malvaviscus*.

MAWSEED, *Papaver somniferum*.

MAXILLARIA. Formerly this genus comprised a heterogeneous mass of orchids which are now separated into some half-dozen or more genera. It is now restricted to those possessing the following characters:—Flowers more or less ringent; lateral sepals adhering to the column at their oblique base; lip hooded, jointed with the prolonged claw-like foot of the column, which is narrow, ascending; pollen-masses four, incumbent, or the two hind ones adhering to the two front ones; caudicle short, attached to a semicircular gland. [A. S.]

MAXIMILIANA. The celebrated Humboldt, in his *Aspects of Nature*, speaks in glowing terms of the great beauty of the *Jagua*, an undetermined species of the present genus of palms, of which three or four are known, natives of the forests of Northern Brazil and the West Indies. All these are tall-growing trees, with slender smooth trunks, bearing at the summit gigantic pinnate leaves, having the narrow leaflets arranged in clusters along the leaf-stalks. The flower-spikes are each completely enclosed in a thick woody spathe, which tapers to a long point, is marked outside with deep longitudinal furrows, and eventually splits open down one side. The flowers are of separate sexes, either mixed together on the same or on distinct spikes.

M. regia, the Inajá Palm of the Amazon, has a trunk a hundred or more feet high, crowned with leaves from thirty to fifty feet long, and its woody spathes when open frequently measure as much as five or six feet in length by about two feet in breadth, tapering to a long point or beak. These spathes are so hard that when filled with water they will stand the fire, and are sometimes used by the Indians as cooking utensils, but more frequently as baskets for carrying mandioca flour, &c. The Indians who prepare the kind of India-rubber called bottle-rubber, make use of the hard stones of the fruit as fuel for smoking and drying the successive layers of milky juice as it is applied to the mould upon which the bottles are formed. The outer husk, also, yields a kind of saline sour used for seasoning their food. [A. S.]

MAY, A popular name for the flowers of *Crataegus Oxyacantha*. — **ITALIAN**, *Spiraea Filipendula*.

MAY-BUSH, *Crataegus Oxyacantha*.

MAYACEÆ, **MAYACA**. A natural order and solitary genus of hypogynous monocotyledons, belonging to the xyridal alliance, comprising three or four little moss-like

marsh or semi-aquatic plants allied to *Xyridaceæ* and *Commelinaceæ*, but well distinguished by their one-celled anthers. Their inconspicuous little white, pink, or violet flowers have three sepals alternate with the carpels, three distinct petals, three stamens inserted into the base of the sepals, and three carpels combined into a one-celled pistil, which has a thread-like style and simple stigma. The species are all American, extending on the one hand to Virginia, and on the other to Brazil. Physiologically they are remarkable for their deficiency of spiral vessels. [A. S.]

MAYDEWEED, *Pyrethrum Parthenium*. — **RED**, *Adonis autumnalis*.

MAY-DUKE. A kind of cherry.

MAYENNE (Fr.) *Solanum esculentum*.

MAYFLOWER, *Epigaea repens*. — **WEST INDIAN**, *Dalbergia Brownii*, and *Ecataphyllum Brownii*.

MAY-LILY, *Convallaria majalis*.

MAYNA (including *Lindackeria*). A genus of *Fimbristylaceæ*, distributed over Mexico, New Grenada, Guiana, and Brazil, and represented by middle-sized trees, with ovate or oblong coriaceous leaves, polygamous flowers arranged in racemes, and a round fruit, covered with numerous prickles and resembling very much our common horse-chestnut in outward appearance. The sepals and petals are imbricated; the anthers linear, and opening by two slits; the styles completely united; and in the female flowers there appear to be never more than three placentas. From being imperfectly known, and on account of its stipules, the genus had been placed near *Magnoliaceæ* until united with *Lindackeria*, and placed amongst *Bixaceæ* by Benthams. [B. S.]

MAYPOLE of Jamaica. *Spathalia simplicifera*.

MAYS DEL MONTE. The Peruvian name of *Ombrophytum*.

MATTENUS. A genus of *Celastraceæ*, consisting of South American evergreen shrubs or small trees, with alternate coriaceous serrate leaves, and small flowers solitary or clustered in their axils. The fruit contains but a single seed, as in *Myginda*, from which this genus differs chiefly in its alternate, not opposite leaves. There have been near fifty species described, but probably not so many are really distinct. The arborescent species have a very hard wood, and the leaves of the commonest Peruvian species, although astringent, are said to be greedily devoured by cattle.

MAY-WEED, *Anthemis* or *Marrubia Cotula*; also *Pyrethrum Parthenium*. — **STINKING**, *Matriaria Chamomilla*.

MAYWORT, *Galium cruciatum*.

MAZI. The Turkish name for *Galla*.

MAZUS. A genus of *Scrophulariaceæ*

nearly allied to *Mimulus*, of which it has the corolla stamens and capsule; but the calyx is broadly campanulate and deeply five-lobed. It consists of three or four South Asiatic or Australian herbs, either low branching annuals or perennial through their creeping runners. They are uninteresting weeds, the most common of them, *M. rugosus*, very widely spread over tropical Asia.

MAZZARD. The wild *Cerasus avium*.

MEADOW BEAUTY. An American name for *Rhexia*.

MEAD-SWEET, MEADWORT, or MEADOW-SWEET. *Spiraea Ulmaria*.

MEAL-BERRY. *Arctostaphylos uva ursi*.

MEALY-TREE. *Viburnum Lantana*.

MECHOACAN ROOT. *Batatas Jalapa*.

MECONELLA. A curious little *Papaveraceus* plant, proposed by Nuttall as a genus, but united by Bentham and Hooker with *Pulsatilla*, from which it is mainly distinguished by the fewer stamens. Torrey and Gray place it between *Platystemon* and *Hyoscyamus*, but its connection with the latter is very slight. Its characteristic marks are three sepals, five or six petals, four to six stamens with membranaceous filaments dilated upwards, and short anthers, three rarely four linear sessile stigmas, and a slender pod shaped three rarely four-celled capsule, containing numerous smooth shining seeds. *M. oreana* is a dwarf smooth annual, with a rosulate tuft of spatulate root leaves, dichotomously forked slender stems bearing linear leaves, and very small ochroleucous flowers on filiform axillary peduncles. As its name implies, it is a native of North-west America. [T. M.]

MECONOPSIS. An herbaceous perennial belonging to the *Papaveraceae*, distinguished from *Papaver* by having a short style and five to six free stigmas. *M. cambrica*, the Welsh Poppy, a native of Wales, Devonshire, Somerset, York, Westmoreland, and Ireland, is a pretty plant about a foot high, with bright green pinnate hairy leaves, slender stems, and large terminal remarkably fugacious flowers which droop while in bud, and are of a delicate sulphur-yellow colour. [C. A. J.]

MÉDAILLE DE JUDAS. (Fr.) *Lunaria biennis*.

MEDEOLA. A genus of *Trilliaceae*, containing a North American herb, *M. virginica*, which has a white rhizome tasting like cucumber, from which the plant derives its local name of Indian Cucumber-root. It has an erect simple stem with a whorl of obovate-lanceolate sessile leaves, and a second whorl of smaller ones near the top, subtending a sessile umbel of small greenish-yellow flowers. [J. T. B.]

MEDER-DEUL. *Kigelia abyssinica*.

MEDICAGO. The Medick genus: one of the *Papilionaceae*, and distinguished by its more or less spirally twisted legume. The

more important species are the following:—

M. sativa, the Purple Medick, or Lucerne. This, though found apparently wild on the borders of fields, has doubtless escaped from cultivation; it is distinguished by its purple flowers and upright growth. Its herbage is green and succulent, and has the advantage of being early, on which account it has been highly extolled as an agricultural plant. It yields two rather abundant crops of green food in the year, of a quality highly relished by horses and cattle. *M. lupulina*, the Black Medick, or Nonsuch, is at first sight so much like the yellow trefoils as to be generally known by farmers as the Hop trefoil, or Hop; it is, however, distinguished by its naked black legume. It is used in farming to mix with grasses and clovers for artificial or shifting pastures, in which it often assumes a luxuriance of growth well befitting it for this purpose. *M. maculata*, remarkable for its spirally-coiled prickly legumes, has, from the quantity of herbage which it grows, been recommended for cultivation as a green fodder plant; but it is scarcely equal to the former, while in hay the long prickles to its seed-vessels render it very objectionable. [J. B.]

MEDICIA *elegans* is a name given by Gardner to a very handsome Hongkong twiner, which has since proved to be a species of *Gelsemium*.

MÉDICINIER. (Fr.) *Jatropha*.

MEDICK. *Medicago*.

MEDINILLA. Between two and three dozen species of this genus of *Meletomaceae* have been described, all from the islands of the Indian Ocean. They are shrubby plants, generally quite smooth, with opposite or whorled entire fleshy leaves, the primary nerves of which are strongly marked and often coloured, and having panicles of rose or white flowers, the calices and stalks of which are nearly always reddish. The principal characters of the genus reside in the limb of the calyx being entire or at most obsoletely lobed, and in the stamens, of which there are eight or ten (double the number of the floral envelopes), having basal-fixed generally incurved anthers with two lobes or spurs at the bottom in front and one behind. *M. magnifica* is a truly magnificent plant. [A. B.]

MEDIOCRE. Intermediate between large and small.

MEDIAR. *Mespilus germanica*. "The Mediar of Surinam is said to be a sapotaceous plant. —, JAPAN. *Eriobotrya japonica*.

MEDORA. A genus of *Liliaceae*, of the tribe *Asperagineae*, founded on the *Smilacina fusca* of Nepal. It has a creeping rhizome, an erect simple stem, stalked cordate-ovate acuminate leaves, and terminal dichotomous many-flowered peduncles of long-stalked flowers, nearly racemose on the ultimate divisions. The perianth is

deciduous, of six violet leaves with a green spot above the middle. [J. T. S.]

MEDRINAQUE. A coarse fibre from the Philippines, obtained from the Sago palm, and used chiefly for stiffening dress linings, &c.

MEDULLA (adj. **MEDULLARY**). The pith; that central column of cellular matter over which the wood is formed in Exogens.

MEDULLARY RAYS. The cellular plates or processes which connect the pith of Exogens with the bark, constituting the 'silver grain' of their wood.

MEDULLARY SHEATH. A thin stratum of spiral vessels formed immediately over the pith.

MEDULLOSE. Having the texture of pith.

MEDUSA'S HEAD. *Euphorbia Caput Medusæ*; also *Cirrhopetalum Medusæ*.

MEGACARPÆA. A genus of *Cruciferae* of the tribe *Thlaspidæ*, containing one or two perennial herbs from the deserts of Central Asia. They have deeply pinnatifid and cut leaves covered with white woolly hairs, and terminal racemes of small purplish flowers. The pouch is very large and flat, compressed contrary to the partition, the valves orbicular, each with one seed. *M. polyandra*, the *Rongee* of Kumaon, is remarkable in the cruciferous order for its numerous stamens, from ten to sixteen in number. [J. T. S.]

MEGACLINIUM. A small genus of orchids of tropical Western Africa, remarkable for the curious flattened sword-shaped leafy rachis or flower-stalk upon which the no less curious little flowers are seated in a straight row along the middle on both sides. It is closely related to *Bolbophyllum*, with which, indeed, some orchidologists unite it, the chief distinctions being that in *Megaclinium* the posterior sepal is much larger than the other two, and united to them at the base, the lip is loosely articulated with the base of the column, and the four pollen-masses are all of the same size. The flowers are of a greenish or yellowish brown, spotted more or less with purple, and have a fancied resemblance to little frogs or toads, whence one species has been named *M. Bufo*. The four or five known species are all epiphytes, and have creeping rhizomes, bearing pseudobulbs furnished with leathery veinless leaves, and radical flower-racemes. [A. S.]

MEGALOS. In Greek compounds—large.

MEGASEA. *Saxifraga crassifolia*, *S. cordifolia*, and their allies.

MEIA. A Tahiti name for *Musa paradisiaca*.

MEION. Less; prefixed to the name of an organ, indicates that it is something less than some other organ understood. Thus *metogyrius* means but little rolled inwards; and *meiostemonous* is said of a plant

whose stamens are fewer in number than the petals.

MEISSNERIA. A Brazilian genus of *Melastomaceæ*, comprising about half a dozen species of small erect hairy herbs, with nearly simple or but slightly branched stems, small mostly sessile leaves, and small axillary bunches of reddish or purplish flowers. These latter have a calyx with a free campanulate tube and four lobes about as long as the tube itself; four petals; eight stamens, of which only four are fertile and have beaked anthers opening by a broad pore at their ends; and a filiform style ending in a punctiform stigma. [A. S.]

MELALEUCA. This name, derived from the Greek *melas*, black, and *leukos*, white, is stated to have been applied to a genus of *Myrtaceæ*, in consequence of the trunk of one of the species being black, and the branches white. The genus consists of trees or shrubs, natives of Australia and the islands of the Indian Ocean, with alternate or opposite flat or cylindrical leaves, and yellowish purplish or crimson flowers, sessile in spikes or heads. The calyx tube is hemispherical; there are five sepals and petals; alternate with the latter are five parcels of stamens; and the capsule is three-lobed, united with and enclosed in the thickened tube of the calyx, which also adheres to the branch supporting it.

These plants are all of them aromatic from the presence of a volatile oil. The best known among them on this account is *M. minor* or *M. Cajuputi*, the leaves of which, after fermentation, are distilled for the purpose of yielding the oil known as *Cajuput* or *Cajeput* oil, which is green, and has a powerful aromatic odour. It is valuable as an antispasmodic and stimulant, and in 1831 was recommended as a remedy for cholera, in consequence of which the price of the oil was enormously increased, and its quality proportionately deteriorated. It is more than doubtful if, even in the pure state, it possesses any advantage over any oil of a similar nature. The leaves of this tree are used in China as a tonic in the form of decoction, where also the bark is made use of in the construction of boats and roofs for houses. Numerous species are grown as evergreen greenhouse plants in this country, on account of the simplicity of their foliage and the splendour of their clustered flowers. [M. T. M.]

MELANPODIUM. A genus of *Compositæ* of the tribe *Heliantheæ*, consisting of coarse dichotomous annual or perennial herbs, with opposite leaves, and rather small flower-heads growing singly from the forks of the stem. The involucre has five outer spreading herbaceous bracts, and five to ten inner ones enclosing as many florets of the ray, which are ligulate, female, and usually yellow. The receptacle is convex or conical, scaly, with numerous small tubular male florets. The achenes of the ray are entirely enclosed in the persistent and usually hardened inner bracts

of the involucre, and are usually crowned by a small cup-shaped pappus, often bearing one to three bristles. There are nearly twenty species, natives of tropical America, one of them found also in the Philippine Islands, but probably introduced with other American weeds.

MELAMPYRUM. The Cow-wheat, a genus of annuals belonging to the *Scrophulariaceae*, having erect slender stems, narrow opposite leaves, and axillary or spiked flowers which are two-lipped, the upper lip being compressed and turned back at the margin, the lower three-cleft. The meaning of the systematic name, 'black wheat,' bears reference to an ancient belief that the seeds, when mixed with grains of wheat and ground into flour, tended to make the bread black. There are four British species: *M. pratense*, the most frequent, which inhabits dry woods; *M. sylvaticum*, a much less common species, found in the north; *M. cristatum*, which grows principally in the eastern counties; and *M. arvense*, not unfrequent in the Isle of Wight, where it is a conspicuous object in the corn fields, with its large oblong spikes of flowers variegated with yellow, green, and crimson. French, *Mélampyre*; German, *Wachtelweizen*. [C. A. J.]

MELANCHOLY GENTLEMAN. *Hesperis tristis*.

MELANDRIUM. By a few authors the genus *Lychnis* is divided into several, and one of these is named *Melandrium*, and embraces all those species which have inflated calices, and capsules opening by ten instead of five teeth. There are about a dozen species having these characters, all of them Alpine or northern, and three natives of Britain: these are, *L. vespertina*, *diurna*, and *alpina*. [A. A. B.]

MELANISM. A disease producing blackness.

MELANOGASTER. A genus of underground *Fungi*, belonging to the natural order *Hypogaei*, distinguished by a tough skin more or less overrun externally with branched fibres, and within containing sinuous moist cavities, whose walls support smooth naked spores. Most of the species have a disagreeable smell, but *M. variegatus*, which is less offensive, is used in the west of England as a substitute for truffles, under the name of Red Truffle. It has, however, none of the delicate aroma of the real truffle, and probably has little merit beyond giving a dark colour to the sauce of which it forms a part. We are not aware that the genus has been found out of Europe. [M. J. B.]

MELANORRHOEA. Two very large East Indian trees constitute this genus of *Anacardiaceae*, which derives its name from the Greek words *melanos*, black, and *rheo*, to flow, in consequence of the juice which flows from their trunks turning black upon exposure to the air. They grow upwards of a hundred feet high, and have broad spreading heads bearing large simple

entire leaves of a thick texture, and axillary panicles of perfect flowers. These have five sepals cohering so as to form a kind of cap, five overlapping petals, and numerous stamens. The fruit is surrounded by the enlarged petals spread out in a star-like manner.

M. usitatissima is common in forests from Tenasserim and Pegu to Manipur in Sylhet. It is called Theet-see in the former, and Kheu in the latter country; and its dark-coloured wood, on account of its excessive hardness and great weight, is known as the Lignum Vitæ of Pegu—so heavy, indeed, is it, that anchors for native boats are made of it. The most valuable and extensively used product of the tree, however, is the black varnish which it yields. This is obtained by the process of tapping, short joints of bamboo, closed at the bottom end, being thrust into holes made in the trunk and left for about two days, when they become full of a whitish thick juice which turns black when exposed to the air, and requires to be kept under water in order to preserve it. All kinds of domestic utensils and furniture are lacquered with this juice, which is laid on thin and slowly dried, the change from white to black being, according to Sir D. Brewster, attributable to its losing its organised structure and becoming homogeneous, and then transmitting the sun's rays, which, in its previously organised state, it dispersed. Like other varnishes derived from the same natural order, it is apt to cause erysipelatous swellings if applied to the skin. [A. S.]

MELANOSELINUM. A genus of umbellifers, distinguished by each half of the fruit having five narrow primary ribs and three secondary, the two outermost of the latter in the form of broad wings with a saw-like edge. The only species is *M. decipiens*, a shrub with a round simple stem, bare below, the leaves in three principal divisions, the flowers white. [G. D.]

MELANOSINAPIS. One of the sections of *Sinapis* sometimes separated, and characterised by its small short not beaked style, and terete or sub-tetragonous pods. It embraces the black mustard, *Sinapis nigra*, and a few allied species. [A. S.]

MELANOSPERMEÆ. One of the three great divisions of *Algae*, characterised by their dark olivaceous spores. The plants themselves are of a light or dark olive, and the fruit is either external in diffuse or definite patches, or contained in distinct cysts sunk in the frond. The endochrome of the spore-cases is, for the most part, ultimately divided into several spores multiples of two. Impregnation is effected by means of minute spermatozooids moving by means of cilia, and produced in distinct antheridia. Occasionally there are two kinds of spores, both reproductive. The frond is either compact and cellular, or formed of jointed filaments. This division contains many of the largest and most important *Algae*, especially the large brown seaweeds which seem in all countries to

form the extremest limit of seaweed growth. The peculiarities of most of the natural orders, as *Fucales*, *Laminariaceae*, *Chordaceae*, and *Ectocarpus*, have already been particularised, as well as the several uses to which the species have been applied. In the latter order we have minute filamentous *Algae*, which form a strange contrast to the gigantic *Lessonia*, *D'Urvillea*, &c., or even to our own *Laminaria*. In some of the lower species there is a departure from the main type, and the spores are replaced by zoospores. [M. J. B.]

MELANOXYLON. A large timber tree called *Bráuna* by the Brazilians and *M. Brauna* by botanists, is the sole representative of this genus of leguminous plants. It has large pinnate leaves, covered with rust-coloured down underneath, and bears branched racemes of yellow flowers which are likewise clothed with rusty down. The pods are flat and sickle-shaped, and contain several seeds. *Bráuna* timber is of a very dark reddish-brown colour, and of excellent quality, being both hard and durable. It is employed in Brazil in the construction of sugar-mills, particularly for making the heavy rollers for crushing the canes. A reddish-brown colouring matter is also obtained from both the wood and the bark, and is used by the Brazilians for dyeing cotton cloth of various shades from light-brown to nearly black. [A. S.]

MELANTHACEÆ. (*Colchicaceae*, *Veratreae*, *Melanths*.) A natural order of hypogynous monocotyledons, belonging to Lindley's illal alliance of Endogens. Herbs with bulbs, corms, or fasciculated roots, and white green or purple flowers. Perianth petaloid, in six pieces, which are sometimes slightly coherent, usually involute in aestivation; stamens six, with the anthers extrorse; ovary three-celled, the ovules numerous, the style three-parted, and the stigmas three, undivided. Fruit a three-celled capsule, with septicidal or loculicidal dehiscence; seeds with a membranous spermoderm; albumen dense, fleshy; embryo very minute. Natives of various parts of the globe, but most abundant in northern countries. They are acrid, purgative, emetic, and sometimes narcotic in their qualities. *Asparagus officinalis* yields subadilla seeds, used in neuralgia. *Colchicum autumnale*, the meadow saffron, is prescribed in gout and rheumatism, its corms and ripe seeds being used. There are upwards of thirty genera, and above a hundred and thirty species. Examples: *Colchicum*, *Melanthium*, *Uvularia*, *Veratrum*. [J. H. B.]

MELANTHERA. A genus of rough, branching, somewhat shrubby weeds of the composite family, found in the Southern United States, and southwards to Ecuador. They belong to the *Heliantheae*, and differ from their near allies in the absence of strap-shaped ray florets, all the florets being tubular and perfect, and in the pappus, which consists of a few rigid bristles. The flowers are white, and the anthers black: whence the generic name. [A. A. B.]

MELANTHIUM. A genus of Cape *Mercuriales*, consisting of bulbous herbs, with linear or lanceolate leaves sheathing at the base, and spicate flowers, which have a white yellow or pinkish perianth of six deciduous leaves, which are narrowed into claws and either hooded or bisaccate at the base. They have six stamens inserted on the perianth. [J. T. S.]

MELANZANE. (Fr.) *Solanum esculentum*.

MELARANCIO. An Italian name for the Orange-tree.

MELA-ROSA, or MELLA-ROSA. A variety of *Citrus Limetta*.

MELAS. In Greek compounds = black without the mixture of any other colour.

MELASTOMACEÆ. (*Melastomae*, *Menecylaceae*, *Mouririaceae*, *Melastomadae*.) A natural order of calycifloral dicotyledons belonging to Lindley's myrtal alliance of epigynous Exogens. Trees, herbs, or shrubs, with opposite ribbed leaves, and showy flowers. Calyx with four five or six divisions, sometimes united and separating from the tube like a lid; petals equal to the calyx, perigynous, the aestivation twisted; stamens alternate with the petals, usually with intermediate sterile ones; the anthers long, often beaked, two-celled, dehiscent by two terminal pores or longitudinally; ovary more or less adherent to the calyx; ovules usually indefinite; style one; stigma simple, either capitate or minute. Fruit many-celled, either capsular with loculicidal dehiscence, or succulent combined with the calyx and indehiscent. Seeds minute. They are found chiefly in warm climates. Many are natives of America and India. There are no unwholesome plants in the order, and the succulent fruit of several is edible. There are 165 genera, and about 2,000 species. Examples: *Melastoma*, *Lasiandra*, *Rhexia*, *Miconia*, *Charianthus*, *Menecylon*. [J. H. B.]

MELASTOMA. This genus gives its name to the order *Melastomaceae*. It contains a considerable number of species, distributed over tropical Asia and the islands of the Indian and Pacific Oceans, extending to as far south as Moreton Bay. The plants are small shrubs covered with close-pressed hairs; and have three, five, or seven-nerved leaves, and large violet purple pale rose or white flowers, mostly in fascicles at the summit of the branches. Their floral envelopes are generally in fives; the calyx with a campanulate tube and acute deciduous teeth nearly as long as itself, and smaller teeth between them; the petals unequal-sided; the stamens ten in number, dissimilar in size, shape, and colour, five being large and violet, and five small and yellow, the anthers of the former having a downward arcuate prolongation of the connective generally ending in two spurs, while those of the latter have the cells seated immediately upon the filament. The ovary is usually five-celled. [A. S.]

MELIACEÆ. (Fr.) *Larix europæa*.

MELHANIA. A genus of *Sterculiaceæ* of the tribe *Dombeyæ*, characterised by having three bracteoles persistent at the base of the calyx, and by the anthers being always solitary between each two barren lobes of the staminal cup. It consists of about sixteen species, natives of Africa or of tropical or subtropical Asia and Australia. They are all softly tomentose herbs or undershrubs, with entire or toothed alternate leaves, and axillary peduncles bearing one or very few flowers. The bracteoles, either broadly cordate lanceolate or linear, are often longer than the calyx, and the petals scarcely spread open. These plants, therefore, with the aspect of some *Malvaceæ*, or almost that of *Hermannia*, are of little interest except to the systematic botanist.

MELIACEÆ. (*Melia, Meliada*). A natural order of dicotyledons, belonging to Lindley's Rotal alliance of hypogynous Exogens. Trees or shrubs with alternate exstipulate simple or compound leaves. Sepals four to five, imbricated; petals four to five, hypogynous, with a valvate or imbricated aestivation; stamens equalling the petals, or two, three, or four times as many; the filaments combined in a long tube; the anthers sessile within the orifice of the tube; disk often large and cup-shaped; ovary single, one-celled, the cells often equal in number to the petals; ovules one to two in each cell; style one; stigma distinct or united. Fruit baccate, drupaceous, or capsular, many-celled or by abortion one-celled; seeds not winged. They are chiefly found in the tropical parts of America and Asia, and possess bitter, tonic, and astringent qualities. *Melia Azadirachta* is used in India as a febrifuge, and its fruit yields an oil which is employed for domestic purposes, and as an antispasmodic. The root of *Melia Azedarach* is bitter, and used as a vermifuge. Oils are procured also from species of *Trichilia* and *Carapa*. There are upwards of forty genera, including *Melia*, *Turraea*, *Trichilia*, and *Carapa*, and a hundred and eighty species. [J. H. B.]

MELIA. A genus of *Meliaceæ*, conferring its name upon the order to which it belongs, and consisting of trees and shrubs inhabiting the tropics. They have alternate pinnate or bipinnate leaves, and paniculate flowers. The calyx is five-cleft; the corolla has five linear petals; there are ten stamens; and an almost fleshy five-celled drupe, each cell containing one, seldom two seeds. *M. Azedarach*, vulgarly known as the Pride of India, False Sycamore, Holy-tree, Arbre à Chaplet, Bead-tree, or Hill Margosa, is widely diffused over the globe, having been carried to America, Africa, and different parts of Southern Europe. It is from thirty to fifty feet high, with bipinnate leaves, and large bunches of lilac flowers emitting an agreeable perfume. In Southern France and Spain the tree thrives well in the open air, and is planted in avenues. The Arabic

name, *Azedarach*, implies a poisonous plant, and the fruit is generally considered so. The root is bitter and nauseous, and used in North America as an anthelmintic. The tree is supposed to possess febrifugal properties, and a decoction of the leaves is used as a remedy for hysterics. From another Indian species, *M. Azadirachta*, the Neem-tree or Margosa, a kind of toddy, which the Hindoos consider a stomachic, is obtained by tapping; and from the fruit an oil is extracted fit for burning and other domestic purposes. [B. S.]

MELIANTHUS. [A genus of *Sapindaceæ*, consisting of small trees of the Cape of Good Hope, one species being naturalised in Nepal, and on the Neilgherry hills.] The leaves are glaucous, unequally pinnate, the leaflets unequal and extended along the side of the stalk; the stipules are usually combined within the axil of the leaf. The flowers are in axillary or terminal clusters, the lower ones sometimes imperfect; while the upper ones have a large calyx generally of a purple colour, its five segments unequal in size and form: the lowest very short, bulging below, hooded above, concealing a gland, which is itself girt round by a separate membrane; the others lance-shaped and flat, the two upper ones largest. The five petals are shorter than the sepals, strap-shaped; the four lower ones bent downwards, hairy in the middle, where they are united one to another, but elsewhere detached; the uppermost one when present very small, separate from the rest, placed between the two upper sepals, but usually absent. Stamens four, the two upper detached, the two lower united together at the base; ovary and stigma four-lobed; fruit bladder-like, four-celled, and winged. Two or three species from the Cape are grown in greenhouses in this country, and will even grow out of doors if protected in winter. They are singular in appearance, even when the flowers are not produced. The flowers, which rarely appear in this country, are full of honey, whence the name of the genus. [M. T. M.]

MELICA. A genus of grasses belonging to the tribe *Festuceæ*. The inflorescence of the different species consists either of open panicles or dense racemes. The glumes are nearly equal, larger than the pales, one to two-flowered, with the rudiments of one to two additional imperfect flowers. The pales become hardened on the seed. The species have a wide range over the globe, but are mostly natives of temperate climates. Two are British, namely, *M. uniflora* and *M. nutans*. They are handsome grasses, but of no agricultural value, though the latter is one which grows well under trees, and consequently is of some importance in that respect. [D. M.]

MELICOCOCA. A genus of *Sapindaceæ*, now restricted to two American species, trees of considerable size, and natives of the northern part of South America. Their leaves are abruptly pinnate and without

stipules, and their small whitish flowers are produced in divided racemes at the ends of the branches. *M. bijuga*, the Genip tree, though originally a native of Guiana and New Grenada, is now plentifully found in several of the West India Islands, especially in Jamaica, where it has become naturalised and grows commonly in the lowlands, attaining the height of forty or fifty feet, with a trunk four or five feet in circumference, yielding a hard and heavy timber. It produces numerous green egg-shaped fruits an inch or more in length, possessing an agreeable vinous and somewhat aromatic flavour: the generic name being derived from the Greek words *mell*, honey, and *coccus*, a berry, in allusion to the qualities of the fruit. [A. S.]

MELICOPE. A genus of New Zealand shrubs, belonging to the family *Rutacee*. The leaves are ternate; the flowers greenish-white; calyx four-parted, persistent; petals four, spreading; stamens eight, with awl-shaped filaments; ovary four-lobed, inserted on a glandular disk, each lobe with two ovules. Fruit divided into four carpels, each containing a single seed suspended by a thread. [M. T. M.]

MELICYTUS. A New Zealand genus of *Violacee*, belonging to the equal-petaled division of the order. The four species all form large woody shrubs or small trees, with long smooth serrated short-stalked leaves, and little bundles of small flowers on the branches, each flower-stalk having one or more bracts. The flowers are usually of separate sexes, and borne on distinct plants. *M. ramiflorus* is the Mahoe of the New Zealanders, which must not be confounded with the Mahoe of the West Indies. It is a tree growing sometimes as high as forty or fifty feet, with a trunk about four feet in circumference covered with white bark, producing a heavy wood of inferior quality. The berries are eaten by the natives. [A. S.]

MÉLIER À TROIS NERVURES. (Fr.) *Blakea trinervia*.

MELIGA. An Italian name for Millet or Durra.

MELILOT. *Melilotus officinalis*.

MÉLILOT DE SIBÉRIE. (Fr.) *Melilotus alba*.

MELILOTUS. A genus of leguminous plants containing about thirty species, the majority belonging to Southern and Central Europe and Western Asia. They are herbaceous plants with trifoliate leaves, having the stipules adhering to their foot-stalks, and each of the three leaflets on a separate stalk; and their small yellow or white flowers are disposed in long-stalked loose racemes growing from the bases of the leaves. The flowers are characterised by the calyx being five-toothed, by the corolla having a blunt keel, and falling away after fading, and by the upper one of the ten stamens being free. The pods,

which are straight, thick, and short, contain one or few seeds.

M. officinalis, the Common or Yellow Melilot, is widely spread through Europe and Russian Asia. It is an annual or biennial of erect habit, from two to four feet high, having spreading branches and distant long-stalked leaves with bristle-like stipules. The long loose racemes of yellow flowers produce small oval pods, marked with irregularly netted veins. When dried the Melilot acquires a peculiar odour, due to the presence of *coumarine*, a principle which exists likewise in the Tonka bean and the vernal grass, the latter when mixed with hay contributing largely to its fragrance. Its flowers are sold by the herbalists as Balsam flowers. In Switzerland, *M. caruleus* is called Zieger Kraut, i.e. curd herb, and is employed for giving the odour and flavour to the peculiar cheese called Schabzleger or Chappziger, the dried flowers being reduced to powder and worked up into a paste with the curd. [A. S.]

M. officinalis is an annual under ordinary circumstances, but 'if cut continually and not allowed to flower, it will last several years.' *M. alba* has been grown under the names of Cabul and Bokhara or Buchara Clover. As a forage plant 'it has been found too watery when young, and too sticky when old.' But besides this, we have found that the aromatic flavouring principle is too powerful to make it advisable to use this plant by itself. There is, however, one use to which it may be well applied—that of putting an occasional layer of it sandwich-wise with less highly-flavoured fodder, or with hay that has lost some of its savour by wet; here its aroma, which is so much like that of the sweet vernal grass, to which the flavour of meadow hay is mainly due, might be productive of benefit in rendering what would otherwise be insipid, more spicy and palatable. This White Melilot is also an excellent bee plant. [J. B.]

MÉLINET. (Fr.) *Cerintho aspera*.

MELIOLA. A genus of *Fungi* allied to *Sphaeria*, and analogous to *Erysiphe*, which it replaces in tropical or subtropical countries. The species form black felt-like patches on leaves, and bear conspicuous perithecia filled with asci containing a few large articulated dark spordia. [M. J. B.]

MELIOSMA. [A genus referred to the small order *Sabiaceae*, which is intermediate between *Sapindaceae* and *Anacardiaceae*.] It consists of tropical trees or shrubs, usually hairy, with alternate simple or pinnate leaves without stipules, and very small flowers in large terminal racemes or panicles. In the structure of the flowers the genus is remarkable for its stamens being opposite the petals. The ovary is three-celled, with two ovules in each; and the fruit is a small one-seeded drupe. The seeds have a curved or twisted radicle, and folded cotyledons. There are about twenty species, natives of America or tropical Asia, chiefly in mountain districts, supplying timber used for various purposes. The genus was described by

Roxburgh under the name of *Millingtonia*, and probably includes also the *Ophiocaryon* or Snake-nut of Guiana, so called from the very much twisted embryo, compared to a snake coiled up within the nut.

MELISSA. A genus of labiate plants, having the calyx two-lipped, the upper three-toothed and spreading, the lower bifid; the tube of the corolla is somewhat inflated; and the two upper stamens are at times imperfect. The different species are widely diffused, having representatives in Europe, middle Asia, and North America. The name is from the Greek word signifying bee, indicative of the attraction the flowers have for the insects, on account of the honey they produce. [G. D.]

MÉLISSE DE MOLDAVIE. (Fr.) *Dra-coccephalum Moldavica*. — DES BOIS. *Melitis Melissophyllum*.

MELITTIS. A genus of labiates, characterised by its membranous bell-shaped calyx, the lower lip of which is bifid, with round lobes; the tube of corolla wide, its upper lip round, entire, slightly concave, the lower three-lobed; the divisions of the style ovate. *M. Melissophyllum*, the only species, widely diffused in Europe, is a native of the southern parts of England; it is a handsome plant, with ovate serrated leaves, and large showy flowers. [G. D.]

MELKHOUT. The hard durable wood of the South African *Sideroxylon inerme*.

MELLAGHOO. An Indian name for Pepper.

MELLA-ROSA. *Citrus Bergamia*; also a variety of *Citrus Limetta*.

MELLEOUS. Having the taste or smell of honey.

MELLIGO. Honey-dew; a disease of plants in which an unnatural secretion of sweet matter appears on their surface.

MELLINUS. The colour of new honey.

MELLOCA. The Melloco or Ulluco, extensively cultivated throughout the elevated regions of Bolivia, Peru, and New Grenada on account of its esculent roots, which resemble little yellow potatoes, forms the present genus of *Dasellaceæ*. This plant, *M. tuberosa*, also called *Ullucus tuberosus*, has weak fleshy stems from one to two feet long, lying upon the ground or twining round neighbouring bushes, furnished with fleshy entire somewhat heart-shaped roundish leaves, and bearing short spikes of inconspicuous yellow flowers, all the parts being smooth. The flowers have an outer calyx of two roundish lobes, and an inner deeply five-parted one with taper-pointed segments; five stamens having very short filaments, and uniting at the base into a ring which combines with the inner calyx; and a roundish ovary which bears a short style and undivided stigma, and ultimately becomes a berry-like fruit surrounded by the unchanged calyx.

The tuberous roots of the *Melloca*, called *Oca quina*, in Bolivia, to distinguish them

from other *Ocas* belonging to the genus *Oraha*, are largely used as food in the elevated regions of the Peruvian Andes, principally in the vicinity of Potosi and La Paz in Bolivia, but extending as far north as Popayan in New Grenada; and during the famine caused by the failure of the potato crops, they were, in common with many other roots, recommended as a substitute for that esculent, but upon trial were found to be unpalatable on account of the quantity of earthy saline contained in them. In the elevated regions of the Andes, where the boiling point of water is scarcely high enough to allow of the roots being cooked in the ordinary way, the inhabitants prepare them by alternately freezing and steeping them, by which process they are rendered amylaceous. [A. S.]

MELOBESIA. A genus of coralline seaweeds, in which the mineral element abounds so much, and the resemblance to corals is so great, that the species at first sight resemble anything rather than vegetables. They either consist of a few thick branches or nodules, or of an expanded simple or variously imbricated crust. Several species occur in deep water on our coast, one has been found as high as 74° north latitude, and nine are figured by Dr. Harvey in the *Phycologia Britannica*. Dr. Johnson believed them to be mere statites of *Corallina officinalis*, but there is no reason to think this correct. Their medical qualities are those of common chalk. [M. J. B.]

MELOCACTIDÆ. A suborder of *Cactaceæ*, characterised by the globose melon-like form of the stem of the plants, which bear sessile flowers. It includes the genus *Melocactus*, *Discocactus*, *Anhalonium*, and *Mamillaria*. [J. H. B.]

MELOCACTUS. The principal characteristic of this genus of *Cactaceæ* resides in the flowers being produced in a hemispherical or cylindrical head at the top of the plant, consisting of a dense mass of bristly wool and slender spines, from amongst which the small ephemeral flowers scarcely emerge. The plants themselves consist of simple fleshy stems of a somewhat globular or conical form, with numerous prominent ribs armed with fascicles of stiff spines placed at regular distances. The flowers closely resemble those of *Mamillaria*, but the divisions of the perianth are fewer, and nearly all petal-like, and the thread-like style has a five-rayed stigma. The oblong smooth berries crowned with the withered flower, contain numerous small seeds with minute globose cotyledons. There are numerous species, principally natives of the West Indies and tropical America; the best known, however, and the one usually found in our gardens, is *M. communis*, the Turk's-cap Cactus, so called from the flowering portion on the top of the plant being of a cylindrical form and red colour like a fez cap, but sometimes called Englishmen's Head, or Pope's Head. It is common in South America and also in many of the West Indian Islands,

where it grows in great quantities, covering large tracts of barren soils. The plants are usually globose when young, but ultimately increase more in length than in diameter, seldom, however, growing much more than a foot and a half high, with from twelve to twenty ridges. Notwithstanding the arid places in which they grow, they contain a considerable quantity of moisture, and the mules, being aware of this fact, resort to them when hard pressed for water, carefully removing the prickles with their fore feet previous to quenching their thirst in the juice. [A. S.]

MELOCHIA. A genus of *Sterculiaceæ*, of the tribe *Hermannieæ*, distinguished from *Hermannia* and *Mahernia* by the ovules, which are only two in each cell of the ovary, and by the straight seeds and embryo; and from *Waltheria* by the cells of the ovary being always five. There are about fifty species, dispersed over the tropical regions of the globe, the majority herbs or undershrubs, clothed with more or less of a stellate tomentum often intermixed with simple hairs. The leaves are alternate, toothed, narrow ovate or cordate; the flowers small, in axillary panicles, in terminal compound spikes, or in loose cymes or panicles. Some species are, however, shrubby, or even grow into small trees. The genus is sometimes restricted to a small number of herbs with very angular pyramidal capsules; and the majority of species with globular capsules are separated under the name of *Ridolia*; and a few of the taller shrubby ones with winged seeds take the name of *Viscaria*. Several of the species are common tropical weeds.

MELODINUS. A genus of *Apocynaceæ*, containing about a dozen species of woody-stemmed climbing shrubs with milky juice, natives of Silihot, Hong-Kong, the islands of the Indian Archipelago, New Caledonia, and Norfolk Island. They have opposite entire leaves, and white sweet-smelling flowers disposed in short terminal cymes. The five-parted calyx is destitute of glands, and the corolla has a cylindrical tube and five oblique or sickle-shaped spreading lobes, the mouth of the tube being furnished with a coronet composed of five or ten small erect scales sometimes united together. The fruit is a large globular or egg-shaped fleshy berry containing numerous seeds lying in pulp.

M. monogynus is a tall woody climber, found in the forests of Northern and Eastern India, bearing round or somewhat four-cornered smooth deep yellow fruits about the size and appearance of small oranges, and containing numerous seeds imbedded in a firm sweet-tasted pulp, which the natives eat. [A. S.]

MELON. *Cucumis Melo.* —, **MUSK.** *Oncocoma Melo.* —, **QUEEN ANNE'S POCKET.** *Cucumis Dudaim.* —, **WATER.** *Citrullus vulgaris.*

MELON D'EAU. (Fr.) *Citrullus vulgaris.*

MÉLONGÈNE. (Fr.) *Solanum esculentum.*

MELONIDIUM. An inferior fleshy many-celled fruit; such as an Apple.

MELON-SHAPED, MELONIFORM. Irregularly spherical, with projecting ribs; as the stem of *Melocactus communis*.

MELON-THICK. A West Indian name for *Melocactus communis*.

MELON-WOOD. A yellow Mexican wood, which resembles Sander's wood, used for furniture.

MELOPEPO. *Cucurbita Melopepo.*

MELUR. The fragrant kernels of *Ceraeus Mahaleb*, which are strung as necklaces, and valued by the women of Scinde.

MEMBRANOUS, MEMBRANACEOUS. Thin and semi-transparent, like a fine membrane; as the leaves of mosses.

MEMECOYLON. This genus was formerly regarded as typical of a natural order to which the name *Memecyleæ* was given, but it is now placed in *Melastomaceæ*. It contains upwards of fifty species, all of which inhabit the tropical regions of the Old World, and are small trees or shrubs with entire thickish leaves having a prominent midrib and pinnate often scarcely perceptible veins, their small bluish flowers being borne in clusters upon the sides of the branches. *M. capitellatum* (alias *M. tinctorium*) is a small tree of Ceylon and the Carnatic, where its leaves, which turn yellow in drying, are used for dyeing, but the colour obtained from them is fugitive. Those of *M. umbellatum* are used by the Cingalese for mixing with the wood of *Morinda citrifolia* and Sappan wood (*Caesalpinia*), for producing a permanent red dye; while the ripe berries of *M. edule* are eatable, but rather astringent. [A. S.]

MEMNONIUS. A brown black colour; pitch black.

MENAI. A genus of *Ehretiaceæ*, found in South America, forming a shrub with a woolly stem, alternate ovate entire rough leaves, and flowers with a three-parted persistent calyx, a salver-shaped five-parted corolla with a flat limb, five sessile anthers, and a globose four-celled berry with one seed in each cell. [J. T. S.]

MENDEE. An Indian name for Henna.

MENDO. A wild Sweet Potato of North America.

MENIOCUS. A few annual weeds belonging to the *Cruciferae*, found in South Europe and West Asia, have been associated under this name, but are now placed in the large genus *Alyssum*. They are much branched herbs, with linear leaves clothed with white starry hairs, and small white flowers disposed in racemes at the ends of the twigs. Each of the six stamens—four of which are long, and two short—has a small scale in front, and the elliptical compressed silicles contain numerous immarginate seeds. [A. A. B.]

MENISCATE. A cylinder bent into half a circle.

MENISCIUM. A genus of coarse-habited polypodiaceous ferns, with simple or pinnate fronds, having the venules angularly or arcuately anastomosing between the pinnate veins, and throwing out an excurrent free veinlet from the apex of the arc or angle. The sori are naked, linear-oblong, and curved, placed on the transverse venules. Sometimes the fronds are contracted, and the fructifications then become crowded and almost acrostichoid. The genus inhabits the tropics of both the Old and the New World, and is not very numerous in species. [T. M.]

MENISCOID. Thin, concavo-convex, and hemispherical, resembling a watch-glass.

MENISPERMACEÆ. (*Menispermads.*) A natural order of dicotyledons belonging to Lindley's menispermatal alliance of diclinous Exogens. Trailing shrubs with alternate simple usually entire leaves, and incomplete usually unisexual (often dioecious) flowers. Sepals and petals similar, in one or several rows, hypogynous, deciduous; stamens monadelphous, or occasionally free, the anthers adnate, extrorse; carpels solitary or numerous, distinct or partially coherent, one-celled; ovule solitary. Fruit a succulent one-seeded drupe. They occur in the tropical woods of Asia and America, and have bitter and narcotic properties, some being very poisonous. *Anamirta paniculata* yields *cocculus indicus*, illegally used to impart bitterness to malt liquor; *Jateorhiza palmata* supplies bitter Columba root; and *Cissampelos Pareira* is the tonic Pareira brava. There are about 60 genera and 350 species. [J. H. B.]

MENISPERMUM. A genus of *Menispermaceæ*, the species of which have broad, palmately lobed or angled leaves, and panicled flowers with four to eight sepals in two rows, six to eight petals, the males with twelve to twenty-four free stamens, the females with six sterile stamens and two to four capsaules. The fruit is a compressed drupe. There are two species, one in North America, and the other in the temperate parts of Eastern Asia. The name Moon-seed is derived from the lunate form of the seed. [J. H. B.]

MENODORA. A small genus of *Jasminaceæ* inhabiting Mexico, having a shrubby habit, erect or creeping quadrangular branches, simple leaves, axillary or terminal but always isolated flowers, a bell-shaped persistent and many-toothed calyx, a funnel-shaped corolla with a long tube and five lobes, and a bivalved capsule. The two known species grow on dry and sterile hills. [B. &.]

MENONVILLEA. A genus of *Cruciferae*, of the tribe *Cremolobidæ*, from Peru. The species have smooth linear leaves, the radical ones crowded and toothed at the apex, and terminal racemes of dull reddish flowers. The pouch is somewhat stipitate, crowned by the furrowed style, with the

valves convex on the back, and the margin of each expanded into a wing. The seeds are solitary. [J. T. &.]

MENOW WEED. *Ruellia tuberosa*.

MENSTRUAL, **MENSTRUOUS.** Lasting for a month. *Bimestris* is said of things that exist for two months; *trimestris*, for three months, &c.

MENTHA. The Latin version of the Greek name *Mintha* borne by the daughter of Corytus, who, according to the poets, was metamorphosed into a mint plant by Proserpine from motives of jealousy. The name is applied to a genus of *Labiata*, whose species are widely distributed over the world, but are not met with in the hotter regions. They are herbaceous plants with flowers in dense whorls, arranged in terminal or axillary heads or spikes. The calyx is five-toothed, usually regular; the corolla bell-shaped with a short tube and a nearly regular four-lobed limb; and the stamens are four, erect, of equal size. Great difficulty exists in discriminating the species, owing to the capacity for variation possessed by these plants.

M. Piperita, a plant occasionally found wild in this country, is the well-known Peppermint. It is extensively cultivated for the sake of its volatile oil, which is procured by distilling the leaves. The oil and the preparations made from it, are largely used as aromatics, carminatives, and stimulants, and are especially useful in the alleviation of nausea, griping pains, and flatulence. Owing to its powerful taste, Peppermint in some shape or other is frequently used to conceal the nauseous taste of medicine. A kind of liqueur is also prepared from it. *M. viridis*, or Spearmint, is the plant that is used for culinary purposes under the name of Mint. It possesses the same properties as Peppermint, but in a less degree; its flavour, however, is preferred by many people. *M. Pulegium*, like the two preceding a native of Britain, is best known under its common name of Pennyroyal. Its taste is very peculiar, and to most people not a little objectionable; its properties are similar to those of the other mints, but in former times, and still by the vulgar, this plant had special virtues assigned to it, hence it is still employed as a domestic remedy in female complaints. *M. citrata* furnishes a sweet-smelling oil, in odour like oil of Bergamot. The species are abundantly propagated by suckers, and but rarely produce perfect seed, hence the constancy of the variations. [M. T. M.]

MENTHASTRE. (Fr.) *Mentha rotundifolia*.

MENTHE. (Fr.) *Mentha*. — À COQ, or DES JARDINS. *Pyrethrum Tanacetum*. — DES MONTAGNES. *Calamintha officinalis*. — POIVRÉE. *Mentha Piperita*. — ROMAINE. *Mentha viridis*.

MENTOOLOO. An Indian name for *Trigonella fanum græcum*.

MENTUM. A projection in front of the

flowers of some orchids, caused by the extension of the foot of the column.

MERTZELIA. A genus of *Loasaceæ*, found principally in Mexico, California, and the southern United States, one species, however, extending as far as Panama and the West Indies, while two others belong to South America. All are annual or perennial herbaceous plants, with the leaves alternate upon the stem, but often opposite upon the flowering branches. The flowers are of an orange or yellow colour and open only during sunshine; they have a long cylindrical calyx tube divided into five lobes; five petals; an indefinite number of stamens, often collected into five or more bundles; and a one-celled ovary cohering with the tube of the calyx. *M. albicans*, a low branching plant from six to ten inches high, with white polished stems, and deeply-cut lance-shaped rough leaves, is found abundantly on the arid sandy plains of Oregon and California, where the oily somewhat cubical seeds, from twenty to forty of which are contained in each of its narrow cylindrical fruits, are pounded by the Indians and used as an ingredient in a kind of cake, called *l'huile mautica*, forming part of their food. [A. S.]

MENYA. An Indian name for *Paspalum acrobiculatum*.

MENYANTHES. The beautiful Buck-bean or Marsh Trefoil, is the only species of this genus of *Gentianaceæ*, which is distinguished by its capsule bursting by two valves, and by its ternately divided leaves.

M. trifoliata is a water plant, extensively diffused over the northern hemisphere, having a creeping rootstock, whence proceed densely matted roots and tufts of long stalked leaves, whose limbs are divided completely into three oblong segments. The flowers are borne on a long-stalked raceme, and have a five-parted calyx, and a bell-shaped five-lobed corolla, pinkish externally, white internally, and delicately fringed. Like the other members of this family, this plant possesses bitter tonic properties, and in large doses is cathartic and emetic. It is little used at present, but was formerly in request in cases of fever, gout, and rheumatism. Linnaeus mentions that the leaves were used in Sweden as a substitute for hops, and a like use is made of them in Silesia and other parts of Germany. In Lapland, in times of scarcity, the roots are dried and mixed with meal for making bread. The elegance of the flowers, and the ease with which it may be cultivated, render the plant a most desirable acquisition to ornamental ponds or lakes. [M. T. M.]

MENZIESIA. A genus of heathworts, having the calyx four or five-lobed; the corolla somewhat bell-shaped, with the border four or five-lobed and reflexed; the stamens eight, enclosed in the corolla; and the stigma blunt. The species are handsome shrubs, natives of North America, with alternate narrow or ovate leaves, and

terminal flowers, solitary or several together. The name was given in honour of the late Mr. Menzies, surgeon and naturalist to Vancouver's expedition. [G. D.]

MÉRANGÈNE. (Fr.) *Solanum esculentum*.

MERCURIALE. (Fr.) *Mercurialis annua*. — DES BOIS. *Mercurialis perennis*.

MERCURIALIS. Herbaceous plants belonging to the *Euphorbiaceæ*, distinguished by having the barren and fertile flowers separate, the former containing nine to twelve stamens, the latter two simple styles and a two-celled two-seeded capsule. *M. perennis*, the Dog's Mercury, is a common woodland plant, eight to twelve inches high, with extensively creeping roots, simple stems, and large ovate serrated rough leaves. The barren flowers grow in long lateral spikes near the summit of the stem, and are conspicuous in early spring by their greenish yellow stamens; the fertile flowers, on separate plants, also grow in spikes but are less evident owing to their being concealed among the upper leaves. The whole plant is poisonous, and being consequently rejected by cattle, may often be seen forming dense patches of a dark green hue in places where most other herbage has been consumed. It turns dull bluish green in drying, and may be made to furnish a deep blue dye—of a fugitive nature, however. *M. annua* is taller and more branched, with the barren and fertile flowers on the same plant. French, *Mercuriale*; German, *Bingelkraut*. [C. A. J.]

MERCURIO DO CAMPO. A Brazilian name for *Erythroxylum suberosum*. — VEGETAL. A Portuguese name for *Franciscia uniflora*.

MERCURY. *Mercurialis*. — DOG. *Mercurialis perennis*. — ENGLISH. *Bilium* or *Chenopodium Bonni Henrichi*. — THREE-SEEDED. *Acalypha*. — VEGETABLE. *Franciscia uniflora*.

MÉRÉDICK. (Fr.) *Cochlearia Armarum*.

MERENHYMA. Spherical cellular tissue.

MERENDERA. A genus of *Melanthaceæ*, containing about a dozen species of pretty bulbous crocus-like plants, spread over the Mediterranean region and Abyssinia. The pink flowers like those of a crocus, appear above the ground in the autumn, and the grassy leaves with the ovary (which is hidden under ground when the plant is in flower) grow after the flowers wither, and are mature in spring, when the ripe ovary is elevated upon a stalk. The limb or flattened portion of each of the six perianth-segments is contracted abruptly into a long narrow claw, and at the point of contraction furnished on each side with a small tooth. These teeth do not exist in *Colchicum*, which is nearly allied. The clawed portions of the petals unite by their edges and form a long slender tube, which bears at its apex six stamens. The three styles are free

not united into one as in *Bulbocodium*. The name is given by Spaniards to *Colchicum*. [A. A. B.]

MÉRIANE. (Fr.) *Watsonia*.

MERICARP. One of the half fruits of an umbellifer; it is a carpel ripened and separated from a common axis or growing point.

MÉRINGEANNE. (Fr.) *Solanum esculentum*.

MÉRISTER. (Fr.) *Cerasus avium*. — A GRAPPE. *Cerasus Padus*.

MÉRISMATIC. Separating by the formation of internal partitions. Cellular tissue is often thus multiplied.

MERMAID-WEED. An American name for *Proserpinaca*. — FALSE. *Florkia*.

MERMAN'S SHAVING BRUSHES. A name given in North America to different species of *Chamaedoris* and *Penicillus*. The root is much branched, with matted fibres, and generally penetrates deeply into the sand on which the plant grows, while the stem is more or less coated with carbonate of lime, and is either annulated or composed of a multitude of closely placed and densely interwoven longitudinal one-celled threads, which send off laterally throughout their length short level-topped branchlets. [M. J. B.]

MEROS. In Greek compounds = the parts of a flower. Thus, *pentamerous* means composed of parts arranged in fives, *trimerous* in threes, &c.

MERRY. The small wild black fruit of *Cerasus avium*.

MERTENSIA. The name of that section of *Glechhia*, in which the segments are elongated, and the sori are medial or axillary, consisting of several (five to twelve) spore-cases. They have a different aspect from the species with orbicular segments, and terminal sori of two to four spore-cases, and are by some authors regarded as distinct, but the difference is hardly to be rewarded as of generic value. [T. M.]

This name has also been applied to two other genera. One is a genus of *Ulmaceæ* from tropical America, now called *Monistia* or included in *Celtis*, and consisting of spiny trees with alternate leaves; and axillary panicles of polygamous flowers, with a five-parted perianth, five stamens, and a one-celled ovary becoming a drupe. The other is a genus of *Boraginaceæ* sometimes called *Silenhammera*. [J. T. S.]

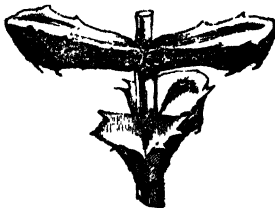
MERULIUS. A genus of *Fungi* belonging to the pore-bearing *Hymenomycetes*, distinguished by the waxy soft hymenium which forms porous reticulate or sinuous toothed depressions. It borders, in fact, very closely on the gill-bearing fungi, and more especially on *Cantharellus*. One species, *M. lacrymans*, is unfortunately too well known, being the grand agent of the decomposition of domestic and naval timber when composed of the wood of con-

ifers, and known by the name of Dry Rot. It is not, however, confined to such wood, but attacks other timber when it comes in its way, and, when once established, penetrates even thick walls to the destruction of the mortar. In wine-cellar it not only destroys the shelves and laths, but creeps amongst the sawdust, and ultimately attacks the corks, and spoils the wine. Sawdust should never be used in cellars subject to rot, and if laths are used, they should be injected with a solution of some metallic salt. Creosote, which is the most effectual agent in the prevention of Dry Rot, might not be admissible from its powerful smell. [M. J. B.]

MERYTA (including *Botryodendrum*). A genus of *Araliaceæ*, comprising six species inhabiting Tahiti, Samoa, Norfolk Island, New Zealand, and the New Hebrides, and somewhat resembling *Gasterium* in habit. Their stem is arborescent, twelve to twenty-four feet high, generally simple, and crowded on the top with single entire more or less oblong leaves, of a thick leathery consistence, shining, and from two to four feet long. Their fine foliage has procured for two species, *M. Dehnhani* and *M. macrophylla*, a place in our conservatories, for their polygamous flowers are green and insignificant; these are collected into heads, and arranged in panicles. The calyx is divided into three to nine segments, the corolla is entirely wanting, and the number of stamens and cells of the ovary corresponds with that of the calyx-lobes. The oldest species is *M. lanceolata*, also called *Botryodendrum taitense*, discovered by Forster at Tahiti in 1771, and, like all the other species of the genus, extremely local in its geographical range. [B. S.]

MESEMBRYACEÆ. (*Ficoideæ*, *Lewiseæ*, *Ficoideæ*.) A natural order of calcifloral dicotyledons belonging to Lindley's ficoid alliance of perigynous *Exogens*. Succulent shrubs or herbs with opposite simple leaves and often showy flowers. Sepals definite, four to eight, more or less combined, with valvate or imbricate aestivation; petals indefinite, sometimes wanting; stamens perigynous, distinct; the anthers oblong, incumbent; ovary usually many-celled; stigmas several, distinct; ovules anatropal or amphitropal; placenta central or parietal. Fruit a many-celled capsule, opening in a stellate or circumscissile manner at the apex, or an indehiscent nut; seeds numerous, rarely definite or even solitary. They are found in warm regions chiefly, the greater part of them at the Cape of Good Hope. Some are used as articles of diet, as the leaves of the Hottentot's fig (*Mesembryanthemum edule*) and the New Zealand spinach (*Tetragonia expansa*). Others yield soda, and have been employed in the manufacture of glass. The flowers of many of them exhibit the phenomenon of opening only under the influence of sunshine, and closing in dull weather. There are sixteen genera, and upwards of 400 species. [J. H. B.]

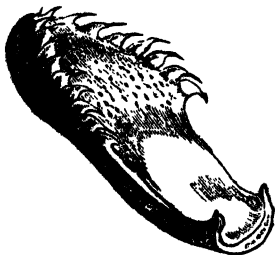
MESEMBRYANTHEMUM. A most extensive genus of *Mesembryaceae*, the name of which, derived from the Greek words *mesembria*, mid-day, and *anthos*, flower, is applied to these plants because many of them open their flowers only for a short time in the middle of the day. Between three and four hundred species are described, and upwards of one hundred and fifty



Mesembryanthemum deltoideum.

are cultivated in our gardens, where some of them are favourites on account of their showy flowers. They are very succulent and grow in hot sandy plains, the genus being almost entirely confined to the Cape of Good Hope. Their leaves are very variable in form, but almost always of a thick fleshy texture; and their flowers have four or five sepals united by their base and cohering with the ovary, and numerous narrow petals generally in several series. The ovary is one or many-celled, and bears numerous stigmas; and the one or many-celled fruit opens by means of slits disposed in a star-like manner upon the top, each cell containing numerous seeds.

M. crystallinum, a native of the Canary Islands and Greece, as well as of the Cape of Good Hope, is the common Ice Plant of our gardens, so called in consequence of every part of the plant being covered with small watery pustules, which glisten in the sun like fragments of ice. Large quantities



Mesembryanthemum tigrinum (leaf).

of the plant are collected in the Canaries and burnt, the ashes being sent to Spain for

the use of glassmakers. *M. edule* is called the Hottentot's Fig, its fruit being about the size of a small fig, and having a pleasant acid taste when ripe. The leaves, also, of several species are eatable, those of *M. pugioniforme* being a good substitute for spinach; but some, such as *M. tortuosum*, possess narcotic properties, and are chewed by the Hottentots for the purpose of producing intoxication. The fruits possess hygroscopic properties, the dried shrivelled capsules swelling out and opening so as to allow of the escape of the seeds when moistened by rain, which at the same time fits the soil for their germination. [A. S.]

MESENTERICA. The mycelium of certain fungals.

MESOCARP. That part of a pericarp which lies between the outer and inner skins or integuments.

MESOCHIL, MESOCHILIUM. The intermediate part of the lip of such orchids as have this organ separated into three distinct portions.

MESOCHLENA. A small genus of eastern tropical ferns, of the affinities of which different opinions are held. The plants have the aspect of the larger species of *Nephrodium*, and their oblong or hippocrepiform indusia have a longitudinal attachment along the middle of the sorus, after the manner of *Didymochlavia*, with which the genus is therefore associated by some. Others regard the attachment as merely an exaggeration of the normal condition of *Nephrodium*, and class *Mesochlena* as an aberrant form of that genus. [T. M.]

NESODERM. The middle layer of tissue in the shell of the spore-case of an urn-moss.

MESOGLOEA. A genus of dark-spored *Algae*, consisting of extremely gelatinous marine seaweeds, with a solid centre and radiating slimy branched threads producing obovate spore-cases at their base. It resembles *Chordaria*, but is still more gelatinous. Several species are common on our coasts; most of them are found also in the United States, and one species is met with in the Philippine Islands. They grow on other *Algae*, on plants like *Zostera*, and occasionally on stones. The purple species belong to the genus *Nemalion* amongst rhodospirae. [M. J. B.]

MESOPHLEUM. The cellular integument of bark, overlying the liber, and underlying the epiphloeum.

MESOPHYLL. All the interior parenchyma of a leaf, lying between the two skins.

MESOPHYTUM. The line of demarcation between the internode and petiole.

MESOSPERM. The same as Sarcoderm.

MESPILODAPHNE. A genus of Brazilian trees of the laurel family. The leaves are net-veined, the flowers disposed in axillary panicles, each with a funnel-shaped

perianth, enclosing nine to twelve stamens, the three innermost sterile, and sometimes altogether wanting; some of the fertile stamens have glands attached to them, and all have four-celled anthers. The fruit is included within the thickened persistent base of the perianth, the upper part of which ultimately falls off. *M. pretiosa* yields a bark whose properties are similar to those of cinnamon. [M. T. M.]

MESPILUS. A genus of *Rosaceæ* of the tribe *Pomaceæ*, originally intended to include all the *Crataegi* with five styles, but now generally restricted to the Medlar, *M. germanica*, which has the calyx-lobes more leafy, and leaving between them a broader and more open disk than in other species. The wild Medlar, the origin of our cultivated varieties, is common as a shrub in the hedges of a great part of Continental Europe. The Medlar has been found wild in various parts of England, especially in hedges about Minshull in Cheshire, and Ashburnham in Sussex; but as it is not found commonly in the woods of this country, it is supposed that the seeds have been those of introduced plants, and disseminated chiefly in hedgerows by birds.

There are several varieties of Medlar cultivated for their fruit. Some of them grow tolerably upright, but generally they are of spreading habit, forming low deciduous trees, the branches of which are elbowed, turning at nearly right angles in any direction (especially those of the large Dutch Medlar) so that the tree has a very rustic appearance. Indeed, on this account it may be very properly introduced where rustic scenery is an object. The leaves are oval-lanceolate, but in the variety just mentioned they are large, and broader than those of the other kinds. It blossoms late, not before June or the beginning of July, the flowers being solitary and produced at the ends of the shoots or of short side spurs; the petals are roundish and white; the calyx is green and leafy, but as the fruit approaches maturity it withers and dies back till at last only the fleshy stubs at the base remain. The skin of the fruit is brown, and the flesh firm and austere, not at all fit to eat when first gathered, and requiring to be kept till it begins to decay, but when it becomes completely disorganised, and its green colour has entirely gone, the pulp, in its incipient state of decay, has, to many tastes, an agreeable acidity. The change which takes place is called blighting. Some persons, again, have the fruit prepared and glazed with sugar. Tastes are different, and persons who are very fond of Medlars, prefer them, in their naturally mollified state, to the finest melting pears. In this state they will keep fit for use for several weeks, if in a dry airy situation; and there is a stoneless variety, *Néflier à fruit sans noyau*, which keeps longer than the other kinds. The best as regards quality is the common small-fruited or Nottingham Medlar, which has, to medlar fanciers, a rich brisk subacid fla-

vour; but from the large size of the fruit and the rustic appearance of the tree, the large Dutch is the one generally preferred. The Medlar has been successfully grafted on the pear, and even on the common hawthorn, notwithstanding their external dissimilarity. [R. T.]

MESQUITE. A French name for American Oak; also a kind of gum.

MESUA. A genus of *Guttifera* of the tribe *Calophylleæ*, characterised by having four imbricate sepals, four petals, numerous stamens with oblong anthers, a long style with a peltate stigma, and a two-celled ovary with two ovules in each cell; and by the seeds having thick fleshy cotyledons and a small radicle. There are three species, all trees from tropical Asia, with narrow coriaceous leaves, elegantly marked with numerous parallel veins diverging from the midrib, and large axillary flowers. *M. ferrea*, common in East India, is a very handsome hard-wooded tree. Its highly fragrant flowers are sold in the Indian bazaars, both for sachets and for their supposed medical properties, under the name of Naghas or Nagkesar, and the wood is said to be one of those known under the name of Iron-wood.

METABASIS. A genus of *Compositæ*, of the tribe *Cichoraceæ*, proposed for *Seriola atensis* and *crenata*, two Mediterranean species, in which the outer achenes have a shorter beak than the inner ones, and a pappus of short scales only, instead of all the achenes having a plumose pappus as in other *Seriola*. They are herbs, with the aspect of hawkweeds.

METAXYA. *Amphidesmium*.

METHEE-SEED. An Indian name for *Trigonella fenum-græcum*.

METHONICA. A genus usually placed among *Liliaceæ*, but referred to *Melanthaceæ* by Dr. Wight, from its affinity with *Oxularia*, forming another example of the difficulty of separating the orders in a satisfactory manner. It consists of climbing tuberous herbs from India and tropical Africa, with branched stems and scattered leaves, which, however, are opposite or verticillate by threes under the branches; in shape they are lanceolate acuminate or terminating in a tendril. The flowers are solitary on axillary or terminal peduncles, and have a coloured withering perianth of six nearly equal crimped reflexed segments, and six stamens with anthers fixed by the middle. The ovary is three-celled, and the style obliquely bent, with a three-cleft stigma. The capsule is roundish, splitting into three segments, thus showing the relation to *Melanthaceæ*; seeds roundish, with a spongy red seed-coat. The flowers are mostly yellow or crimson. The species, which are better known under Linnaeus's name of *Gloriosa*, are of very ornamental character; they are, however, extremely poisonous. *M. superba*, *grandiflora*, and *viracens* are all favourite plants amongst cultivators. [J. T. S.]

METL. A Mexican name for *Agave ame-*

METRODORCA. A Brazilian shrub, constituting a genus of *Eutaceae*. The leaves are opposite, entire, dotted, stalked, the stalks dilated and confluent at their bases, enclosing the terminal bud. The flowers are small, glandular, purplish, and borne on panicles; calyx five-cleft; petals five, larger than the calyx; stamens five, inserted into the disk which surrounds the five-lobed ovary, each compartment of which contains two ovules. [M. T. M.]

METROSIDEROS. Several species of this genus of *Myrtaceae* are remarkable on account of their climbing habit, all the other plants of the order being erect trees or shrubs. In some instances, however, they are climbers only while young, their stems sending out numerous strong woody roots which clasp round the trunk of a tree and compress it so tightly that it ultimately dies, by which time, however, the climber is sufficiently strong to support its own weight. Other species are large timber trees or shrubs. All have opposite entire thick leaves, marked with pellucid dots; and heads of showy red or white flowers, having the calyx either wholly or only half-way adherent to the ovary, the rim being thickened and bearing five rounded lobes, and as many rounded petals, the numerous long coloured stamens, which are the most conspicuous part of the flower, forming a crown round the mouth. The fruits are three-celled, opening by three slits at the top or bursting irregularly, and containing a great number of narrow seeds. *M. robusta*, the Itata of the New Zealanders, is a tall tree, sixty or eighty feet high, with a stout erect trunk, never climbing, a branching head of myrtle-like foliage, and showy bright red flowers. The hard close-grained timber of the Itata is used in New Zealand for ship-building and other purposes, and by the natives for making their war-clubs, paddles, &c. Other species likewise produce timber suitable for ship-building, such as *M. tomentosa*, the Pohutu Kawa of the New Zealanders, called Fire-tree by the colonists on account of the brilliancy of its flowers; while the wood of the Aka, *M. scandens*, is called New Zealand Lignum Vitae on account of its hardness. [A. S.]

METROXYLON. *Sagoe*.

METTERNICHIA. The name of a Brazilian tree forming a genus of *Solanaceae*. The flowers are handsome, white or pink, with a bell-shaped calyx irregularly five-cleft, and a funnel-shaped corolla, with a limb of five equal segments. There are five stamens, with anthers opening lengthwise; and a two-valved capsule with numerous seeds. [M. T. M.]

METZGERIA. A genus of *Jungermanniaceae* belonging to the frondose section. The fruit springs from the midrib on the underside, with a one-leaved involucre, and the fronds are forked. *M. furcata*, which

is found in all parts of the world, is one of the commonest liverworts, and occurs of various breadths on trees, rocks, &c., though always retaining its essential characters. [M. J. B.]

MEUM. A genus of umbellifers, having the fruit almost round, each half of it with five prominent equal ridges, and vittae in the furrows and on the line of junction. The species are natives of the upland parts of Europe, having deeply divided leaves, and white or purple flowers. The name is given in allusion to the narrow divisions of the leaves. [G. D.]

MEW. *Meum athamanticum*.

MEXICAL. An intoxicating spirit obtained from pulque, the fermented juice of *Agave americana* and allied species. It is also called Aguardiente de Maguey.

MEXOCOTL. *Bromelia Acanga*.

MEYENIA. A genus of *Acanthaceae*, containing one Indian species, *M. Hauckayana*, a climbing plant, with opposite entire leaves, and axillary pedunculate flowers; and *M. erecta* and *Vogelia*, beautiful tropical African shrubs. The calyx is small, five-lobed, and included within two large bracteoles; the corolla funnel-shaped, with a very short tube; there are four didynamous stamens, with two-celled anthers hairy at the apex; the stigma is dilated and has two bilobed lips; and the capsule is enlarged below, where it is two-celled and four-seeded. [W. C.]

MEYERIA. A genus of *Compositae*, closely allied to the radiate species of *Calen*, and chiefly distinguished by the branches of the styles terminating in a short cone, and by the scales of the pappus being oblong obtuse, not acuminate. Four Brazilian undershrubs, with opposite leaves, and rather showy yellow flower-heads, have been referred to it.

MEZEREON. *Daphne Mezereum*.

MEZEREUM. This has sometimes been separated from *Daphne*, by reason of its deciduous perianth, and the small quantity of albumen present in the seed. See **DAPHNE**. [M. T. M.]

MEZQUIT-TREE. *Prosopis* or *Algarobia glandulosa*.

MIBORA. *Knappia agrostoides*, sometimes called *Sturmia verna*.

MICHAUXIA. A genus of bellworts, having the border of the calyx eight-cleft; the corolla with eight divisions which are reflexed; the style short with rows of hairs ending in eight short divisions; and the ripe capsule with eight ribs and eight cells. The species are biennials, chiefly found in the Levant. *M. campanuloides* is sometimes seen in gardens. The genus was named in honour of Michaux, a French botanist. [G. D.]

MICHELIA. A Florentine botanist of the early part of the eighteenth century is commemorated by this genus of *Magnolia-*

ceae, which consists of lofty trees, natives of India and the islands of the Eastern Archipelago, and is nearly allied to *Magnolia*, but distinguished by the axillary flowers, the looser arrangement of the carpels, and the more numerous ovules.

M. Champaca, the Chumpaka of the Hindoos, is cultivated commonly in India for the powerful fragrance of its flowers, which, indeed, according to Sir W. Jones, is so strong that bees seldom if ever alight on them. The tree is sacred to Vishnu, and is therefore an object of superstitious regard on the part of the Hindoos, who adorn their dark hair with the rich orange-coloured flowers. The root, like all parts of the tree, has bitter properties, and is used medicinally. There appears to be some difficulty in defining the species; or probably that just mentioned, having been long cultivated, has originated numerous varieties which are mistaken for species: thus, *M. Rheedi* is referred to *M. Champaca* by Hooker and Thomson. The timber of *M. Rheedi* is employed in Bombay for cabinet-work, and has been tried in ship-building, while various parts of the tree are used medicinally as stimulants, &c. *M. Doltsapa*, another variety of the *Champaca*, is mentioned as furnishing a fragrant wood used in house-building in Nepal. Lindley mentions the bark of *M. montana* as having properties like those of cascarrilla, but milder, and that of *M. gracilis* as having the odour of camphor. *M. Champaca* is cultivated as a hothouse plant in this country, where, however, it does not appear to be as great a favourite as its Indian reputation would lead us to infer. [M. T. M.]

MICO, MIJO. A solid oil, made in Japan from *Soja hispida*.

MICOULIER. (Fr.) *Celtis*.

MICONIA. A very considerable genus of exclusively tropical American melastomads, mostly shrubs or even small trees, very variable in their foliage, and with terminal panicles (sometimes spikes) of small generally white flowers. The floral envelopes are mostly in fives (rarely four, six, or eight); the calyx more or less campanulate, with a short limb having the teeth obsolete in some and evident in others, and the little external teeth either altogether absent or punctiform; the petals obovate, rounded or retuse; and the stamens nearly always double as many as the petals, and mostly curved, their anthers variable in shape, opening by pores or slits, the connective either without any downward prolongation, or shortly and variously prolonged. The ovary is two to five-celled, the style slender; and the stigma punctiform, capitate or peltate. Fruit a globose berry. [A. S.]

MIGRANDRA. This generic name was originally applied to a large Brazilian tree which has since been found to belong to *Siphonia*. It has now been given to two other closely allied trees belonging to the same order, *Euphorbiaceae*, but easily distinguished by their leaves being simple,

instead of consisting of three leaflets as in *Siphonia*. The flowers are of separate sexes, borne in panicles from the axils of the leaves, the males being much more numerous than the females, and distinguished from those of allied genera by having five free stamens, the females having a conical ovary terminated by a very short style bearing three notched stigmas. Both the species, *M. siphontoides* and *M. minor*, inhabit the banks of the Rio Negro and its tributaries, forming large trees, often having as many as ten trunks rising in a cluster from one root, and growing from fifty to sixty feet high. They abound in milky juice, which, when inspissated, yields pure caoutchouc; and the natives who collect the caoutchouc sent to this country from Pará, commonly known as 'bottle-rubber,' obtain it indiscriminately from these trees and the various species of *Siphonia*, and apply to them the same name (Xeringue or Seringue) as that by which the latter trees are known. [A. S.]

MICROCODON. A genus of bellworts, distinguished by having the border of the calyx in five pieces; the corolla nearly cylindrical, five-lobed, and persistent; the style slender, short, five-lobed at the summit; and the seed-vessel spherical and very hairy. The species are Cape annuals of lowly habit, with small stalkless narrow leaves, and terminal short-stalked flowers. The name alludes to the small size of the bell-formed flowers. [G. D.]

MICRODON. A small genus of *Sela-ginaceae*, containing five species of undershrubs, natives of the Cape of Good Hope. They have alternate entire leaves, and terminal flower-spikes with broad bracts. The calyx is tubular, shortly five-toothed, adnate for nearly half its length to the bracts; the corolla has a funnel-shaped tube and a five-lobed limb; there are four didynamous stamens, of which the longer pair are exserted, the filaments slender, and the anthers one-celled. The ovary is two-celled, each with one ovule depending from the apex. The fruit consists of two achenes which separate spontaneously. [W. C.]

MICROGONIUM. *Trichomanes*.

MICROLENA. A genus of grasses belonging to the tribe *Oryzaceae*. The spikes of inflorescence are three-flowered, the two lower flowers neuter and one-valved, the terminal one two-valved and hermaphrodite. There is only one species, *M. stipoides*, a native of New Holland. [D. M.]

MICROLEPIA. One of the principal of the groups into which the old genus *Davallia* is separated by modern pteridologists. It differs in this: that, whereas *Davallia* has the indusium of the sorus tubulose or cup-shaped and marginal, *Microlepia* has the sorus intra-marginal, and the indusium semiorbicular or short and half cup-shaped. The species are mostly large-growing herbaceous plants, with variously divided fronds, and are widely scattered over the tropical or subtropical parts of

the world, some few extending to China and Japan. [T. M.]

MICROLICIA. A considerable genus of Brazilian melastomaceous plants, consisting of stiff erect branching undershrubs usually not more than a foot or two high, with twiggly branches, very small leaves, usually dotted with resinous glands, and solitary deep rose purple or white (rarely yellow) flowers in the leaf-axils towards the tips of the branches. The latter have a calyx of five acute teeth; five obovate petals; ten stamens, five alternate with the petals larger than the rest, their anthers terminated by an oblique one-pored beak, and having a more or less arcuate prolongation of the connective below the cells, which, in the larger stamens, is continued beyond the junction with the filament. The ovary is three-celled. [A. S.]

MICROLOMA. A genus of *Aecleptadaceae* peculiar to South Africa, and consisting of twining or erect shrubs, with opposite smooth sagittate or oval leaves, small flowers in umbels, a five-cleft calyx, an urn-shaped five-lobed corolla, and a smooth fruit. Uses unknown. [B. S.]

MICROLONCHUS. A small genus of *Compositae*, distributed over the Mediterranean region and North-west India. They are erect or prostrate branching herbs one to two feet high, with toothed or pinnatifid leaves, the upper ones linear entire, and solitary terminal flower-heads, containing many tubular rose-coloured florets, enclosed in a cone-shaped involucre, consisting of many series of overlapping scales, which in some species terminate in a slender spine. The genus is near to *Centaurea*, but differs in the nature of the pappus, which is double, the inner row of pales broader than the others and sometimes represented by a single scale, the outer of rough hairs. [A. A. B.]

MICROMELUM. A genus of small trees of the *Aurantiaceae*. The species are natives of India and of the Indian Archipelago; they have pinnate leaves, terminal corymbose inflorescence; a five-toothed or entire calyx; a five-petaled valvate corolla; ten stamens, with disunited filaments; and an ovary with several cells, which are separated one from the other by curiously twisted dissepiments or partitions. The cotyledons of the embryo are also described by Professor Oliver, the most recent investigator of this family, as remarkably twisted. [M. T. M.]

MICROMERIA. A genus of the *Labiatae*, numbering about sixty species, which are spread over nearly all the temperate and warmer parts of the globe, but occur in greatest abundance in the Mediterranean region. They are erect or prostrate branching perennial herbs, with opposite leaves, and axillary whorls of small purple or white two-lipped flowers, or the flowers are gathered in spikes at the ends of the twigs. Some of the species have an odour like common thyme; others smell like mint.

They are chiefly recognised by the tubular thirteen to fifteen-ribbed and five-toothed calyx, which is not distinctly two-lipped as in *Thymus*. [A. A. B.]

MICROPERA pallida. The East Indian orchid to which this generic name was first applied, having turned out to be a species of *Camarotia*. Dr. Lindley has suggested that the name *Micropera* should be retained for another East Indian plant of the same family, not referable to any before known genus, described by Dalzell under the name of *Micropera maculata*. This is a little stemless epiphyte, with flat oblong leaves notched at their one-sided top, and a simple raceme of small flowers, having nearly equal free obovate sepals and petals of a yellow colour with a purple spot in their centre. The lip is white marked with rose, saccate or pouch-like, and looks, as Dr. Lindley says, 'like a side-saddle with two horns instead of one—the pouch, into which there is an opening only between the horns, being almost concealed by the lamina, which hangs down in the manner of saddle-flaps.' [A. S.]

MICROPTERIS. *Xiphopteris*.

MICROPTERYX. A genus proposed by Walpers for the *Erythrina cristata-pallid* and some other species, which have the keel petals united. It has not, however, been adopted otherwise than as a section of *Erythrina*.

MICROPTYLE. The aperture in the skin of a seed which was once the foramen of the ovule; it indicates the position of the radicle.

MICROPYXIS. A genus of primworts, distinguished by having the calyx five-parted; the corolla funnel-shaped, shorter than the calyx, and remaining adherent till the fruit is ripe, its tube short, the border five-parted, the acute lobes approaching after flowering; stamens five, filaments broad at the base and slightly hairy; the seed-vessel globose, membranous, and opening across. The species are small annuals, natives of Bolivia, New Holland, and Madagascar; their upper leaves are alternate, and the flowers axillary and solitary. [G. D.]

MICROS. In Greek compounds = small; thus *microphylla* means small-leaved.

MICROSERIS. A genus of dicoraceous *Compositae*. The two species, *M. Forsteri* and *pygmaea*—the former found in Australia, Tasmania, and New Zealand, the latter in Chili—are smooth stemless perennial herbs, with entire or deeply pinnatifid leaves, and simple flower-scapes bearing a solitary head of yellow florets like that of *Taraxacum*. The genus is most readily recognised by the many-atriate terete beakless achenes crowned with a pappus of numerous tawny bristles which are rough above and dilated at the base. The fleshy fibres of the roots of *M. Forsteri* are eaten by the natives about Port Philip, according to Mr. Gunn. *Monermos* and *Phyllopappus* are synonyma. [A. A. B.]

MICROSORIUM. *Pleopeltis*.

MICROSPERMA. *Eucleia*.

MICROSTEGIA. *Calliperia*.

MICROSTIGMA. *Mastodia*.

MICROTROPIS. A genus of *Colostraceae*, found in tropical Asia (Nepal and Singapore), whence eight species are known. They consist of smooth trees or shrubs, with opposite persistent leaves, and axillary cymes or fascicles of small white flowers, which are sometimes unisexual, and have usually five petals (rarely none) connate into a ring at the base. The ovary is two or three celled, with two ovules in each cell; the capsule oblong, coriaceous, one-celled, one-seeded. The same name has been given to a South African plant of the Leguminous order, now referred to *Archora*. [T. M.]

MIDA. A genus of sandalworts, having the stamens and pistils on different plants: the males having the border of the calyx four-cleft, eight glands at its throat, the four outer small, the four inner larger, ciliate and opposite the divisions of the calyx; the females with a four-cleft wheel-shaped deciduous calyx, and a short cylindrical style ending in three spreading and blunt lobes. The species are New Zealand trees, with alternate entire leaves, of dry texture. [G. D.]

MIDNAPORE CREEPER. *Rivea bonariensis*.

MIDSU. An oily pulp for cooking, used in Japan, and made from beans.

MIDSUMMER MEN. *Sedum Telephium*.

MIEL DE PALMA. A syrup extracted from the trunk of *Jubæa spectabilis*.

MIELE. A Cingalese name for *Bassia longifolia*.

MIERZIA. A genus of *Gilliesiaceae* from Chili, consisting of herbs with coated bulbs, grass-like leaves, and umbellate flowers from a kind of spathe. Each flower is surrounded by a double involucre, of which the exterior has six herbaceous bracts, three pointing upwards and three downwards, and the interior as many small petaloid bracts; perianth an urceolate six-toothed cup, within which are six fertile stamens. [J. T. S.]

MIGNARDISE. (Fr.) *Dianthus plumarius*.

MIGNONETTE. *Roseda odorata*. —, JAMAICA. *Lawsonia alba*.

MIGNONETTE. (Fr.) *Dianthus chinensis*.

MIGNONNETTE. (Fr.) *Saxifraga umbrosa*.

MIKANTIA. A genus of *Compositæ*, only differing from *Eupatorium* in the flower-heads containing constantly only four florets, and the involucre having as many nearly equal bracts, with the occasional addition of one or two small ones outside. The genus would indeed have been united with *Eupatorium*, were it not that the constancy in the number of florets gives it a

peculiar habit easily recognised through a large number of species. Nearly a hundred and fifty have been published, but these ought probably to be reduced by nearly one-third. With the exception of three or four African or tropical Asiatic species, they are all natives of America, chiefly within the tropics. All of them have opposite leaves. A few are erect undershrubs; the remainder are herbaceous or half-woody twiners, with oblong ovate cordate or lobed leaves, and numerous small cylindrical flower-heads in racemes, corymbs or panicles. The most common species, *M. scandens*, a twiner with cordate leaves, extends over the greater part of North America, and is probably identical with some of the South American species described as distinct, as well as with the East Indian *M. volubilis*, and the African *M. capensis*. Some South American species, especially the *M. Guaco*, are supposed to supply a powerful antidote for the bite of venomous serpents, but this valuable property is perhaps not yet sufficiently tested by reliable experiments. The Guaco has, however, been supposed to be a species of *Aristolochia*: which see.

MIL. (Fr.) *Panicum miliaceum*.

MILDEW. A word properly applied to the white moulds which affect the leaves of plants, as the German derivation (Mehl Thau, flour dew) implies; but at the present day extended to such productions as the dark mildew of wheat, or even to cases in which no parasitic fungus is present. The hop mildew, the rose mildew, the mildew of peaches and of grapes, are examples of the first, all of which yield to one or more dustings of sublimed sulphur. The wheat mildew, which arises from the attack of a species of *Puccinia*, is at present without any known remedy. It is to be observed that in the former case the white mealy appearance represents merely the young state of the fungus, the perfect form being evidently some *Erysiphe* or closely allied genus. In the peach mildew the perfect form is seldom produced, and at present that of the vine is unknown, though the ravages of the young plant have been so disastrous.

The word mildew is also applied to the dark spots which are so common on linen when kept in damp places. We believe that this is due to one of the multitudinous forms of the common *Cladosporium herbarum*. On closely examining such mildewed spots, we have generally found minute fragments of the cuticle of the wheat from which the starch was made, used in the dressing of the goods. If there be any justice in this observation, care must be taken in the first place not to use any flour with the starch, and thus to have the starch as free as possible from impurities. There was a notion formerly that silk became mildewed from the use of potato starch, the grains being infested with the peculiar parasite of the potato murrain. The assertion, however, is totally without foundation, as the specimens on which the notion was originally built, most clearly proved. [M. J. B.]

MILFOIL. *Achillea Millefolium*. —, **HOODED.** *Utricularia*. —, **WATER.** *Myriophyllum*; also *Ectonia palustris*.

MILHO. A Brazilian name for Maize.

MILITARY GLANDS. The same as Stomates.

MILIUM. A genus of grasses belonging to the tribe *Panicæ*. The inflorescence is in large loose panicles; glumes herbaceous; pales thin and membranaceous, nearly equal, hardening on the seed. Steudel describes fourteen species, which have a considerable range over the globe, though mostly natives of the temperate parts of it. *M. effusum* is one of the handsomest grasses belonging to the British Flora, and is moreover a valuable species for growing under the dense shade of trees, where it forms a beautiful plant. The large seeds are useful for pheasants, which feed on them. [D. M.]

MILK-TREE. *Tanghinia lactaria*.

MILK-VESSELS. Those tubes which contain the milky fluids. See CINCHYMA and LACTIFEROUS VESSELS.

MILKWEED. *Asclepias*. —, **GREEN.** *Acerates*.

MILK-WOOD. *Pseudolmedia* (formerly *Brostium*) *spurius*; also *Sideroxylon inerme*.

MILKWORT. *Polygala*. —, **BITTER.** *Polygala amara*. —, **SEA.** *Glauz maritima*.

MILLA. A genus of *Liliaceæ* from Mexico. The species have thickened fleshy fibrous roots, radical cylindrical hollow leaves, and white long-stalked terminal umbellate flowers: the perianth salver-shaped with an elongate bell-shaped tube, and a six-cleft flat limb, and the six stamens inserted in its throat. The capsule is three-celled, three-valved, containing numerous seeds with a black seed-coat. [J. T. S.]

MILLEFEUILLE. (Fr.) *Achillea Millefolium*.

MILLEPERTUIS. (Fr.) *Hypericum*. — **DE MAHON.** *Hypericum baleuricum*.

MILLERIA. A branching pubescent or hairy annual, a native of Mexico and some parts of tropical South America, forming a genus of *Compositæ* of the tribe *Helianthere*. The leaves are opposite, the flower-heads small on terminal dichotomous peduncles. The involucre has only three to five bracts, and the head contains but few yellow florets, one ligulate and female, the others tubular and male. The receptacle has no scales, and the achene is without pappus.

MILLET. A common name for various species of small seed corn; more particularly *Panicum miliaceum* and *miliare*. —, **GERMAN.** A variety of *Setaria italica*. —, **INDIAN.** *Sorghum vulgare*. —, **ITALIAN.** *Setaria italica*.

MILLET. (Fr.) *Milium*; also *Panicum miliaceum*. — **D'INDE.** *Sea Mays*. — **DES**

OISEAUX. *Setaria italica*. — **GRAND.** *Sorghum vulgare*. — **LONG.** *Phalaris canariensis*. — **NOIR.** *Sorghum*.

MILLETTIA. A genus of *Leguminosæ* of the suborder *Papilionaceæ*, allied on the one hand to *Wistaria*, and on the other to *Lonchocarpus* and *Pongamia*, distinguished from the former chiefly by the want of any inflected appendages at the base of the upper petal or standard, and from the two latter by the pod opening in two rather thick hard valves. There are several species, one Australian, two South African, and the remainder from tropical Africa and Asia, either tall woody climbers resembling in habit the well-known *Wistaria* of our gardens, or trees like *Robinia*. Their leaves are pinnate with opposite leaflets, almost always furnished with stipellæ, and the flowers in racemes in the upper axils or in panicles terminating the branches, and often very handsome. The atherscent ones have a hard wood, and one species is said to supply some of the Moulmein Rosewood. None are in cultivation, for they are mostly too large for our hothouses, and too tender for the open air in European climates.

MILLIGANIA. A genus proposed by Dr. J. D. Hooker to receive a remarkable little Haloragaceous plant from Tasmania, which has since been referred to *Gunnera*, of which genus it is the only Australian representative. It is, however, nearly allied to some others from New Zealand and Antarctic America; and is described as a small succulent herb, with a tufted rootstock, emitting creeping stolons, loosely hairy on the scapes and the edges and ribs of the radical ovate leaves. The scapes are usually unisexual, and the flowers apetalous. [J. Br.]

MILLINGTONIACEÆ. An order established by Wight and Arnott, which is now referred to *Sabiaceæ*. Its type genus *Millingtonia* is united with *Millettia*: which see.

MILLINGTONIA hortensis, [the so-called Cork-tree of India = *Bignonia suberosa*,] is the only representative of a Bignonaceous genus, peculiar on account of its combining an arborescent habit, with a fruit divided into two cells by means of a partition running parallel with the direction of the valves. *Millingtonia* is a middle-sized tree, with impari-bipinnate leaves, quite entire leaflets, and large panicles of white flowers, emitting a delicious odour, on account of which the plant is cultivated in many parts of India and the Indian Archipelago. The calyx is bell-shaped, and with five equal and short lobes; the corolla has a very long tube, and is divided into five lobes, the two uppermost of which are more or less grown together; the stamens are four in number, and the anthers not divergent as in most *Bignoniaceæ*, but parallel; both stamens and style are longer than the corolla, whilst the fruit is a smooth flat capsule, enclosing broadly winged seeds. [The name has also been applied to a Sabiaceous genus (see above), and to two or three Indian species of *Simingia*.] [B. S.]

MILL-MOUNTAIN. *Linum catharticum*.

MILNEA. A genus of *Meliaceæ*, confined to tropical Asia, and consisting of trees and shrubs, the young branches of which

are covered with scurfy hair. The leaves are alternate, imparipinnate; the flowers arranged in axillary panicles; the calyx five-cleft, the corolla five-petaled, the five anthers placed on an urn-like cup, and the fruit a dry berry, generally with one seed, the arillus of which is edible. [B. S.]

MILTONIA. A genus ranking amongst the most beautiful of garden orchids. Nine species are known, and, with the exception of the Mexican *M. Karwinskii*, they are exclusively Brazilian. They belong to the vandaceous *Brassideæ*, and are readily distinguished by the peculiar habit of the species. They are epiphytes, generally with an unhealthy yellowish hue, the pseudobulbs furnished with narrow flat leaves, and simple radical scapes bearing a raceme of a few (sometimes one) large showy flowers, the predominant colours of which are yellow and purple. Their flowers have the sepals and petals alike; an undivided sessile lip continuous with the column, marked with interrupted lines near its base; a short column with two auricles, which in a few species, constituting a separate section, are confluent with a raised edge of the anther-bed; and a membranous naked anther, containing two waxy pollen-masses, furrowed behind, and having an obovate caudicle and oblong gland. [A. S.]

MILTWASTE. *Ceterach officinarum*.

MINETES. A proteaceous genus of shrubby plants, natives of the Cape of Good Hope, distinguished by having a four-parted calyx, the concave segments of which bear each a nearly sessile anther, and a straight filiform style with an acute stigma. The flowers are red or purple, in axillary or terminal heads; and the fruit, a nut, contains a single smooth seed. The leaves are oval or linear, entire or slightly dentate, generally imbricate, and clothed with scattered silky hairs. [R. H.]

MIMEUSE. (Fr.) *Mimosa*.

MIMOSA. A genus of *Leguminosæ*, which, if maintained as originally established by Linnæus, would comprise nearly the whole of the present suborder *Mimosæ*, that is, about a thousand species. It has, however, been much subdivided, and the name retained only for about two hundred species which have definite stamens not more than twice the number of petals, anthers not tipped by a gland, and a pod of which when ripe the valves are detached either entire or breaking into transverse joints, leaving the rim persistent on the peduncle. These species are mostly herbs, undershrubs, or climbers; a few are erect much-branched shrubs; and scarcely any grow into trees. A large number are prickly. The leaves are twice pinnate, usually with a large number of very small leaflets, but in a few species the leaflets are much larger and reduced to eight in the whole leaf. In many species the leaves are sensitive; that is, when touched they close downwards (as do all the species when night comes on), and only recover their position

after a lapse of time greater or less according to climate, season, weather, or the vigour of the individual.

The true *Mimosæ* are almost all tropical. The greater number are American, a few of them extending southwards beyond the tropics; a few species are natives of tropical Africa and East India, but none are yet known from Australia, where the largest genus of *Mimosæ* (*Acacia*) is so abundant. Very few species also are in cultivation. Of these *M. sensitiva* is an herbaceous twiner, with only one pair of pinnae to the leaves, each pinna bearing two pairs of ovate leaflets, the inner one of the lower pair always very small. This species is originally defined is now divided into five or six, all South American, of which one, *M. albida*, has been frequently grown in hot-houses, especially on the Continent, for its sensitive leaves, and elegant flower-heads of a pale pink. *M. pudica* is, however, the common Sensitive Plant of our hot-houses. It is a branching annual of one or two feet, assuming sometimes a somewhat woody appearance, of tropical American origin, but now naturalised over a great part of tropical Asia and some parts of Africa. The common leafstalk bears at its extremity two, sometimes three pairs of pinnae, each with many small leaflets, all highly sensitive wherever they are touched; but if a point be applied to the gland at the base of the pinnae, the leaflets may be seen to be gradually cast down, beginning at the last pair of each pinna, and as soon as the movement has extended to the basal pair the whole pinna will be bodily deflected, *M. marginata*, from extratropical South America, is a very elegant half-herbaceous climber, occasionally grown in our conservatories. It is scarcely sensitive in our climate. *M. asperata*, a small shrub with numerous pinnae and leaflets, is perhaps the widest spread species over South America and Africa. *M. myriadenia* in tropical America, a woody climber, is remarkable for the great height it attains, ascending like the *Entadas* to the tops of the tallest trees. Several other South American prickly species are very tall woody climbers, as are also *M. rubifolia* and a few others in India. No species appears to have been applied to any special purpose, and few are as worthy of cultivation for ornament as the majority of the species of *Acacia* and *Cultandra*.

MIMULUS. A genus of herbaceous plants, belonging to the order *Scrophulariaceæ*, with opposite mostly toothed leaves, quadrangular stems, and showy flowers which are generally solitary and axillary. The distinctive characters are: calyx five-angled, five-cleft; corolla ringent, the upper lip reflexed; stigma compressed, two-cleft; seed-vessel two-celled, many-seeded. None of the species are indigenous, but *M. luteus*, the yellow Monkey-flower, is not unfrequently found, apparently in a wild state, on the banks of rivers and in other wet places. Owing to the creeping habit of this plant, its readi-

ness to throw out roots, and its adaptation to the climate of the British Isles, it soon establishes itself in any moist ground on which it may be thrown, to the exclusion of other plants of less robust habit; so that it may be said to have become naturalised. Many varieties of this species are cultivated, the corollas of which are large and showy, bright yellow-blotched with rich brown. *M. moschatus* is commonly cultivated as a cottage window plant, under the name of Musk-plant. It is a native of North America, about the Columbia River, but does not adapt itself so readily to our climate as the preceding species. French, *Mimule*; German, *Gaulder*. [O. A. J.]

MIMUSOPS. A genus of *Sapotaceæ*, containing thirty or more described species, about one third of which are imperfectly known. The better known species are found in the East Indies, tropical Australia, Mauritius, and the Cape of Good Hope, Brazil, and Guiana; and are generally large milky-juiced trees, frequently eighty or a hundred feet high, with thick entire smooth leaves, and clusters of small white often sweet-smelling flowers. These latter are characterised by having a six or eight-parted calyx with the segments in a double series; and a corolla divided into three times as many parts, also in a double series. Their fruits are globose or somewhat obovoid, and one or two-celled by abortion, containing one or two hard smooth seeds marked with a small egg-shaped scar.

Several species yield hard, durable, and very heavy timber, such, for instance, as *M. Elengi* and *M. indica* in Ceylon, where the wood is used for ordinary house-building purposes, and *M. alexandra* in the peninsula of India. A species called the Bully-tree or Bullet-tree in British Guiana, grows from a hundred to a hundred and twenty feet high, with a trunk six feet in diameter and destitute of branches for the first sixty or seventy feet, affording a very close-grained timber of an exceedingly durable nature, being but little influenced by the weather. Its small fruits, about the size of coffee-berries, are delicious when ripe. The fruits of other species, also, are commonly eaten in their native countries, such as those of *M. Elengi*, the seeds of which likewise afford an abundance of oil, while its highly fragrant flowers yield their perfume to water by distillation. [A. S.]

MINA. A genus of *Convolvulaceæ*, containing a single species from Mexico. It is a beautiful twining herbaceous plant, with flowers in scorpioid racemes, and having five sepals, a salver-shaped corolla with a swollen tube, five exserted stamens, and a four-celled ovary with a single ovule in each cell. The form of the corolla separates this genus from *Quamoclit*, but the difference is very slight. [W. C.]

MINDI DES INDES. (Fr.) *Lawsonia*.

MINDOUBI. A Brazilian name for the Ground Nut, *Arachis hypogæa*.

MINETTE. (Fr.) *Medicago lupulina*. — **DORÉE.** *Trifolium agrarium*.

MINIATUS. Scarlet, with a decided mixture of yellow.

MINOOMOOLOO. An Indian name for *Phaseolus Mungo*.

MINT. *Mentha*. — **BERGAMOT.** *Mentha citrata*. — **BROOK.** *Mentha sylvestris*. — **CAT.** *Nepeta Cataria*. — **FLEA.** *Mentha Pulegium*. — **GARDEN.** *Mentha viridis*. — **HORSE.** *Mentha sylvestris*; also *Morarda punctata*. — **MOUNTAIN.** *Pycnanthemum*. — **PEPPER.** *Mentha Piperita*. — **SPEAR.** *Mentha viridis*. — **WATER.** *Mentha sylvestris*.

MINT TREE. *Prostanthera violacea*.

MINUARTIA. A section of *Alnus*, distinguished by having the calyx indurated at the base when in fruit, and marked with dark ribs. Some authors exclude the species with erident petals, and raise the others to the rank of a genus. [J. T. S.]

MIQUELIA. A genus of *Oleaceæ*, of the tribe *Phytocreneæ*, consisting of two or three woody climbers from tropical Asia, remarkable for the open porous structure of their wood. The leaves are alternate, oblong, and entire or scarcely toothed; the flowers small, dioecious, in little globular heads, the female heads very compact, but the males, owing to the corollas being contracted at the base into a long slender stalk, appear to be umbellate. In both sexes the heads are clustered or in short racemes, above the axils of the leaves. The genus is allied to *Phytocrene* and *Sarcostigma*, but readily distinguished by the male flowers, as well as by the seeds, which have a fleshy albumen, and a rather large embryo with flat but thickish cotyledons.

MIRABELLE. (Fr.) A name applied to candied Plums. — **DE CORSE.** *Physalis tomentosa*.

MIRABILIS. Handsome herbaceous plants with tuberous roots, belonging to the *Nyctaginaceæ*, and distinguished by a tubular corolla bearing beneath its base a single farinaceous seed invested with the hardened tube of the corolla, and simulating a nut. *M. dichotoma* is called in the West Indies, Four-o'clock Flower, from the fact of its flowers expanding about that time in the evening. *M. Jalapa*, which was supposed at one time to furnish the jalap of commerce, is a showy herbaceous perennial, with large smooth leaves, and handsome flowers collected in clusters at the summit of the stem; it is commonly cultivated under the name of Marvel of Peru. The flowers, which are red white yellow or variegated, are fragrant; they expand as in the rest of the genus, in the evening, and wither on the following morning. *M. longiflora* bears long viscid-tubed white flowers which have the scent of those of the orange tree. French, *Belle de nuit*; German, *Wunderblume*. [O. A. J.]

MIRBELIA. A genus of *Leguminosæ* of the tribe *Podalyriæ*, remarkable among

the *Papilionaceæ* with free stamens, in having the pod divided longitudinally into two cells, as in *Astragalus*. It consists of sixteen species, Australian shrubs with opposite whorled or rarely alternate leaves, either entire or broadly lobed at the top, and often prickly. The flowers are yellow, purple, red, or blue, and often handsome. Three or four species have been introduced into our green-houses.

MIRLIROT. (Fr.) *Medicago lupulina*.

MIROIR DE VÉNUS. (Fr.) *Specularia Speculum*.

MIRZA. An Indian *Amaranthus*.

MISHMISH. An Arabic name for the Apricot.

MISO. A fatty substance obtained from *Soja hispida*.

MISSEBROED. A kind of bread made from the rhizomes of *Calla palustris*.

MIST-FLOWER. *Conoclinium*.

MISTLETO, or MISSELTO. *Viscum album*. —, WEST INDIAN. *Loranthus*, *Phoradendron*, and *Arceuthobium*.

MITCHAMITCHO. The Abyssinian *Oxalis anthelmintica*, used for the same purposes as *Brayera*.

MITCHELLA. A genus of North American creeping herbs of the *Cinchonaceæ*. The flowers are sessile, sometimes in pairs, and, when this is the case, united by their calyces, as happens in some species of *Lonicera*. The corolla is funnel-shaped, the limb four-lobed, the throat and lobes hairy; stamens four; ovary four-celled. The fruit is succulent, surmounted by the limb of the calyx, with four stones, or, when two fruits are united, as is usually the case, with eight one-seeded stones. *M. repens* is widely distributed in North America. [M. T. M.]

MITELLA. A genus of *Saxifragaceæ*, consisting of perennial herbs, with stalked roundish cordate lobed and crenate radical leaves, and small flowers in a simple spicate raceme, with the bracts mostly suppressed. The calyx is short, bell-shaped, five-cleft; the petals five, pinnatifid; the stamens ten (or five), and the capsule one-celled. A single species, *M. nuda*, occurs in Siberia, and this and the other species occur in North America. [J. T. S.]

MITELLOPSIS. A genus of *Saxifragaceæ*, differing from *Mitella* in having only five stamens, and in the ovules being produced from the sides of the ovary, not merely from the basal portion; so that there seems little doubt that Torrey and Gray are right in merging it in *Mitella*. The character given by some authors, taken from the styles, is incorrect, as they are not united in *Mitella*. [J. T. S.]

MITRÆFORM, or MITRIFORM. Having the form of a mitre, that is to say, conical and not slit on one side; applied to the calyptra of urn-mosses, in opposition to dimidiata.

MITRARIA coccinea is the sole representative of a genus of *Gesneraceæ* confined to the island of Otilloë. It is a trailing subshrubby plant, with small opposite or sometimes trifoliate leaves, and solitary flowers of a bright scarlet colour. The calyx seems to be double in consequence of two bracts, by which it is supported. The corolla is ventricosely tubular, and the ovary surrounded by a glandular disk. [B. S.]

MITRASACME. A genus of *Loganiaceæ*, consisting of small slender herbs, mostly annuals, some of them not half an inch high. They have opposite leaves, and small flowers, usually terminal, in loose panicles or on long peduncles. As a genus, they are remarkable in the styles, which separate at the base, at least after flowering, whilst they remain united at the top, even till the ripening of the capsule. In this they resemble *Mitreola*, from which they differ chiefly in the parts of the flower being in fours, not in fives. There are about twenty species known from Australia, and three more from tropical Asia.

MITREMYCES. A genus of puffballs, distinguished by their cartilaginous peridium, which opens by a sinuous thickened mostly bright red orifice, and is capped with a hard deciduous outer coat. There is, moreover, a thin inner sac, which fills only a portion of the peridium, containing the spores mixed with a few threads. The peridium is supported beneath by cartilaginous intricate bodies, which together form a sort of stem, or by fragmentary flakes somewhat like those of shell lac. When fresh, the species sometimes exhibit brilliant tints of vermilion, but sometimes they are yellowish, greenish, or dark brown. The genus was formerly supposed to be peculiar to North America, but it has since occurred in the Sikkim Himalayas, Australia, and Java. The habit is much like that of *Hussea*. [M. J. B.]

MITREOLA. A genus of *Loganiaceæ*, consisting of annual or perennial herbs, with opposite leaves, and small flowers in axillary cymes, the upper ones forming a terminal panicle like *Mitrasacme*; the styles, especially after flowering, are widely spread at the base, and meet at the stigmas; but the parts of the flowers are in fives, not in fours. There are four species, of which two are American, and two East Indian, all weedy-looking plants of no special interest.

MITREWORT. *Mitella*. —, FALSE. *Tiarella*.

MNIARUM. A genus of *Scleranthaceæ*, consisting of small herbs, with opposite exstipulate leaves, resembling *Scleranthus*, from which they are distinguished by having only a single stamen, and by the calyx being always only four-cleft. They are found in Australia, New Zealand, and at the Straits of Magelhaens. [J. T. S.]

MNIOPSIS. A name applied to a genus of *Podostemaceæ*, the species of which are very small, with a stem, or sometimes a

Lichen-like frond, provided with numerous variously shaped leaves, and with terminal flowers. The fruit, by which it is known, is a smooth cartilaginous capsule, bursting into two unequal valves. [M. T. M.]

MNIUM. A fine genus of mosses, separated from *Bryum* on account of the habit, rather than any essential differences in the fruit. They are perennial, and conspicuous for their large size and broad leaves, occurring in shady situations on the ground, or on rocks. The innovations do not spring generally, as in *Bryum*, from beneath the fruit, but from the base. *M. punctatum* is one of our finest mosses, and is very striking, with its roundish entire thick-margined leaves and handsome fruit. It is dioecious, and by this character distinguished readily from *M. subglobosum*, which it closely resembles, though a stouter and stronger plant. *M. undulatum*, with long strap-shaped leaves, is common, the ornament of almost every wood; when in fruit, which grows in tufts, but is rare, it is extremely handsome. *Mnium* has its headquarters in Europe; it is rare elsewhere. Two species occur in New Zealand. [M. J. B.]

MOACHIBO. A name for the Cotton plant in some of the Pacific islands.

MOACURRA. A name given by Roxburgh to an East Indian tree which proves to be a species of *Chaetulia*.

MOC-MAIN. A Chinese name for *Bombax Ceiba*.

MODECCA. A genus of climbing shrubs belonging to *Pastiporaceae* *Modeccae*, natives of tropical Asia and Africa, and having entire or palmately lobed leaves, whose stalks are glandular; and axillary branched flower-stalks, some of the branches being tendrils, while others bear small greenish flowers. Altogether the general appearance is not unlike that of bryony. The genus is characterized by the flowers, which are unisexual: the males have four or five stamens inserted into the base of the calyx, the filaments united below into a membrane; and the females have four or five sterile stamens united together so as to form a stalk supporting the ovary, which is one-celled and contains numerous ovules; stigmas three, petal-like; capsule three-valved. *M. palmata* and *M. integrifolia* are both said to be used medicinally in tropical Asia. [M. T. M.]

MODEL-WOOD. *Nauclea cordifolia*.

MODIOLA. A genus of *Malvaceae*, closely allied to *Malva*. The chief difference consists in the column of stamens, which divides above into five separate parcels, each parcel consisting of about five filaments; and in the ovules, of which there are two, attached to the inner angle of each carpel, one above the other, and separated by a transverse partition. The species are low-growing herbs, with solitary or twin flower-stalks, bearing violet or red flowers, and are natives of the southern and warmer regions of America. [M. T. M.]

MODIOLIFORM. Shaped like the nave of a wheel, round, depressed, with a very narrow orifice; as the ripe fruit of *Gaultheria*, or the carpels in *Modiola*.

MODUGA. An Indian name for the red dye flowers of *Butea frondosa*.

MOENCHIA. Described as a genus by Ehrenberg, but now reduced to a section of *Cerastium*, distinguished by the divisions of its flowers being nearly always in fours, and by their petals being entire. The name *Moenchia* is also a synonym of *Berteroa*, a genus of cruciferous plants; and has, besides, been applied to the moly section of the genus *Allium*. [A. S.]

MOGORI BAMBAC. (Fr.) *Jasminum Sambac*.

MOHA (or **MOHA DE HONGRIE**, Fr.) *Solaria italica*.

MOHAUT, or **MOHOE**. *Paritium tiliaceum*.

MOHO MOHO. A Peruvian name for *Arianthe elongata*.

MOHRIA. A genus of polypodiaceous ferns of the tribe *Schizæineae*. It occurs in South Africa and the Mascaren Islands, and consists of a single species, *M. thurifraga*, an elegant bipinnate plant, with a good deal the aspect of *Woodia obtusa*, but essentially different in the fructification. The sori are oligocarpous, and situate near the revolute margins of the pinnales, while the spore-cases have the many-rayed apical ring characteristic of the schizæineous group. [T. M.]

MÖHRINGIA. A genus of *Caryophyllaceae*, allied to *Arenaria*, from which it differs in the seeds, which have a strophilole at the hilum. The flowers are pentamerous or tetramerous, with the stamens twice as many as the petals; the styles two or three (rarely four); and the capsule with twice as many teeth as the styles. The common British *M. trinervis*, and a few allied species, agree only in respect to the strophilole of the seed. [J. T. B.]

MOINSON. (Fr.) *Buntum Bulbocastanum*.

MOISSISURE. (Fr.) *Mucor*.

MOKA, or **MOKKA**. An Indian name for Maize.

MOKMOKO. *Buxus abyssinicus*.

MOLÈNE. (Fr.) *Verbascum*.

MOLINIA. A genus of grasses belonging to the tribe *Festuceae*, the inflorescence of which forms branching panicles; spikelets two to five-flowered; palea acute, entire, membranaceous, and hardening of the seed. Of the three described species, one is a native of Britain, *M. caerulea*, the blue Moor-grass; and this, though of little importance, in an agricultural point of view, where the superior grasses grow freely, becomes valuable in many instances, in consequence of its thriving on bleak wet

moors, where the better sorts of grasses refuse to flourish. [D. M.]

MOLLÉ. (Fr.) *Schinus*.

MOLLINEDIA. A genus of *Monimiacæ*, distinguished from *Citrosma*, chiefly by the perianth falling off from the fruit as it ripens. About twenty South American species or varieties, and an Australian one, have been referred to it. They are trees or shrubs, with coarse usually downy or hairy opposite leaves, and insignificant green flowers in their axils. Several species are highly aromatic like the nutmegs, with which the genus has several points of affinity. It has been described by some botanists under the name of *Tetratome*.

MOLLUGINE. (Fr.) *Mollugo*.

MOLLUGINEÆ. A suborder of *Caryophyllaceæ*, in which the sepals are distinct or nearly so, and alternate with the stamens, when the flowers are isostemonous. In the suborders *Aistneæ* and *Sileneæ*, the stamens are opposite the sepals, when the flowers are isostemonous. By some botanists the *Mollugineæ* are placed as a section of *Portulacaceæ* or *Ficoides*. [J. H. B.]

MOLLUGO. The type genus of *Mollugineæ*, comprising inconspicuous annuals found in the warmer regions of both hemispheres, and having dichotomously branched stems, with verticillate (rarely opposite) leaves, obsolete stipules, and small inconspicuous flowers in axillary dichotomous cymes, or axillary sessile umbels. The species have somewhat the habit of *Galium*. [J. T. S.]

MOLOPOSPERMUM. A genus of *Umbelliferae*, of the tribe *Ammineæ*, having the border of the calyx in five leafy divisions; each half of the fruit with five wing like ribs, the three middle of which are broadest; and in each furrow a single brown vitta. *M. cicutarium*, the only species, is a native of Southern Europe. The name, from the Greek signifying 'stripe' and 'seed,' is given in allusion to the yellow colour of the ripe fruit, contrasted with the brown oil-cells. [G. D.]

MOLUCCELLA. A genus of *Labiata*, having the calyx somewhat bell-shaped, its border broad with sharp teeth; the corolla with the upper lip entire or bifid, the lower having its middle lobe broad and inversely heart-shaped; and each piece of the fruit with three sharp edges and blunt at the top. The species are annuals, natives of the Eastern Mediterranean zone. The name was given by Linnaeus in the belief that the one known to him was a native of the Moluccas. [G. D.]

MOLY. *Allium Moly*. —, DWARF. *Allium Chamæmoly*. —, HOMER'S. *Allium magicum*.

MOLYBDOS. In Greek compounds = lead-coloured.

MOMEEA. A Nepalese name for Churru, the resinous exudation of the hemp plant.

MOMORDICA. A small genus of cucur-

bitaceous annual or perennial climbing herbaceous plants, with lobed or compound leaves, and solitary white or yellow flowers of separate sexes. They are natives of the tropical and subtropical regions of both hemispheres. The two kinds of flowers are borne on the same or on different plants. Both kinds have a campanulate five-lobed calyx, and five distinct largish petals. The males contain three stamens with short free filaments and zigzag anthers, two of which are two-celled, and the third one-celled; and the females an ovary contracted at the top and bearing a short style with three two-lobed stigmas. Its fruits are fleshy, prickly or warted externally, and burst when ripe, generally with elastic force, into irregular valves. The genus gets its name from *mordax*, to bite, in reference to the singular jagged or bitten appearance of its seeds. Several species are commonly grown in hothouses, and are very ornamental when in fruit, particularly when the ripe fruits burst and show the seeds covered with their fleshy generally red aril. Of these the handsomest is *M. Charantia*, a widely-spread East Indian species, which has bright orange-yellow oblong fruits, from one to six inches long, tapering to both ends and covered all over with little wart-like protuberances, some irregular and others in lines along which they split when ripe. *M. mixta*, another Indian species, has large creamy flowers, and red fruits shaped like a bullock's heart, and covered with little triangular prickles; and *M. Balsamina*, broadly-ovate orange or red fruits from one to three or four inches long. [A. S.]

MONORDIQUE. (Fr.) *Ecballium agreste*.

MONACHANTHUS. The name formerly given to certain orchids, now very properly regarded as forming a section of *Catasetum*, from the type of which they are distinguished by their column having no cirrh at the top. The untenableness of the genus is abundantly proved by the occasional occurrence of plants which bear upon the same spike the flowers of a species of *Catasetum*, those of a so-called species of *Monachanthus*, and those of a species of another spurious genus named *Myanthis*—three genera upon one plant! Well indeed might it be said, that 'such cases shake to the foundation all our ideas of the stability of genera and species.' [A. S.]

MONADELPHOUS. Having all the stamens united by their filaments into a tube.

MONARDA. A genus of herbaceous plants belonging to the labiate order, and distinguished by their ringent corolla, the upper lip of which is very narrow and conceals the two anthers. The leaves are downy and variously notched, and the flowers, which grow in whorls and heads, are made conspicuous by their coloured calyces and bracts. *M. didyma*, called Oswego Tea from the use sometimes made of its leaves in America, bears bright scarlet flowers and bracts, and the leaves emit a

grateful refreshing odour resembling that of mint or sage. —, SMALL. *Pycnanthemum Monardella*. [C. A. J.]

MONESSES. The *Pyrola uniflora* of authors, a subalpine woodland plant belonging to the *Eriaceae*, and separated from *Pyrola* on account of the different structure of the stamens and stigma: the cells of the former being furnished each with a tubular horn opening at the end, the stigma radiated, and the capsule opening from the summit. *M. grandiflora* has creeping nodes, short reclining leafy stems, roundish much-veined evergreen leaves, and an erect stalk three inches long usually bearing one concave bract and a solitary drooping large elegant white or slightly reddish flower, nearly an inch broad, with the sweet and powerful scent of the lily of the valley. It is rare in Britain, but has a wide geographical range. [C. A. J.]

MONETIA. [A Cape shrub, provisionally referred by Harvey to *Aquifoliaceae*, but by Benth and Hooker relegated to the neighbourhood of *Jasminaceae* or *Salvadoraceae*.] It has four-cornered branches, with opposite leaves, undivided and leathery like those of the holly, but with two spines proceeding from the axils; and the small flowers are greenish, with a bell-shaped three or four-cleft calyx, a corolla of four linear reflexed petals, four stamens inserted on to the receptacle, and a fleshy one or two-seeded fruit of the size of a pear. [M. T. M.]

MONEY-FLOWER. *Lunaria biennis*.

MONEYWORT. *Lysimachia Nummularia*; also *Anagallis tenella*, *Thymus Nummularius*, *Ternstroemia Nummularia*, and *Dioscorea Nummularia*. —, CORNISH. *Subthorptia europaea*.

MONGETTE. (Fr.) *Dolichos melanophthalmus*.

MONILIFORM. Necklace-shaped; cylindrical or torule, and contracted at regular intervals.

MONIMIACEÆ. (*Montimiads*.) A natural order of monochlamydeous dicotyledons belonging to Lindley's menispermal alliance of dielinous Exogens. Trees or shrubs, with opposite exstipulate leaves, and unisexual flowers. Perianth somewhat globose, in one or more rows, divided at the border. Male flowers with indefinite stamens, covering the whole interior of the perianth, the filaments often with two scales at the base; females with several superior ovaries, enclosed within the perianth tube, each with one style and one stigma, and a solitary pendulous anatropal ovule. Fruit consisting of several achenes enclosed within the enlarged perianth. They are natives chiefly of South America and Australia. The bark and leaves are aromatic and fragrant; and the succulent fruit of some is eaten. There are eight genera, and about forty species. Examples: *Monimia*, *Roldoa*. [J. H. B.]

MONIMIA. A genus which gives its

name to the order *Montimiaceae*, and is distinguished in the order, by the carpels containing each one pendulous ovule, and being enclosed as they ripen in the enlarged succulent berry-like tube of the perianth. The genus consists of three species natives of the Mauritius, trees or shrubs, with opposite entire leaves, more or less hairy or downy, and inconspicuous yellowish fragrant flowers, in axillary racemes or panicles.

MONIZIA. The generic name of a curious somewhat arborescent plant of the order *Umbelliferae*, found in the island called Deserta Grande, one of three uninhabited islands lying south-east of Madeira. *M. edulis*, the Carrot-tree, has a crooked woody stem one to four feet high, gouty at the base, and terminating in a tuft of decomposed, broadly triangular, fern-like leaves, which, including their stalks, are from one to three feet in length; the flowers are small, white, and disposed in compound many-rayed umbels furnished with partial and universal involucre of entire leaflets. Mr. Lowe, who described the plant—dedicating it to M. Moniz, a botanist of Madeira—saw it growing far down in fissures of perpendicular cliffs 1,200 to 1,500 feet high, and remarks that it can only be gathered by expert cragsmen let down by ropes for the purpose. The orchil-gatherers and fishermen who resort to the island, eat the roots when prevented by weather from getting better food from Madeira: therefore the plant is becoming scarce. The roots have long curved horn-like divisions, black outwardly, farinaceous and white within, and much more fibrous than those of a carrot. They are eaten raw or boiled—when raw tasting like earth-nuts, and stringy and insipid when boiled. The Portuguese call it Rock Carrot, Cenoula da Rocha.

The nearest relationship of the genus is with *Melanoselinum*, from which it differs in the finely divided foliage, but more especially in the fruits, which are dorsally compressed, with fourteen ribs—the ribs of a corky consistence and entire, whereas in *Melanoselinum* they are thin and toothed. Both are now united with *Thapsia*. Under the four dorsal secondary ribs of each carpel (not under all) are vittæ, and two are broader than the others on the inner face of the carpel. The plant is cultivated at Kew. [A. A. B.]

MONJOLI. *Cordia*.

MONKEY BREAD. The fruit of *Adansonia digitata*.

MONKEY-FLOWER. *Mimulus*.

MONKEY-POT. The woody pericarp of *Lecythis Ollaria*, and other species.

MONKEY-PUZZLE. *Araucaria imbricata*.

MONK-FLOWER. *Monachanthus*.

MONKHOOD. *Aconitum Napellus*; also *Dielytra Cucullaria*.

MONNAIE DU PAPE, or MONNAYÈRE.
(Fr.) *Lunaria annua*.

MONNIERIA, sometimes written *Moniera*, in honour of William le Monnier, Professor of Botany in the Jardin du Roi at Paris, is the name of a genus of *Rutaceæ*, represented by two species of annual herbs, natives of the sea-shore of tropical America. The calyx consists of five unequal sepals; corolla two-lipped, the upper entire, the lower four-lobed; stamens five, two fertile and three sterile joined together; ovaries five; fruit capsular five-valved, each carpel with one seed. [M. T. M.]

MONNINA. A genus of *Polygalaceæ*, consisting of herbs mostly erect, shrubs, or even small trees, with alternate or scattered entire leaves, and flowers usually rather small, in terminal or rarely axillary racemes or spikes. The calyx has the two large wing-like sepals of *Polygala*, and the stamens are nearly the same; but the corolla is very different, having, besides the large petal called the keel, only two small ones adhering to it on the inner side, not overlapping it; and the fruit is indehiscent, either a fleshy drupe, or surrounded by a winged border. There are about fifty species, all natives of South America, and chiefly from the Andes, extending from South Chili almost to Mexico. The bark of the root of some of the Peruvian species, especially *M. polystachya* and *salicifolia*, is moulded into balls and used both medicinally and as a substitute for soap, and also by the silverminers of Huancayo for cleaning and polishing wrought silver.

MONNOYÈRE. (Fr.) *Lythmachia Nummularia*; also *Thlaspi arvense*.

MONO. In Greek compounds = one; as *monanthos*, one-flowered.

MONOCARPOUS. Producing fruit but once in its life, as an annual, or such perennials as the American aloe, which always perishes after flowering.

MONOCHÆTUM. Shrubs or undershrubs of the order *Melastomaceæ*, natives mostly of mountainous regions from Mexico to Columbia and Peru, and numbering about twenty species. They have three to seven-nerved leaves, with the nerves impressed so as to give the upper surface a channelled appearance, and purple or violet flowers. Their floral envelopes are in fours, and their stamens double as many and alternately unequal, with the filaments complanate, and those of the small or sterile anthered ones longer than the others. The anthers are subulate and one-pointed at their acute apices, and have the connective extended into a tail behind them. *M. ensiferum* is a beautiful greenhouse plant. [A. S.]

MONOCHILUS. A small East Indian genus of orchids, belonging to the *Physalides*, and having the habit of *Goodyera*. Its principal characteristics consist in the side sepals being free beneath the lip, and the hind one agglutinated to the petals;

in the lip adhering to the column, being without a spur at its base, and having a membranous split limb much larger than the sepals; and in its short terete column having a glandular swelling on each side, but no finger-like processes as in the allied genus *Cheirostylis*. [A. S.]

MONOCHLAMYDEÆ. A subclass of dicotyledons, containing plants having either a single floral envelope (a calyx) or none. It includes many natural orders of dicotyledons in which the parts of the flower are incomplete, and in which the flowers are unisexual; and corresponds nearly to the *Apetalæ* of Jussieu. [J. H. B.]

MONOCHLAMYDEOUS. Having but one floral envelope.

MONOCHORIA. A genus of *Pontederaceæ*, differing from *Pontederia* in the three-celled and many-seeded capsule, and from *Enchorhia* in the stamens being inserted at the bottom of the tube of the perianth, the anterior one longer than the others. They are aquatic tropical herbs. *M. vaginialis*, an Indian plant with oblong-lanceolate cordate leaves and hollow leafstalks, is eaten when young as a potherb. It is also used as a native remedy in liver complaints and disorders of the stomach; when chewed it is considered as a remedy for toothache, and it is used internally and externally for other complaints. [J. T. S.]

MONOCLINOUS. Having the two sexes in the same flower; hermaphrodite.

MONOCOTYLEDONS. (*Endogeneæ*, *Endogens*, *Amphibryæ*.) One of the primary classes in the natural system. The plants which it comprises have a cellular and vascular system, the latter consisting partly of elastic spiral vessels. The woody stem, as in palms, is usually more or less cylindrical, simple, and unbranched; there is no true separable bark, no concentric zones, and no true pith. The wood is endogenous, i.e. it increases by additions which first tend towards the centre and then curve outwards in an interlacing manner towards the circumference, where much hard ligneous matter is deposited, so as to make the exterior the hardest part. The development of the stem usually takes place by a single central and terminal bud, but occasionally lateral buds are produced, and at times the stem is hollow. The leaves are parallel-veined, except in the subclass *Dictyogens*, where a kind of reticulation is visible. The parts of the flower are arranged in a ternary manner, and they are in some cases petaloid, sometimes acaly or glumaceous. The ovules are contained in an ovary, and are fertilised by the application of the pollen to the stigma. The embryo has one cotyledon, and the germination is endorhizal. The subclasses are: *Dictyogeneæ*, *Petalodeæ* or *Florideæ*, and *Glu-mifera* or *Glumaceæ*. [J. H. B.]

MONOCOTYLEDONOUS. Having only one cotyledon, or if two are present, then having one much smaller than the other, and on a different level.

MONOCYSTIS. A genus of *Zingiberaceae*, represented by a Chinese herbaceous plant, with lance-shaped leaves, and flowers in a terminal cluster. The latter have a tubular calyx contracted at the throat, the limb short, three-lobed; a corolla with a short tube, and the outer limb-segments linear and hooded as the point, the inner lateral ones very small, and the central one or two large roundish and crisped at the margin; a linear filament; and an inferior one-celled ovary, with one erect ovule. The style passes between the lobes of the anther, and terminates in a fleshy concave stigma. [M. T. M.]

MONODICHLAMYDEOUS. Having indifferently either a calyx only, or both calyx and corolla.

MONODORA. Until recently only a single species belonging to this genus of *Anonaceae* was known, but four others have been found in W. and E. tropical Africa. The original species, *M. Myristica*, was described from specimens obtained from Jamaica, where it was supposed to have been introduced from South America, but there is more reason to believe that it was taken there by the negroes from Western Africa. The genus has hitherto been regarded as anomalous among its congeners, on account of its ovary being supposed to consist of a single carpel, with the numerous ovules distributed over the whole of its inner surface; but it has lately been shown that it does not essentially differ from the rest of the order, the ovary being in reality compound, consisting of numerous carpels united together, the placentas becoming confluent, and giving the appearance of the ovules being irregularly dispersed over the whole surface. *M. Myristica* is described as a small tree in Jamaica, but grows to 50-60 feet in Lower Guinea. The other species are small trees and shrubs. Their flowers are solitary, large, and sweet-scented, and are characterised by their three outer petals being large and spreading with crisped or wavy edges, and the three inner ones heart-shaped and erect, meeting together at their apices. The fruit is perfectly smooth, globular, and varies in size from that of an orange to a large melon, containing a number of seeds packed close together with great regularity in the midst of a quantity of pulp.

The outer petals of the flowers of *M. Myristica* are of a bright yellow colour, variegated with purple spots, and the inner whitish on the outside and downy, but shining and pale yellow with crimson spots inside. Its seeds contain a quantity of aromatic oil which imparts to them the odour and flavour of nutmegs; and as they likewise possess the same kind of interior structure, they are commonly called Jamaica or American Nutmegs, or Calabash Nutmegs from the entire fruit resembling a small calabash. [A. S.]

MONOECTYA. Having male and female organs in different flowers on the same plant—thus: expressed by signs. ♂—♀.

MONOGAMIA (adj. **MONOGAMIC**). Hav-

ing flowers distinct from each other, and not collected in a capitulum.

MONOGRAMMA. A small group of minute graminiform or raciform ferns, with simple or forked fronds, and having a non-indusiate line of spore-cases near the apex of the frond, the receptacle consisting of a portion of the costa. In one set the soric is in a longitudinal depression of the graminiform fronds; while in another they occupy a vaginiform expansion of the raciform fronds. They occur in the tropics of the old and new worlds. [T. M.]

MONOGYNOUS. Having but one style, even although many carpels be present.

MONOICOUS. The same as **Monœcious**.

MONOLEPIS. A genus of *Chenopodiaceae* from North America and Arctic Siberia, with polygamous monandrous flowers, and two styles united at the base, destitute of perianth but furnished with an herbaceous scale. The utricle is compressed with a vertical seed, having a suberustaceous integument. It is a branched annual, with scattered stalked lanceolate, often trifid leaves, and axillary glomerules of small green dry flowers. [J. T. S.]

MONOLOPHUS. A genus of *Zingiberaceae*, represented by an Indian herbaceous plant, with fibrous roots, oblong leaves, flowers in a terminal spike, enclosed at the base within a bract. The calyx is tubular, the tube of the corolla elongated, its outer segments narrow equal, the inner ones wider, two equal, and a third, the lip, larger and cleft; filament prolonged beyond the anther into a reflexed strap-like body; ovary three-celled. [M. T. M.]

MONOLOPIA. A genus of *Compositae* of the tribe *Anthemideae*, consisting of two Californian woolly annuals, with narrow entire or scarcely toothed leaves, and solitary terminal flower-heads yellow and radiating. The involucrel scales are in a single row and united below, the receptacle convex and naked, and the achenes without pappus, the inner ones apparently abortive. One species, *M. major*, is rather showy.

MONOPETALOUS. Having all the petals united by their edges.

MONOPHYLLOUS. Having only one leaf, or several leaves united by their edges into one.

MONOPLOCA. A genus of *Cruciferae* from South-west Australia, with narrowly linear leaves, and a compressed suborbicular deeply bifid pouch, two-valved, with the valves winged on the back, and each cell containing one seed. [J. T. S.]

MONOPSIS. A genus of *Lobeliaceae*, consisting of perennial herbaceous plants, natives of the Cape of Good Hope and of Australia, having weak prostrate stems, and perfect or occasionally dioecious flowers, borne on long axillary stalks or in terminal tufts. The tube of the corolla is

sit along its upper edge, its limb divided into five nearly regular segments: hence the name of the genus, implying uniformity, as irregular flowers are most common in this order. *M. Speculum* is a pretty little plant with blue flowers. [M. T. M.]

MONOPTEROUS. Having one wing.

MONOPYRENOUS. Containing one stone.

MONOS. A Spanish name for *Melicocca bijuga*.

MONOSEPALOUS. Having the sepals all united into one body by their edges.

MONOSTICHOUS. Arranged in one row.

MONOTAXIS. A genus of *Euphorbiaceæ* of the tribe *Crotonaceæ*, allied in structure to *Jatropha*, but very different in appearance. It consists of two or three small Australian shrubs or undershrubs with narrow almost heath-like leaves, and small flowers in little terminal or axillary cymes, the central flower usually female, the others males. The latter have small white petals, the females have none.

MONOTOCA. A genus of *Epacridaceæ*, having a five-lobed calyx with two bracts at the base, a funnel-shaped corolla with five smooth lobes, stamens shorter than the corolla, and a lobed cup-shaped disk. The seed-vessel is a nearly globose berry containing a single seed. They are small trees or shrubs, natives of New South Wales and Tasmania, and have oblong or lanceolate striated entire leaves, generally grey on the under side, and small white often dioecious flowers borne on axillary or terminal spikes. [R. H.]

MONOTROPACEÆ. (*Pir-ropes*.) A natural order of corollifloral dicotyledons belonging to Lindley's erical alliance of hypogynous Exogens. Parasitic plants of a brown colour, allied to *Pyrolaceæ*, but differing in the scaly stems, in the longitudinal dehiscence of their anthers, and in their minute embryo being at the apex of the albumen. They are considered by many as a suborder of *Ericaceæ*, from which their habit, their antherine dehiscence, loose testa, and minute embryo separate them. Chiefly parasitic on fire in Europe, Asia, and North America. The six genera comprise about ten species. [J. H. B.]

MONOTROPA. The typical genus of *Monotropaceæ*, distinguished by the covering of the flower being single and deeply five-cleft; and the stamens ten, emitting their pollen by transverse openings near the middle of the anther. The species are parasitical on the roots of trees. [G. D.]

MONSONIA. A genus of *Gerantaceæ* from the Cape of Good Hope, distinguished by having five equal sepals, five equal petals, and fifteen stamens disposed in five bundles or all united. The genus is divided into three sections. *Odontopetalum*, consisting of herbs, with alternate lobed or multilobed leaves, and one-flowered peduncles with an involucre in the middle of

each; petals oblong, toothed at the apex; stamens in five bundles. *Holoptetalum*, herbs with alternate oval toothed leaves, and one-flowered peduncles with two or two-flowered with four bracts; petals obovate crenulate; stamens in five bundles. *Sarcocaulon*, plants with shrubby fleshy spiny stems, alternate entire or toothed leaves, one-flowered peduncles with two bracts in the middle; petals entire; stamens monadelphous. *M. spinosa* or *Burmans*, which belongs to the last section, has a stem which burns like a torch, and emits an agreeable odour. [J. T. S.]

MONSTERA. A curious genus of tropical American herbs belonging to the *Araceæ*. They are climbing plants, with stalked leaves, the stalks invested at the base by a sheath, the blades entire or perforated with holes, and ultimately divided at the margin. The leaf-buds are placed at some distance above the axils of the leaves. The spathe is deciduous, the spadix sessile, with female flowers below, hermaphrodite ones above; stamens of the upper flowers with flattened filaments, and two-celled anthers, opening by a short lateral slit; ovary two-celled, each cell with two inverted ovules; style short, conical. The fruits are succulent, fused together, and ultimately casting off their outer skin; and the seeds are compressed, imbedded in pulp.

M. Adansonii, more generally known by the old name of *Dracontium pertusum*, is frequently cultivated in hothouses for the singularity of its leaves, which appear as if holes had been cut through them at irregular intervals. The plant is reputed to possess caustic properties. M. Trécul, who has examined the mode of formation of the holes in the leaves, says that they are the result of changes that take place in the tissue of the leaf whereby ultimately the outer skin or epidermis becomes torn, and a hole is produced, the size of which depends on the age of the leaf at the time of its formation, and that they have nothing to do with the imperfect development of lobes as might at first sight be supposed. *M. deliciosa*, a Mexican species, has a succulent fruit, with a luscious pineapple flavour. [M. T. M.]

MONSTROSITY. Any unusual kind of development, or absence of development.

MONTAGNITES. A genus of *Fungi* bearing affinities on the one side to *Agaricus*, and on the other to the higher *Gasteromyces*, from which it differs in having regular gills. There is a universal veil continuous with the cuticle of the pileus, which as it bursts exposes a large portion of the dry gills, much in the same way as the gills on a smaller scale are exposed in *Agaricus pusillus*. The genus occurs in the south of Europe, in North Africa, in the steppes of Asia, and in Texas. [M. J. B.]

MONT-ETNA. (Fr.) *Tulipa turcica*.

MONT-JOLI DE CAYENNE. (Fr.) *Lantana involucrata*.

MONTÉ-AU-CIEL. (Fr.) *Polygonum orientale*.

MONTEZUMA. A Mexican sterculaceous tree, said to be very handsome, but only known by descriptions made from Mocino and Sessé's Mexican drawings. It appears to form a distinct genus of the tribe Bombaceæ.

MONTIA. A minute aquatic belonging to the order *Portulacaceæ*. The whole plant, which rarely exceeds five or six inches in length, is succulent, and furnished with opposite spatulate leaves, in the axils of which, near the summit of the stem, are a few very small flowers, having five petals united into a tubewhich is split on one side. *M. fontana*, Water Blinks, or Water Chickweed, is common on the banks of streams, especially on a gravelly soil, and has, like many other aquatic plants, a wide geographical range. [C. A. J.]

MONTINIA. A genus of onagrads, distinguished by having stamens and pistils on separate plants, the flowers of each having the border of the calyx four-toothed; the corolla in four divisions; the style two-cleft at the apex; and the seed-vessel two-valved, two-celled, and crowned by the teeth of the calyx. *M. acris*, the only species, is a Cape shrub, with acute fleshy and alternate leaves. It was named in honour of Montin, a Swedish botanist. [G. D.]

MOOCHERUS. A gum-resin obtained in India from *Bombax natalabricum*.

MOOJANEE. An Indian name for *Phasolus trilobus*.

MOON-FLOWER. *Chrysanthemum segetum*; also *Ipomœa bona-nox*.

MOONG. Indian varieties of Gram.

MOON-PENNY. *Chrysanthemum Leucanthemum*.

MOON-SEED. *Menispermum*.

MOONWORT. *Rumex Lunaria*; also *Dotrychum Lemaria*.

MOONYAH. An Indian name for the fibre of *Arundo Karka*.

MOOQL. An Arab name for Gum Bdellium.

MOORBALLS. The common name of *Conserva agagropila*, an *Alga* which forms compact sponge-like balls at the bottom of freshwater lakes. The whole plant consists of a mass of branched articulated green threads constricted at the joints somewhat resembling the hair balls found in the stomachs of ruminants. The moorballs exhibit the normal growth of a particular *Alga*, but similar substances are found occasionally on the sea-coast, which derive their origin from the action of the waves, exactly as masses of human hair are sometimes rolled by the waves into compact rounded masses. Moorballs are sometimes used as pen-wipers. [M. J. B.]

MOOR-BERRY. *Oxycoocus palustris*.

MOORBOEFFIA. A little-known genus of *Convolvulaceæ*, containing two species, from Penang. They are twining under-shrubs, with opposite petiolate leaves, and axillary peduncles bearing several flowers; the calyx consists of five sepals; the corolla, which has been seen only in the unopened flower, is then densely hairy; the berry is one-celled, very rarely two-celled, and one-seeded. [W. C.]

MOOEWORD. *Andromeda polyfolia*.

MOOSE-WOOD. *Dirca*.

MOOSKANA. An Indian name for *Abelmoschus moschatus*.

MOOTCHIE-WOOD. A light soft Indian wood, the produce of *Erythrina indica*.

MOOTHA. An Indian name for *Cyperus rotundus* or *hexastachyus*.

MOOTHE, or METHA. Indian names for Fenugreek seed.

MOPHA. *Bassia latifolia*.

MOQUILEA. A genus of *Chrysobalanaceæ*, including about eighteen species of tropical American trees, distinguished from *Coccoloba* by their short campanulate calyx; and from *Chrysobalanus* by the stamens inserted all round the ovary, by the racemose inflorescence, and probably also by the fruit, which is, however, insufficiently known. Several species with a tubular base to the calyx, referred to *Moquilea* by some botanists, belong to *Coccoloba*.

MOQUINIA. A genus of *Compositæ*, of the tribe *Mutisiceæ*, differing from *Gochinia* chiefly in its diœcious flower-heads. It consists of three or four Brazilian shrubs, the underside of whose leaves is white cottony, and whose inflorescence consists of small racemose or paniculate flower-heads.

MOR. The Malay name for Myrrh.

MORACEÆ. (*Sycoides*, *Morads*.) A natural order of monochlamydeous dicotyledons, belonging to Lindley's utricul alliance of diclinous Exogens. By many botanists it is considered a suborder of *Artocarpaceæ*. Trees or shrubs with a milky juice; leaves commonly rough and lobed; flowers small unisexual, collected in heads spikes or catkins. The calyx of the male flowers is either wanting, or three to four-parted, with three to four stamens, opposite its segments, the anthers opening lengthwise. The female flowers have three four or sometimes five sepals, and a one-celled ovary, with solitary pendulous ovules. Fruit a succulent sorosis or synconus. Natives of temperate and tropical climates. The plants abound in milky juice yielding caoutchouc; their fruit is often bland and nutritious, while their bark yields fibres. The mulberries, *Morus nigra* and *alba*, belong to the order; as does *Ficus* *Carica* the common fig, *Sycomorus antiquorum* the Sycomore fig, and *Broussonetia papyrifera* the paper mulberry. Various species of *Ficus* and *Urostigma* supply

india-rubber. There are twenty-two genera, and about 200 species. [J. H. B.]

MORA. The Mora of Guiana, *M. excelsa*, a gigantic timber tree, forms a genus of *Leguminosæ*, of the tribe *Cæsalpinieæ*. Extensive forests of it exist in British Guiana and the island of Trinidad, it being one of those trees which grow together in large masses to the exclusion of every other kind. It grows from a hundred and thirty to a hundred and fifty feet high; and as the trunks are branchless to near the top, logs three or four feet square and nearly a hundred feet long are obtainable exclusive of sap-wood. Its wood is exceedingly tough and close-grained, and, under the name of Mora timber, is now imported into this country in considerable quantities for the use of our ship-builders, it being one of the few timbers admitted into Lloyd's list of ship-building woods. One of its most valuable properties is its non-liability to splinter, even rivalling oak in this respect, being, in fact, one of the toughest woods known. The Mora tree has large pinnate leaves, and small flowers in dense compound spikes about eight or ten inches long. These have a bell-shaped calyx, five or six equal petals, and ten or twelve long stamens, every alternate one of which is sterile; these are followed by hard woody pods, containing a solitary large kidney-shaped seed. The bark of the Mora is astringent and useful for tanning, although it does not contain sufficient tannin to enable it to be substituted for oak bark; and the seeds are used by the Indians as food in seasons of scarcity. [A. S.]

MORÆA. A numerous South African genus of *Iridaceæ*, closely related to *Iris* itself, and containing many species with very brilliant sweet-scented flowers. All its species have two-ranked sword-shaped leaves, and their flower-stalks have long slightly overlapping spathes. The perianth has three broad spreading or reflexed outer segments, and three narrower inner ones. The three stamens are distinct; the style slender, and bearing three petal-like blind or rarely multifid stigmas opposite the stamens. [A. S.]

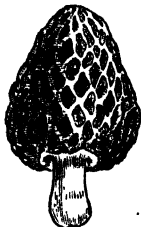
MORASS-WEED. *Ceratophyllum demersum*.

MORCHELLA. A genus of ascomycetous *Fungi*, distinguished by a deeply pitted naked head supported on a peduncle. The depressions are sometimes regular, but occasionally they assume the appearance of mere furrows with wrinkle-like interstices. The common Morel is a familiar example. The genus occurs both in the north and south hemispheres, but does not seem to like a very hot climate. The fructification is very like that of *Helvella*. [M. J. B.]

MORÉE DEMI-DEUIL. (Fr.) *Moræa insignis*. — **ENGAINÉE.** *Moræa Northiana*.

MOREL. The common name of *Morchella esculenta*, which, under a variety of forms, occurs in various parts of the world.

It is occasionally plentiful in this country, but the greater part of what is sold by the oilmen comes from Germany. A large quantity is collected in Kashmir. As it dries very readily, and may be kept for some time, it is much used by cooks to flavour gravies. It is also dressed in various ways when fresh, and makes an excellent dish if stuffed with finely minced white meat. When plentiful it may be advantageously employed instead of mushrooms to make ketchup. Morels are particularly fond of



Morchella esculenta.

burnt soil, and the collection of them is so profitable to the peasants in Germany, that they were formerly in the habit of setting fire to the woods to encourage their growth, till the practice was made punishable by a special law. *M. semilibera* may be known from the common Morel by the border being quite free for some distance. It has a bad reputation, and requires, therefore, some caution in its use. [M. J. B.]

MOREL, GREAT. *Atropa Belladonna*. — **PETTY.** *Solanum nigrum*.

MORELLO. A variety of cherry.

MORELLE. (Fr.) *Solanum*. — **À GRAPES, or GRANDE DES INDES.** *Phytolacca*.

MORÈNE. (Fr.) *Hydrocharis*.

MORENIA. A genus of palms confined to the mountains of Peru, allied to *Hypophorbe* and *Kunthia*, and composed of two species, *M. fragrans* and *M. Pöppigiana*, both of which have a thin unarmed reed-like trunk, terminal pinnatisect leaves, dioecious white or yellow flowers and a one-seeded berry. [B. S.]

MORETTIA. A genus of *Cruceferæ*, containing an Egyptian herb, with grey stellately pubescent obovate leaves, and erect racemes, the pedicels with leaf-like bracts at the base exceeding the flowers; pouch dehiscent, oblong, slightly compressed, with an oblong partition and short style; valves concave, produced within into a small partition separating the seeds, which are round. [J. T. B.]

MORGALLE. African hemp, the fibre of *Sansevieria guineensis*.

MORGE LINE. *Veronica hederaea*.

MARGINATE. (Fr.) *Elatina*.

MORIA. The parts of a flower in general; as *pentamorus*, which signifies all the parts being arranged in five.

MORICANDIA. A genus of *Cruciferae*, containing about half a dozen species, natives of Southern Europe, Northern Africa, and Western Asia. These are glaucous smooth herbs, sometimes shrubby at the base, with entire stem-clasping or pinnately cut leaves, and large purple or rose flowers, succeeded by long narrow siliquiform pods with flat or keeled valves, and either beakless or with a compressed sometimes one-seeded beak, ending in a short style, the stigmas united into an erect cone. [A. S.]

MORILLE COMESTIBLE. (Fr.) *Morchella esculenta*.

MORINA. A genus of *Dipsaceae*, distinguished by the tubular irregular corolla and four stamens either didynamous or united in two pairs. It consists of four or five species natives of the Levant and Central Asia. They are erect thistle-like herbs with oblong prickly-toothed leaves, and pink flowers in dense whorls in the axils of the upper short floral leaves. *M. longifolia*, from the Himalaya, has been introduced into European gardens.

MORINDA. A genus of *Cinchonaceae*, containing between thirty and forty species almost confined to the tropics of Asia and Africa. A few of them are climbing plants, but the greater portion are small trees or shrubs, usually having opposite but occasionally whorled leaves, with thin entire stipules united at the base within the leaf-stalks; and flowers in dense heads on stalks produced either singly or several together in the axils of the leaves or at the ends of the branches. The fruit is fleshy, and consists of the berries of the several flowers in a head united into one compound berry.

The roots and bark of several species of *Morinda* are useful in their native countries on account of their dyeing properties, but their colours are not very permanent. Amongst those most commonly used, the following are all small trees common in India and very closely allied to each other: *M. citrifolia*, used in Madras for dyeing red turbans; *M. tinctoria*, the Ach root; and *M. bracteata*, the bark of which contains two colours, a red and a yellow changing to crimson upon the application of alkalis, but though commonly used in India, the colours obtained from it are very dull. *M. umbellata*, also used for dyeing, has climbing stems which the Cingalese employ instead of ropes for tying fences. The fruits of several species are eatable, but insipid. [A. S.]

MORINGACEÆ. (*Moringaceæ*.) A natural order of calycifloral dicotyledons, belonging to Lindley's violal alliance of hypogynous Exogens. Trees with bipinnate or tripinnate stipuled leaves, allied to leguminous plants; calyx five-parted; petals five

rather unequal, the upper one ascending; stamens eight or ten, perigynous, the filaments slightly petaloid, callous, and hairy at the base, the anthers simple, one-celled; disk lining the tube of the calyx; ovary superior, stipitate, one-celled, the ovules attached to parietal placentas; style filiform; stigma simple. Fruit a pod-like three-valved capsule; seeds numerous, half buried in the spongy substance of the valves, sometimes winged. Natives of the East Indies and Arabia, with pungent and aromatic properties. [J. H. B.]

MORINGA. The only genus of *Moringaceæ*, and having, therefore, the characters of the order. It is a peculiar genus, having the general appearance of *Leguminosae*, from which it differs in the odd petal being inferior, the anthers one-celled, the ovary tricarpeillary, and the ovules unatropal. There are three species, natives of North Africa, the warm parts of Western Asia, and the East India. The seeds of *M. pterygosperma*, the Horse-radish tree, are winged, and are called Ben-nuts; from them is procured a fluid oil used by watchmakers, and called oil of Ben; the root is pungent and stimulant, and resembles horse-radish in its taste. [J. H. B.]

MORISONIA. [A Capparidaceous genus of four West Indian and South American trees], so called in memory of Robert Morison, Professor of Botany at Oxford in 1683. The flowers are white, axillary, somewhat tufted, with a distended calyx, corolla of four blunt petals, numerous stamens combined into a tube below, and a long-stalked ovary. Fruit succulent. [M. T. M.]

MORITA. A Spanish name for *Machra tinctoria*.

MORITZIA. A genus of *Boraginaceæ* allied to *Anchusa*, but differing in its exserted stamens, and in the scales which close the throat of the corolla being fringed. It is a Brazilian herb, with the habit of a *Myosotis*, the radical leaves very large, those of the stem much smaller ciliated; flowers in scorpioid racemes, small, with a funnel-shaped corolla; nuts shining, often by abortion reduced to one. [J. T. B.]

MORMODES. The species of *Mormodes* when not in flower are undistinguishable from *Cataetum*, having the same fusiform stems clothed to the base with the remnants of fallen leaves, and the same plicate sheathing-based leaves. The chief technical points by which it is distinguished are the want of cithrii upon the column; the lip being membranous, turned upwards, and often shaped something like a saddle; and the pollen-masses being four in number, connate in pairs, fixed to a thick caudicle which adheres to a fleshy gland. About a dozen or fifteen species are known, all of them natives of America from Mexico to Caracas. Most of them have at one time or other been cultivated in the orchid houses of this country, where they are grown more for their singularity than for their beauty. [A. S.]

MORNA. A genus of *Compositæ*, allied to *Helichrysum*, and characterised chiefly by the long beak of its achenes, crowned by a pappus of simple scabrous bristles. It has since been included, with *Leptorhynchus*, in the older genus *Waitzia*. Some of these beautiful everlasting have been introduced into our gardens from Swan River, e.g. *M. nitida* with golden involucral scales, and *M. nivea* with white ones.

MORNING GLORY. A name applied to certain species of *Ipomoea* and *Pharbitis*, e.g. *P. hispida*, the *Convolvulus* major of gardens.

MOROCARPUS. A name given by Siebold and Zuccarini to a genus of *Urticaceæ* consisting of a few Japanese and East Asiatic shrubs or undershrubs which have been since referred to the older genus *Villebruna*.

MORONOBIA. A small genus of *Clusiaceæ*, confined to the West Indies, Guiana, and Brazil. Three or four species have been described, but they are probably not all distinct. They are large slender-stemmed trees, with branching heads of dense foliage, the leaves being of a lance-shaped or elliptical form and feather-veined, and the scarlet flowers borne in umbel-like heads. Each flower has two outer bracts, a calyx of five sepals, a corolla of five petals twisted partly round each other, fifteen or twenty stamens united into a three or five-cleft tube, and a five-celled ovary with two or several ovules in each cell.

M. coccinea, the Hog Gum tree, is a lofty straight-stemmed tree attaining ninety or a hundred feet in height, with horizontally spreading smooth branches, and thick entire glossy leaves. A fluid pellucid juice exudes from incisions in the trunk, and after a short exposure hardens into a yellow resin resembling Burgundy pitch in appearance. It is said that in Jamaica hogs, when wounded, rub the injured part against the tree, so as to smear themselves with the resin, which possesses vulnerary properties, and hence it is called Hog Gum. The resin has been employed medicinally as a substitute for balsam of copaiba, and in Jamaica pitch plaisters are made of it. In Guiana and Brazil, where it is called Mani or Oanani, the natives make torches with it, and use it to pitch their boats. [A.S.]

MORPHOLOGY. The study of the forms of organs and of their inducing causes.

[M. T. M.]

MORPHOSIS. The manner of development; the order or mode in which organs form themselves, from their earliest condition till their final state.

MORPHUS. In Greek compounds=shape or appearance; whence *rhizomorphous*, having the appearance of a root.

MORRÈNE. *Hydrocharis*.

MORRENTIA odorata is a hoary twining asclepiadaceous plant with hastate leaves, from Buenos Ayres and Paraguay. It has greenish sweet-smelling flowers, with five

erect sepals; a five-parted corolla with the segments spreading and eventually reflexed; a tubular five-angled crown with five obtuse lobes conniving over the gynostegium; and a convex stigma with a central obscurely two-lobed apiculus. [A.S.]

MORS DU DIABLE. (Fr.) *Scabiosa succisa*. — **DE GRENOUILLE.** (Fr.) *Hydrocharis Morus-rance*.

MORSGELINE. (Fr.) *Stellaria media*.

MORSUS DIABOLI. *Scabiosa*. — **GALLINÆ.** *Lamium amplexicaule*. — **RANÆ.** *Hydrocharis*.

MORT-AU-CHIEN. (Fr.) *Colchicum autumnale*. — **AUX-RATS.** *Hamelis patens*. — **AU-CHANVRE.** *Orobancha ramosa*.

MORTUNG-SAUL. The ship-building timber of *Shorea robusta*.

MORUS. The Mulberry genus, belonging to the order *Moraceæ*, has representatives in the tropics and temperate regions of Asia and America, but none in Europe or Africa. It consists of milky juiced trees or shrubs, with large often rough entire or lobed deciduous leaves, and unisexual greenish-white inconspicuous flowers, the two kinds being usually in separate axillary catkin-like spikes, and the whole of the female spike ultimately ripening into an oblong juicy aggregate fruit, composed of numerous egg-shaped compressed achenes (or true fruits) covered by the enlarged succulent calyxes. Black Mulberries are eaten as a dessert fruit; besides which preserves and a kind of wine are made from them, and their juice is used in pharmacy for colouring and flavouring. [A.S.]

M. nigra, the Black Mulberry, is the species chiefly cultivated for its fruit. The tree grows to the height of twenty to thirty feet, and forms a large round head, with dense foliage affording a complete shade. The leaves are bluntly heart-shaped, or slightly lobed, thick, with a rough surface. The fruit is roundish-oval, dark red or black, the surface uneven. The tree is late in leafing, which takes place in May, when usually all danger of frost is over.

The name *Morus*, according to some authors, is derived from the Celtic *mor*, black; but *M. de la Bretonnerie* says that the tree does not push forth its leaves till the frosts are over, and hence it has been designated 'the wisest of trees,' and that from this peculiarity it derives its Latin name of *Morus* from the word *mora*, a delay. Dr. Butler (*Sketch of Modern and Ancient Geography*, p. 188) says: 'The modern name of Peloponnese is *Mores*, from the Mulberry trees which grow there, having been introduced for supplying silkworms.' Botanists are not decided as to its native country. It has certainly been found wild in the chains of the Caucasus and adjoining mountains, but it is probably also indigenous to Persia and Asia Minor. It appears to have been well known to the ancients. We read in the Bible that 'He destroyed their vines with hailstones, and their mulberry-trees with frost.' Also that

'David came upon the Philistines, and smote them over against the mulberry-trees.' It is therefore evident that the mulberry must have been well known to the Jews at that time, otherwise it would not have been mentioned by the sacred historian for the purpose of indicating the particular locality of a battle.

Mulberries are mentioned by the early Greek writers, Theophrastus, Dioscorides, and Galen; and among the Romans by Virgil, Horace, Pliny, &c. All these writers are supposed to refer to the Black Mulberry, *M. nigra*, which must have been the species first employed for feeding the silkworm after its introduction to Western Asia and the South of Europe. Dr. Tozzetti states that the introduction of the White Mulberry into Italy is of a date long posterior to that of the silkworm. These were imported into Sicily in 1148, by King Ruggieri, after he had conquered Thebes, Athens, and Corinth. The Lucchese are said to have learned the art of rearing them from the Sicilians, and introduced it into Florence, when in 1315 they took refuge there from the sack of their own city. Pognini has, however, proved that silk was produced in Florence in and previous to the year 1225, and from Italian histories and chronicles it appears that there were silk factories there before 1266. From Sicily Mulberry-trees were brought to France, about 1494. The Black Mulberry is mentioned by Tusser in 1557; and it is stated that the first trees were planted at Syon House in 1548, but the first Duke of Northumberland said, previous to 1834, that he could trace these trees back three centuries. Indeed there is every reason to suppose that as very old Mulberry-trees were found near monasteries, they had been introduced by the monks whilst they were in possession of these establishments. Bacon enjoyed in London the shade of a mulberry tree; and Shakespeare, as is well known, had a favourite one at Stratford-on-Avon. We have seen two others that were raised from this celebrated tree and planted by Garrick at his villa near Hampton Court, where they are, or were very lately, still alive. They had been planted in line with hollies, apparently of the same age, and were the common Black Mulberry. The trees had been reared with taller stems than usual, but had been blown down and were prostrate when we saw them; nevertheless, as the Mulberry is very tenacious of life, vigorous shoots were rising perpendicularly from their stems, and these with care might form large trees. The planting of mulberry-trees was much encouraged by King James I., not so much for the fruit as for the rearing of silkworms; but that has never been successfully carried on in this country on a large scale.

M. alba, the White Mulberry, is a native of China, and of the north of India according to some authors; but in the latter, Dr. Royle states (*Botany of the Himalayan Mountains*, p. 387) that it is not found wild. It is said to have been unknown to the ancients, although some allusion is made to

its fruit in their writings. In the *Journal of the Horticultural Society* (ix. 170), it is mentioned that 'a variety of the White Mulberry, said to be delicious eating, but unknown in Europe, is now abundant in Beloochistan, Afghanistan, and probably in Persia, and apparently of very ancient cultivation there. It is therefore by no means impossible that some knowledge of it may have reached such of the ancient writers as may have been in the East or had communication with it.' It is commonly supposed that cuttings of the White Mulberry were first brought into Tuscany from the Levant, by Francesco Buonvicini, in 1434. In the following year a law for encouraging its cultivation was made in Italy; and in the course of the fifteenth century the White Mulberry had gradually, but entirely, superseded the Black as far as regards its cultivation for the feeding of silkworms, although for about two hundred years previously the Black Mulberry had supplied the food of the silkworms which produced the silk spun in Europe. The tree grows to the height of twenty or thirty feet, and has heart-shaped or ovate undivided or lobed serrated and rather glossy leaves. The fruit is white or pale red. The tree is of more rapid growth than the *M. nigra*, and its leaves contain more of the glutinous milky substance resembling caoutchouc which gives tenacity to silk produced by the worms which feed on them, and is found in all plants on which they exist. The White Mulberry and its varieties are more tender than the Black, which, as above stated, has withstood for more than three hundred years our severest winters; but not so the White, for in most winters its shoots are killed back more or less, and in less than thirty years the tree becomes very stunted. Hence without due precautions it could not be grown in this climate to supply food for silkworms. If cut down, however, like raspberry canes, the White Mulberry pushes again very rapidly, and if not constantly nipped almost in the bud, a profusion of leaves would soon be produced.

Herein, we suppose, must have lain the error by which a British Irish and Colonial Silk Company, formed in 1825, must have failed, independent of other adverse causes which may have existed. This company imported 50,000 White Mulberry trees from the south of France into Ireland, and soon afterwards 300,000 more. The speculation however, proved unsuccessful; though we know from experience that fine silk has been abundantly produced in Britain, the silkworms being fed on leaves of the Black Mulberry, those of the White Mulberry and its varieties, and of the Osage orange, being used as occasional substitutes. The deaths of the worms under such conditions have not been above three percent. In such a company the question of success would resolve itself into two heads:—1st, the proper management of the Mulberry plantations, which would be very easy; and 2ndly, the price of labour. The labour might be performed by otherwise unem-

ployed persons, at a rate, we suppose, remunerative to both employers and employed. Mulberry trees will grow almost anywhere, but their growth and the crops of leaves may be limited by injudicious gathering on their first pushing out. What then is to be done? The worms being hatched must be fed; but it is in our power to accelerate or retard the hatching. In our northern climate the eggs should be kept cool, so that they may not be hatched till the vegetation of the trees is sufficiently advanced to afford without injury a plentiful supply of food for the young worms. This observation may prove useful even to amateurs, who may have only a single mulberry tree on which to feed silkworms for amusement. A pound of silk is worth its weight in silver, and this pound may be produced from thirty pounds of mulberry leaves. This quantity may be obtained from a single tree, which might yield annually the essential material for sixteen yards of gros de Naples.

There are many varieties of *M. alba*, all of which may be utilised for feeding the silkworm; but that called *M. alba multicaulis* is, both in France and Italy, considered the best.

M. rubra is a native of America, and grows from forty to seventy feet in height. *M. tatarica*, a tree resembling the White Mulberry, bears reddish or pale fruit, which is not of good flavour, though made into a sweetmeat in Tartary. There are some other species, but those we have noticed are the most important; the Black more especially for its fruit, and for its leaves; and the White for its leaves chiefly, its fruit being of little estimation, although it also may be turned to account for feeding poultry. [R. T.]

MORVEN. (Fr.) *Juniperus phœnicea*.

MOSCHARIA. An erect annual from Chili, with the aspect of a *Sonchus*, but with a strong smell of musk, forming a genus of *Compositæ* of the tribe *Nassauviæ*. It is characterised chiefly by the involucre of five or six spreading leafy bracts, and by the pappus consisting of very short lanceolate ciliate chaffy scales.

MOSCHATEL. *Adoxa*.

MOSCHATOUS. Having the smell of musk.

MOSCHOSMA. A genus of labiates, having the calyx ovate, its upper tooth largest, the others smaller and nearly equal; and the style club-shaped, slightly two-lobed at the end. The species are herbs, natives of the East Indies, of Holland, or of Africa, and bear small flowers. The name bears allusion to the odour possessed by certain of them. [G. D.]

MOSESSE. A large alliance of cryptogams, consisting on the one hand of the Liverworts or *Hepaticæ*, and on the other of the true Mosses or *Musci*. Their grand technical distinction, however they may differ in habit, rests upon the fact that the archegonia and antheridia are produced upon

the perfect plant, and not upon some previous growth or prothallus; and that the act of impregnation produces a capsule, and not a new plant as in ferns and pseudoferns. The word Moss is applied popularly to many low tufted plants, whether phænogams or cryptogams. Small species of *Sedum*, for instance *S. anglicum*, are sometimes termed Mosses—of course merely on account of their habit. [M. J. B.]

MOSS, BLACK. *Tillandsia usneoides*; also called Spanish Moss, and Long Moss. —, BOG. *Sphagnum*. —, CANARY. *Parmelia perlata*, a lichen used for dyeing. —, CEYLON. The common name for *Plocaria candida*, which is imported from Ceylon with some other species. Its qualities are like those of Caragen. *Sphaerococcus lichenoides*, which is found on the southern coast of England as well as in the tropics, has much the same qualities, and has been prepared as a pickle and preserve, or an ingredient in soup, the requisites for such a use being delicacy of texture as well as other qualities. —, CORSICAN. A supposed vermifuge, once in some repute, but now almost exploded. If genuine, it should consist of *Gracilaria Helminthochorton*, one of the rose-spored *Alga*, but for this the common *Laurencia obtusa* is frequently substituted, and probably with no diminution of the real value of the sample. Many other species are mixed up with the true Corsican Moss, when that is really present. The notion of its virtues probably arose from the old doctrine of signatures, the cylindrical stems and branches bearing a fancied resemblance to a worm. —, CUP. The common name of *Cenomyce* (*Scyphophorus*) *pyxidata*, a lichen which grows abundantly on gravelly banks, rotten wood, &c., deriving its name from the cup-shaped processes to the margin of which the fruit is attached. It is still kept by the herbalists as a remedy for hooping-cough, though its virtues are probably quite imaginary. —, FILM. *Hymenostomum*. —, ICELAND. *Cetraria islandica*, a nutritious article of food: see CETRARIA. —, IDLE. An old name for various tree lichens, especially those which are pendulous. The epithet 'idle' seems to imply that they are barren and useless. —, IRISH. *Chondrus crispus*: see CARAGEN. —, JAFFNA. *Alcortia sarmentosa*, a dye lichen collected in Ceylon. —, LONG. *Tillandsia usneoides*. —, NECKLACE. A name especially applied to the form of *Usnea* in which the stem is cracked transversely so as to look like a strung necklace; but it is extended to other conditions. —, NEW ORLEANS. *Tillandsia usneoides*, or Black Moss. —, PEARL. *Chondrus crispus*. —, REIN-DEER. *Cenomyce rangiferina*. —, SCALE. *Jungermannia*. Scale Mosses is a term applied to the order *Jungermanniaceæ*. —, SPANISH. The commercial name of *Tillandsia usneoides*. —, SPLIT. *Andrea*.

MOSS-BERRY. *Oxycooccus palustris*.

MOSS-CROPS. *Eriophorum vaginatum*.

MOSTAHIBA. A hard Brazilian wood.

NOTE. The nut of the West African *Carepa guineensis*.

MOTHER-CELLS. Cells in which other cells are generated.

MOTHER-CLOVES. A name for the East for the fully expanded flower-buds of *Caryophyllus aromaticus*.

MOTHER-OF-THOUSANDS. *Linaria Cymbalaria*.

MOTHER-OF-THYME, or MOTHER-OF-TIME. *Thymus Serpyllum*.

MOTHER-OF-VINEGAR. The flocculent mycelium of various moulds (*Mucor*, *Penicillium*, &c.) which forms on the surface of vinegar.

MOTHERWORT. *Leonurus*; also *Arisaema vulgare*.

MOUCHERON. (Fr.) *Agaricus oreades*.

MOUCOU-MOUCOU. A Guiana name for the seeds of *Caladium arborescens*.

MOULDS. A name given popularly to the thread-like *Fungi* which prey upon our provisions, and which attack other substances, as gum, glue, ink, &c., living at their expense, and destroying their valuable properties. These, however, belong to two very different series, *Hyphomycetes* and *Phycomycetes*, which we must treat separately. Many of the Moulds are capable of sustaining life when immersed in fluids, contrary to the habit of most *Fungi*; and from their capability of appropriating what is nutritious, and rejecting what is hurtful, they are often developed in solutions of poisonous metallic salts, which would be fatal to *Fungi* in general. In a solution of sulphate of copper, for example, they become as it were electrotyped by the copper, while they appropriate the other elements. In such situations, moreover, they are often propagated by cells separated from the threads, which in their turn produce new cells; and therefore they are described as *Algae*, under various names. As their spores are often able to sustain a considerable degree of heat without destruction, they occur in situations where they would otherwise not be expected, as in preserved fruits which have been subjected to heat, and when there was no possibility of the access of fresh spores. Where there is any possibility of communication, there are few kinds of vegetable tissues which they cannot penetrate; and in animals, they occur in situations where they must, like intestinal worms, have worked their way through the tissues to the cavities in which they grow. They are amongst the most destructive agents in the production of disease, as is proved by the potato murrain. In the human frame they are the fruitful source of cutaneous disorders. [M. J. B.]

MOUNTAIN LAVER. A reddish gelatinous *Alga*, belonging to the genus *Palmella*, consisting of a roundish slightly

lobed frond, growing on the sides of mountains, after the fashion of the common *Nostoc*. It is used occasionally to purge calves. It was formerly called *Uva montana*, though it has little affinity with *Uva*. [M. J. B.]

MOUNTAIN-PRIDE, or MOUNTAIN-GREEN. A West Indian name for *Spathelia simplex*.

MOUNTAIN-SWEET. A Canadian name for *Ceanothus americanus*.

MOUREAU, MOURESIOLE, or MOURETTE. (Fr.) A kind of olive.

MOUREILLER. (Fr.) *Malpighia*.

MOURIRIACEÆ. A natural group of perigynous *Exogens*, now included in *Melastomaceæ*. *Mouriria* wants the marked ribs of *Melastoma*, and its leaves are very distinctly dotted.

MOURNING WIDOW. *Geranium phaeum*.

MOURON. (Fr.) *Anagallis*, especially *A. arvensis* and *cærulea*, also *Veronica Anagallis*. — **BLANC.** *Stellaria media*. — **D'EAU.** *Samolus Valerandi*. — **DES OISEAUX.** *Stellaria media*.

MOUSE-BANE. *Aconitum myoctonum*.

MOUSE-CHOP. *Mesembryanthemum murinum*.

MOUSE-EAR. *Hieracium Pilosella*; also *Cerastium vulgatum*. — **BASTARD.** *Hieracium Pseudo-Pilosella*.

MOUSETAIL. *Mygalurus*; also *Myosurus minimus*, and *Dendrobium Myosurus*.

MOUSE-THORN. *Centaurea myacantha*.

MOUSSACHE. (Fr.) Cassava starch.

MOUSSE DE CORSE. (Fr.) *Gracilaria Helminthochorton*. — **PERLÉE.** *Chondrus crispus*. — **TERRESTRE.** *Lycopodium clavatum*.

MOUSSELET. (Fr.) *Thlaspi perfoliatum*.

MOUSSONIA. A genus of *Gesneraceæ*, separated from *Gesnera*, and represented by *G. elongata*. It is known by its shrubby habit, by the short-limbed tubular corolla, whose tube is very slightly inflated, and by the presence of a thick sinuous ring at the base of the ovary, consisting of five nearly equal glands. The species are very ornamental and of free flowering habit. [T. M.]

MOUTAN. A name given to that section of *Pæonia* which contains the Tree Peony (*Pæonia Moutan*). This plant, which is sometimes separated as a distinct genus, differs from the other species in having the disk enormously developed, forming an irregular cup which envelopes the five carpels. The shrubby habit, so very rare among *Ranunculaceæ*, also separates it from the herbaceous *pæonies* destitute of the cup-like disk. *Moutan* (derived from *Mou-tang*, king of flowers) is the name by which the Tree Peony is known in China

and Japan, where it is a favourite garden flower. Its native place is said to be the north of China, on Mount Ho-an. In English gardens it seldom attains a greater height than from three to five feet; but in China it is reported to be sometimes ten feet high. The leaves resemble those of the herbaceous peonies, but are less leathery; the flower in the wild state is purple, but in cultivation white, pink, pale purple, and pale with purple or red spots occur. [J. T. B.]

MOUTARDE. (Fr.) *Sinapis*. — BÂ-TARDE. *Arabis*. — BÂTARDE DE MITHRIDATE. *Biscutella*. — DES CAPUCINS. *Cochlearia Armoracia*. — DES INDES, or ÉTRANGÈRE. *Cleome*. — DE HAIE. *Erysimum officinale*.

MOVING PLANT. *Desmodium gyrans*.

MOWHA. *Bassia latifolia*.

MOWLOO. An Indian name for *Dioscorea aculeata*.

MOWRA. A kind of arrack obtained from *Bassia latifolia*.

MOXA. A name applied to different substances used in surgery to produce a sore by means of slow combustion. The practice in some countries almost supercedes every other kind of medical treatment. One of the best substances for this purpose is amadou (*Polyporus fomentarius*). The Japan and China Moxa, however, is prepared from certain species of *Artemisia* (*A. Moxa chinensis*, &c.). In England, cotton-wool, and the pith of the sunflower, which contains nitrate of potash, are more frequently employed. Moxa is not, however, much used in this country, on account of the great pain it produces, and it does not appear that it has any compensating advantages over more speedy methods of producing the same effect on the skin and the underlying tissues. [M. J. B.]

MOXO-MOXO. A Bolivian name for *Eupatorium glutinosum*.

MUCEDINES. A natural order of hyphomycetous *Fungi*, containing those naked-spored moulds whose threads are never coated by a distinct membrane, and are mostly white or coloured. The common species of *Aspergillus* and *Penicillium* are well-known examples. It has been supposed that different species occur on bodies according as they are acid and alkaline, but this does not appear to be confirmed by the latest experiments. Their agency in fermentation will be mentioned under the article YEAST. It is very probable that more perfect observation will reduce many of the objects recognised at present as species to the condition of mere mycelia-bearing conidia. Such observations, however, require repetition, and are so liable to error that they must at first be received with considerable caution. [M. J. B.]

MUCIDOUS. Musty; smelling of mouldiness.

MUCOR. The typical genus of the mucorinous Moulds, characterised by a globose sporangium, into which the tip of the stem often enters in the guise of a clavate columella, and indefinite sporidia produced irregularly in the cavity. These spores are mostly elliptic; but sometimes, as in *M. fusiger*, a species with brownish threads produced not uncommonly on decaying agarics, the spores are much elongated and spindle-shaped. *M. Mucedo* is extremely common on fruit, and is believed to expedite its decay, which is true only when the surface is broken, or the cellular substance communicates with the outer air. *M. Phycomyces* is noticed in the article MUCORINI. The common species of *Mucor* have their part in the production of yeast. [M. J. B.]

MUCORINI. A natural order of physomycetous *Fungi*, analogous to *Mucedines*, which they resemble in habit, but producing their fruit within vesicles, and not externally. The sporidia arise sometimes indifferently in the sacs, without any especial point of attachment; but in *Acrostalagmus* they rise from the tips of the branches which penetrate the cysts. The bread mould is one of the most familiar examples, but the finest of all is that which grows in prodigious masses on grease, the walls of oil mills, and other unctuous situations. The threads when dry have a peculiar shining aspect, and a dark green colour; and the species, which is a true *Mucor*, was formerly assigned to *Algae*, under the name of *Phycomyces*. Several of the species bear two kinds of fruit on the same stem, both the sporidia and the sacs which contain them being different in size and character. Some, again, as *Acrostalagmus*, appear to assume two forms—an acocomycetous and a gymnomycetous. The latter must be considered either as bearing stylospores or male fruit. In one genus the cyst is formed after the combination of two branches, as in the conjugate *Algae*; and in *Endodromia* there is an active motion within the spores whose nature has not yet been ascertained. [M. J. B.]

MUCOUS, MUCOSE. Covered with a slimy secretion, or with a coat that is readily soluble in water, and becomes slimy.

MUCRO. A sharp terminal point.

MUCRONATE. Abruptly terminated by a hard short point; thus *mucronato-serratis* is when the serratures terminate in a hard short point.

MUCUNA. The plants of this genus are well known to travellers in tropical countries from the exceedingly annoying character of their seed-pods, which are thickly covered with stinging hairs easily detached by the slightest shake, and causing great irritation if they happen to fall upon exposed parts of the body. It belongs to the leguminous order, and consists of a considerable number of

species, mostly found in tropical Asia and America, eight in tropical Africa, and one in the Feejee Islands. All are twining or tall climbers, with trifoliate leaves, and long-stalked often pendulous racemes of large purple white or yellow flowers, rising singly or in clusters from gland-like swellings; they have a bell-shaped four-toothed calyx, papilionaceous corolla with the upper petal shorter than the rest and the keel curved upwards, and the stamens all united except the upper one. The pods are thick and leathery. *M. pruriens*, the pods of which afford the Cowage, or Cow-itch of the Materia Medica, a celebrated remedy for intestinal worms, is cosmopolitan in the tropics. These leathery pods are four or five inches long, shaped like the letter f, and clothed with a thick coating of short stiff brittle hairs of a bright brown colour, the points of which are notched or finely serrated, and cause intolerable itching, or even an eruption on the skin, which is allayed by the application of oil. Their beneficial effects when taken internally are due, it is said, to their mechanical or stinging action upon the worms; they are administered in treacle, syrup, or honey. [A. S.]

NUCUS. Gummy matter soluble in water.

MUDAR. *Calotropis gigantea*, and *C. procera*.

MUDWEED. *Helosciadium inundatum*.

MUDWORT. *Limosella*.

MUFLE DE VEAU. (Fr.) *Antirrhinum majus*.

MUFLIER. (Fr.) *Antirrhinum*. — **DE VEAU**, or **DES JARDINS.** *Antirrhinum majus*.

MUGGET. *Conrallaria mayalis*. — **PETTY.** *Galium verum*.

MUGHO. (Fr.) *Pinus Pumilio*.

MUGUET, or **M. DE MAI.** (Fr.) *Conrallaria mayalis*. — **DES BOIS**, or **PETITE.** *Asperula odorata*.

MUGWEED, GOLDEN. *Galium cruciatum*.

MUGWORT. *Artemisia vulgaris*. — **INDIAN.** *Artemisia hirsuta*. — **WEST INDIAN.** *Parthenium Hyptrophorus*.

MÜHLENBERGIA. A genus of Polygonaceæ from South America and Australia, consisting of twining shrubs or small trees, with the leaves often cordate or hastate at the base; and bearing axillary or terminal often paniculately branched spikes of polygamous flowers. The five lobes of the perianth are often unequal; — lens eight; styles three; nut three-angled. There are two subgenera — *Eumühlenbergia*, from South America, with simple stigmas; and *Sarcogonum*, from Australia, with plumose stigmas. [J. T. B.]

MÜHLENBERGIA. A genus of grasses

belonging to the tribe *Agrostideæ*, the inflorescence of which is generally in the form of light elegant panicles, which give the plants a handsome appearance. Steudel describes fifty species, a large portion of which are natives of South America and the Southern States. *M. Spica-renti*, better known as *Agrostis Spica-renti*, and sometimes referred to *Apera*, is a native of Britain, and a very beautiful grass. [D. M.]

MUHOOA, or **MUOHWA.** An Indian name for *Bassia latifolia*.

MUKKA, or **MUKVEE.** Hindustani names for Indian Corn or Maize.

MUKKI. An Indian name for Gamboge.

MULBERRY. *Morus*. — **AUSTRALIAN.** *Hedycarya Pseudo-Morus*. — **COMMON.** *Morus nigra*. — **DANDOLOS.** *Morus alba Morciana*. — **INDIAN.** *Morinda citrifolia*. — **NEW ZEALAND.** *Eutelea arborescens*. — **PAPER.** *Broussonetia papyrifera*. — **WHITE.** *Morus alba*.

MULDERA. A genus of Javanese shrubs belonging to the *Piperaceæ*, and named in honour of the celebrated Dutch chemist Mulder. They are either erect or climbing in habit, with stalked leathery ribbed leaves, and diœcious flowers on a slender spike, which ultimately becomes thickened. Each flower emerges from a fleshy cup, which is at first closed, but afterwards cleft transversely, and formed from a number of confluent bracts. The berries are large scattered reddish and very aromatic. [M. T. M.]

MULES. Plants obtained from the seeds of one plant fertilised by the pollen of some other species.

MULGEDIUM. A genus proposed by Cassini, and adopted by several modern botanists, for the blue-flowered species of *Sonchus*, which differ slightly from the yellow-flowered ones in the achenes tapering into a very short beak, and sometimes in the pappus not being so white. These differences, however, slight as they are, are not quite constant, and one of the pale blue American species has occasionally pale yellow flowers. Besides the *S. alpinus* and *S. Plumieri*, both very handsome species, common in several mountainous districts of continental Europe, six or seven species from North America or Northern Asia are referred to *Mulgedium*. The *S. alpinus* has been found in some of the Scotch Highlands, but is now become very rare there, or almost extinct.

MULINUM. A genus of umbellifers, distinguished by each half of the fruit being five-ribbed, the two intermediate ribs broad and wing-like. The species are natives of the Chilian Andes, and have entire or three to five-cleft leaves, and simple umbels of yellow flowers. [G. D.]

MULLEIN. *Verbascum*. — **GREAT TORCH.** *Verbascum Thapsus*. — **MOTH.** *Verbascum Bluttaria*. — **PETTY.** *Pri-*

mula veris. —, WHITE. *Verbascum Lych-nilla*.

MÜLLERA. A genus of *Leguminosæ* of the tribe *Daibergieæ*, founded on a tall woody climber from tropical America, with the pinnate leaves and racemose flowers of a *Lonchocarpus*, from which genus it only differs in the pod, which is thick, of a dry fleshy consistence, and either contracted between each seed so as to resemble a succession of large globular beads, or if reduced to a single seed the whole pod is nearly globular. The *Cyanobotrys* of Zuccarini, from Mexico, appears to be a second species of the same genus.

MULSARI. An Indian name for *Mimosa Elengi*.

MULT, MULTUS. In Latin compounds = many. Thus, *multifarius* or *multiserial* means in many rows; *multiflorous*, bearing many flowers; *multifoliate*, bearing many leaves, &c.

MULTICEPS. Having many crowns, as some roots.

MULTIFEROUS. Producing several times in one season.

MULTIFID. Cut halfway into many segments.

MULTIJUGOUS. Bearing a very considerable number of pairs of leaflets.

MULTIPLE. Composed of several distinct parts.

MULTISEPTATE. Divided by many stages into many chambers, as the pith of the walnut.

MULTISILIQUÆ. A natural order of plants, proposed by Linnæus, and the same as the order *Ranunculaceæ*.

MUNDIA. A genus of *Polygalaceæ*, containing only one variable species, *M. spinosa*, a native of South Africa. It is distinguished from allied genera by the fruit, which is a fleshy ovoid one or two-seeded drupe, eaten by birds and children. It is a spinous much-branched rigid shrub with oblong-obovate cuneate or linear thick glabrous leaves, and red or white flowers. A Brazilian plant, formerly referred here, is now called *Acanthocladus*. [J. Br.]

MUNDIKEI. The Malay name for the Water-Melon.

MUNDULI. An African name for *Ara-chis hypogæa*.

-MUNGALLI. An Indian name for *Ara-chis hypogæa*.

MUNJËT, or **MUNJËTH**. The commercial name for the Madder root, furnished by *Rubia cordifolia*.

MUNRONIA. A genus of *Meliaceæ*, inhabiting the East Indies, and consisting of erect shrubs, with imparipinnate glabrous leaves, and isolated axillary white flowers, emitting a delicious scent. The calyx is four or five-cleft; the corolla four or five-petaled; the stamens united into a tube or ten in number; and the capsule five-

valved and five-celled, containing two or often only one seed in each cell. [B. S.]

MUNTINGIA. A tree from tropical America, constituting a genus of *Tiliaceæ*, remarkable for the broad sessile stigma, and for the fruit, which is a globular berry containing a large number of small seeds immersed in pulp. In St. Domingo the wood is used for staves, and cords are made from its bast.

MURALTIA. A genus of *Polygalaceæ* consisting of about fifty species, all from South Africa. They are all small low much-branched shrubs or undershrubs, often rigid and scrubby, with alternate often stiff and needle-like leaves, and small flowers solitary in their axils. As a genus this is distinguished from *Polygala*, by the inner sepals being scarcely larger than the others, and by the capsule, which almost always terminates in four short points, horns, or protuberances. None of them are known to have useful properties.

MURUMURÛ. *Astrocaryum Murumuru*.

MURDANNIA. A genus of *Commelynaceæ*, founded on *Commalyna scapiflora*, an Indian herb, with ensiform root-leaves, and a branched scape bearing blue flowers. The perianth has the three outer leaves herbaceous, and the three inner larger and petaloid; there are six stamens with bearded filaments; the parallel anther-cells separated by a biclural connective, the alternate ones sterile. [J. T. S.]

MURET. (Fr.) *Cheiranthus Cheiri*.

MURICARIA. A genus of *Cruciferaæ*, forming a procumbent herb, growing in sandy places in Northern Africa, and having pinnatifid leaves, and terminal or lateral racemes of white flowers. The pouch is indehiscent, globose, with a short style, leathery and rough on the surface; the seed solitary, globose. [J. T. S.]

MURICATED. Furnished with numerous short hard excrescences.

MURICI. A Brazilian name for the bark of *Byrsonima*.

MURIER. (Fr.) *Morus*. — À PAPIER. *Broussonetia papyrifera*. — DE RENARD. *Rubus fruticosus*. — NAIN. *Rubus Chamaemorus*.

MURINUS. Mouse-coloured; grey, with a touch of red.

MURLINS. The Badderlocks, *Alaria esculenta*.

MURRAYA. A genus of *Aurantaceæ*, consisting of trees or shrubs, without spines, having pinnate leaves, and a terminal many-flowered cymose inflorescence. The flowers have a five-cleft calyx, oblong petals, ten free stamens, and one or two ovules. The fruit is succulent. With this genus Professor Oliver associates *Bergera*, there being too many transitional characters between the two to allow them to remain separate. The species are natives of India, Java, China, &c.; two of them with

white fragrant flowers, *M. exotica* and *M. pendulata*, are cultivated as stove plants in this country. The genus derives its name from John Adam Murray, Professor of Botany at Göttingen. (M. T. M.)

MURRAYA WOOD. Another name for Box-wood.

MURUCUJA. A genus of West Indian climbing shrubs, belonging to the *Passifloraceae*, and very closely related to *Passiflora*, but distinguished from it by the corolla or ray, which, in place of consisting of distinct thread-like segments, as in true passion-flowers, has them combined into a tube surrounding the stalked ovary. *M. oerfata*, the old *Passiflora Murucuja*, whose handsome scarlet flowers render it very attractive, is said to possess anthelmintic and diaphoretic qualities, and to be used in Jamaica as a narcotic. (M. T. M.)

MURTILLA. A Spanish name for *Eugenia Ugni*.

MURURA. *Victoria regia*.

MURUTE. A Cingalese name for *Lagerströmia regina*.

MUSACEÆ. (*Musæ, Musadæ*.) A natural order of petaloid monocotyledons, belonging to Lindley's anomalous alliance of Endogens. The plants have shoots proceeding from subterranean rootstocks, which form spurious stems, composed of the sheathing leafstalks; veins in the limb of the leaf parallel, and proceeding in a curved manner from the midrib to the margin; flowers bursting through spathes. Perianth six-cleft, adherent, in two whorls, more or less irregular; stamens six, some usually abortive, the anthers linear, introrse, often with a membranous petaloid crest; ovary inferior, three-celled, the ovules numerous; style simple; stigma usually three-lobed. Fruit either a three-celled capsule with loculicidal dehiscence, or succulent and indehiscent; seeds sometimes surrounded by hairs. They are natives of warm and tropical regions, and furnish a large supply of nutritious fruit, while their leaves afford valuable fibres. Spiral vessels abound in them. There are five genera, including *Musa* and *Strelitzia*, and a score or more of species. (J. H. B.)

MUSA. The typical genus of *Musaceæ*, consisting of a small number of noble herbaceous species, now found growing in the tropical and subtropical zones of both hemispheres. The true stem is small, but the sheaths of the leaves are very long, and closely compacted so as to form a kind of false stem, rising in some cases from twenty to thirty feet high. The blade of the leaf is large, oblong, with a very prominent midrib, from which smaller ones pass off at right angles. The flowers are borne on a long nodding spike, and are clustered together in groups, protected by large sometimes highly coloured bracts. The perianth is two-lipped, the lower lip consisting of five segments separated above, but partly united below, the upper lip con-

stating of a single concave segment; there are six stamens, one of which is abortive; and the ovary is inferior, three-celled, the ovules numerous, attached in two rows to the inner angle of each compartment of the ovary. The fruit is berry-like, with seeds imbedded in pulp.

M. paradisica and *M. sapientum* are the botanical names by which the Plantain and Banana are respectively known. The latter has its stems marked with purple spots, and its fruits are shorter and rounder than those of the Plantain, but otherwise the two plants are little different one from the other. They have been cultivated from the most remote times in tropical climates, in subtropical Asia, America, Africa, and the islands of the Atlantic and Pacific Oceans, for the sake of their fruits, which they produce in enormous quantities with very little attention. There are several varieties, the fruits of which differ in flavour, but all are more or less mawkish and viscid, at least in the ripe state, for the starch that abounds in the unripe fruit becomes converted, as it ripens, into mucilage and sugar. They are highly nutritious, and serve as the staple food of a large number of the human race. Though less nutritious than wheat or potatoes, yet the space occupied by their culture, and the care required, are so very much less, that Humboldt has calculated the produce of Bananas compared to that of wheat as 133 to 1, and to that of potatoes as 44 to 1.

Plantain meal is obtained by powdering the dried fruit; it is very nutritious, as it contains not only starch, but protein or flesh-forming material. The fruits of the Plantain are stated by chemists to be most nearly allied in composition and nutritive value to the potato, and the Plantain meal to rice. The natives of many parts of India live almost entirely on Plantains, and the stems, laden with fruit, are made use of at wedding festivities, in token of plenty. Plantations of Bananas or Plantains are made by settlers to support their families, and the fruits are eaten raw, or cooked in various ways. The expressed juice is in some countries made into a fermented liquor, and the young shoots eaten as a vegetable.

The specific name, *paradisica*, was given under the supposition that the fruits of the Plantain were the Forbidden Fruit of Scripture, or the fruits called Grapes that the spies brought to Moses from the Promised Land as evidence of its fertility; but it is hardly necessary to say that there is no foundation for such opinions.

When the stems are cut down, or decay after the formation of the fruit, new suckers are sent up from below, and these in the course of a few months produce fruit in their turn. Each bunch of fruit weighs from sixty to eighty pounds and upwards, even when ripened in both houses in this country. The abundance and nutritive properties of the fruit are not the only qualities which give these plants their value. Their leaves serve as thatch for houses, and for other domestic purposes; and

some parts are used medicinally in cases of dropsy, and as an external application to burns and ulcers.

The *Musae* are likewise remarkable for the quantity of fibrous tissue pervading their leafstalks, and which is capable of being employed for weaving purposes, for making paper, &c. One species, *M. textilis*, is especially valuable on this account. It furnishes what is known as Manila Hemp, the plant being cultivated in the Philippine Islands for the sake of its fibre, the finer kinds of which are woven into beautiful shawls, and the coarser employed in the manufacture of cordage for ships, &c. A very large supply of fibre, adapted for paper-making and other purposes, could be obtained at comparatively little cost from this and various species of Plantain.

Several species are cultivated in hothouses in this country for their foliage or for their fruit. *M. chinensis*, also called *Cecidanthus*, a dwarf species from China, produces fruit abundantly in our hothouses. *M. Ensete* is a native of Abyssinia, where it was discovered by the traveller Bruce. Its fruit is dry and inedible, containing a few large stony seeds; but the base of the flower-stalk is cooked and eaten by the natives. A plant of this species was for many years one of the chief ornaments in the palm-house at Kew, its leaves being upwards of twenty feet long, and traversed by a stout vivid red rib, while the trunk attained a circumference of nine feet in three years. It was remarked by Bruce, that on ancient Egyptian sculptures representations of Isis with ears of corn, and the foliage of the Banana occur, and sometimes carvings are met with showing the hippopotamus destroying the Banana. Now the true Banana is not a native of Egypt; hence Bruce surmised that the Abyssinian *Ensete* was intended. The hippopotamus typifies the Nile, the inundations of which have gone so far as to destroy not only the wheat, but also the *Ensete* which was to supply its place. [M. T. M.]

MUSADA. An Indian name for *Strychnos nux-tonica*.

MUSANGA. The name applied to a tree of western tropical Africa, which constitutes a genus of *Artocarpaceae*. It is nearly allied in habit and other characters to *Cecropia*, but its male flowers have each only one stamen, in place of two. The fruit is covered by the hardened perianth, and contains a single seed, which is eaten by the natives of Guinea. [M. T. M.]

MUSCADIER. (Fr.) *Myrtica*.

MUSCAIRE. (Fr.) *Moscharia*.

MUSCALES. The group or alliance of *Acrogens*, comprising the Mosses: which see; see also **MUSCUL**.

MUSCARDINE. A disease to which silkworms are subject, which derives its name from a little pastille to which the dead silkworms bear some resemblance. The malady is due to the agency of a mould, *Dactyris Bassiana*, which commences its

growth in the intestines, and gradually penetrates every part of the insect till life is destroyed. It is not confined to the larva, the pupa sometimes being affected after the cocoon is spun. Where a silkworm establishment is attacked by this formidable parasite, nothing except the greatest care and cleanliness will remove it. Every particle of dung, every withered leaf, every dead insect, must be carefully removed, and the walls washed with a solution of quicklime, or some other substance which may destroy the spores. It is of consequence, also, to avoid as much as possible all intercourse with other establishments in which disease exists. A few spores scattered over the leaves, and consumed by the enterpillars, will be sufficient to keep up the evil. [M. J. B.]

MUSCARI. Bulbous plants, with narrow leaves, and flowers in racemes at the end of a simple stalk, belonging to the lily-cinth tribe of *Liliaceae*, and natives of middle Europe and the Mediterranean region. The genus is known by the flowers having a tubular almost globose perianth, constricted at its very shortly six-toothed mouth; six stamens with very short slender filaments inserted into the perianth tube; and a short straight style, bearing a three-cornered papillose stigma. Its membranous acutely triquetrous three-celled capsules contain about two black seeds in each cell. [A. B.]

MUSCARIFORM. Formed like a brush or broom; that is to say, furnished with long hairs towards one end of a slender body, as the style and stigma of many composites.

MUSCARIUM. A collection of corymbose branches, such as are found in many *Asters*.

MUSCATEL. A choice kind of grape, dried on the vine, for fine table raisins.

MUSCI. An important tribe of cryptogams, comprising the Mosses proper, which stand apart from other cryptogams by their peculiar habit and fruit, with a very few exceptions only. Whether the axis is elongated or reduced to a mere point, the more or less pointed and lanceolate imbricated or distichous leaves, and ovate fruit opening horizontally by the separation of a terminal lid, and bearing one or more whorls of tooth-like processes at the orifice, in far the greater number, are at once distinctive. In a few exceptional cases the leaves are obtuse, the lid does not separate, the capsule opens by vertical valvular lobes, and the orifice is naked; yet even in these, the general habit and the nature of the fruit preclude all possibility of mistake.

The leaves of Mosses are destitute of stomata, but these organs are found not infrequently upon the capsules. Their colour is mostly green, though occasionally nearly white from the absence of endochrome in the outer cells. In a few instances the walls of the cells communicate with each

other by means of apertures, or contain a spiral thread. The cell walls of the stem occasionally exhibit scalariform marks or a spiral structure. The spores are generally numerous, and produce on germination a green conferva-like mass of threads, forming a thin felt. From this the plant springs immediately, and either on the same or on different individuals produces bundles of antheridia and archegonia. The antheridia produce spiral spermatozooids, which impregnate the embryo cell at the base of the archegonia. This by cell-division gives rise to a capsule, which swells, and in most cases is lifted up by a stem bursting the archegonium, which remains as a kind of hood or veil at the top of the capsule. The capsule in the space between the outer wall and the axis, which often forms a permanent columella, produces by cell-division the spores; and at the same time provision is made in most cases for the separation of a lid, and the gradual dispersal of the spores by the formation of one or more whorls of hygroscopic often brightly coloured teeth, which arise from a modification of the different layers of cells in the walls of the capsule. These teeth, when present, are either only four in number or multiples of four, and both in colour and structure afford beautiful microscopic objects.

The fruit in Mosses is either terminal (ACROCARPOUS) or lateral (PLEUROCARPOUS); and in the latter division a few produce fruit on short lateral branchlets (CLADOCARPOUS). The main sections are founded on these differences in the position of the fruit, but in a few instances the same genus has acrocarpous and pleurocarpous species.

Mosses are either annual or perennial. In the latter instance new branches are thrown out, which are called innovations. When dried, the leaves recover their original appearance completely if immersed in water. They require, however, in general, a good deal of moisture when in active growth. They are found in all parts of the world, and occur on mountains at heights where all phænogamic vegetation ceases. A few species occur in amber. They perhaps yield fewer objects of utility to man than any other division of plants, except those of the same alliance. In agriculture and in the garden, though of small size, they are often noxious weeds. [M. J. B.]

MUSCOLOGY. That part of botany which treats of Mosses.

MUSHROOM. A term applied sometimes collectively to certain of the larger *Fungi*, but more usually restricted to *Agaricus campestris*, and the species confounded with it. If the use of mushrooms as food were, however, restricted to that species as it occurs in our pastures, a very small quantity would be consumed comparatively, our market being largely supplied with coarser species. A vast quantity, moreover, are raised artificially, and may be had at almost any season of the year, though their price is necessarily high.

The common Mushroom appears to depend greatly upon the prevalence of the horse. Mushrooms, at least, can be raised with a great degree of certainty from horse droppings, properly prepared, without the admixture of any artificially raised spawn. The manure of the riding school at Belvoir, where the straw is pounded down into minute fragments, gives a constant supply. There is no doubt that *A. campestris* is preferable to any of the allied species, but it is not to be supposed that it is the only one that is wholesome. Indeed it is rejected from many Italian markets, where species of more suspicious character are allowed to pass muster. Further information will be found under HORSE MUSHROOM, KETCHUP, &c. —, HEDGE. The common name of a large form of *Agaricus arvensis*, which is finely figured at tab. 77 of Mrs. Huxsey's *Illustrations of British Mycology*. The pileus is sometimes as much as fourteen inches across, and of a tawny yellow, with rich brown closely pressed concentric scales. The flesh turns yellow when salted. The gills are at first white, then pallid red without admixture of grey, and at length purple-brown. The stem is more or less bulbous, and stuffed with shining fibres, scaly below, with a thin broad ring above. It grows under trees, or on banks near water, always more or less tufted, and never occurring in rings. The Hedge Mushroom is recommended by Mrs. Huxsey for ketchup, but eaten in substance, she says, it produces violent sickness. Cases of mischief from eating Mushrooms are generally traceable to this peculiar form. —, MITRE. *Helvella crispa*, —, OX. A name given to a large variety of the true Mushroom, *Agaricus campestris*, which measures sometimes fifteen inches across, with a proportionately stout stem. The pileus is rough with scales, which are at first white, and then tawny or reddish-brown. The gills are quite free, leaving a groove round the top of the stem, which takes a vinous hue when bruised. The smell is powerful, but agreeable. No part of the plant turns yellow. We have seen this variety in enormous rings many yards in diameter. It is perfectly wholesome, and has a fine flavour. [M. J. B.]

MUSHROOMS, POISONOUS. As so many accidents occur from the use of *Fungi*, we are often asked for some general characters by which the bad may be distinguished from the good. It is impossible, however, to give any satisfactory answer, and we must therefore trust to experience, without which, indeed, we should be subject every day to trouble in respect to other objects of use. The Field Mushroom assumes so many forms that it is impossible to assign any characters which shall embrace all, and the hotbed Mushroom is different from these. The bright rose tint of the gills, and the absence of any yellow stain when bruised, are the surest indications. The test of a silver spoon is fallacious. As a general rule, no one would eat *Fungi* which have a revolting smell, and if they

leave, when tasted, a hot sensation in the mouth and throat, they should be used with caution. *Hydnum repandum*, however, and *Cantharellus cibarius* are both acrid, and yet are excellent articles of food. It is a good practice with such species to slice them into hot water, and press the slices in a cloth before stewing.

In general, we would suggest as to the use of *Fungi*, that they should be eaten with moderation, and with plenty of bread to secure sufficient maceration. In case of accident, a strong mustard emetic should be taken immediately, and medical advice called in. The narcotic symptoms, and attendant inflammation of the intestines, are too grave to be trifled with by domestic medicine. If, however, medical aid is not at hand, the system must be kept up with chloric ether, brandy, or other stimulants; and if diarrhoea and painful colic, as often happens, are urgent symptoms, opium must be given freely. The narcotic symptoms, except from the use of such *Fungi* as the Fly Agaric, are seldom predominant. [M. J. B.]

MUSK. *Mimulus moschatus*; also *Erodium moschatum*.

MUSKROOT. The Sumbul root, derived from *Eryngium Sumbul*. Also the Spikenard, *Aspidiotachys Satumanis*; and *Adoxa Moschatellina*.

MUSK-SEED. The seeds of *Abelmoschus moschatus*.

MUSK-TREE. *Eurybia argophylla*.

MUSK-WOOD of Jamaica. *Moschoxylin Swartzii*; also *Guarea Swartzii*. — of New South Wales and Tasmania. *Eurybia argophylla*.

MUSOOR, or MUSSOOR. Indian names for *Eryum Lens* and *E. hirsutum*.

MUSQUAMEENA. A native American name for *Cornus circinata*.

MUSQUASH-ROOT. An American name for *Cicuta maculata*; also *Claytonia acutiflora*.

MUSSEËNDA. A genus of *Cinchonaceæ*, deriving its name from the word applied by the Chinese to some of the species. It consists of shrubs, natives of tropical countries, but not of common occurrence in America. The flowers are arranged in terminal corymbs, and have a five-parted calyx, one of the segments of which is occasionally extended into a large white leaf; a funnel-shaped corolla, with a five-parted limb and hairy throat; and five sessile anthers concealed within the tube of the corolla. The fruit is succulent and two-celled, with the placenta stalked and curved, so as to resemble a Burgundian cross.

Several species are in cultivation, the best known being *M. frondosa*, whose yellow flowers, contrasted with the white calycine leaf, give it a singular and pretty appearance. All the flowers do not produce this leaf-like sepal, but two or three in each corymb, and occasionally two sepals

are thus developed. The venation differs in these from that of the stem leaves, for while the latter have a midrib and a network of smaller veins, the dilated sepals have several veins of about equal size, proceeding from the base towards the apex, where they converge. This might be cited in support of Dr. Dresser's notion, that the sepals, &c., should, in many cases at least, be considered as modifications rather of the leafstalk than of the leaf itself. The bark and leaves of some of the species are esteemed as tonics and febrifuges in the Mauritius, where they are known as Wild Cinchona. Elsewhere the leaves and flowers are used as diuretics and expectorants, while in India the juice of the leaves and fruit is said to be used as an eyewash. [M. T. M.]

MUSCHIA. A genus of bellworts, distinguished by its corolla being deeply five-cleft; by the filaments of the stamens being broad below and smooth; and by the capsule being five-celled, opening by several transverse fissures. Two species are known. *M. aurea* is a small glaucous shrub, a native of Madeira and Teneriffe, and has large handsome yellow flowers. The genus was named in honour of M. Musche, a French botanist. [G. D.]

MUSTARD. *Sinapis*. —, **BASTARD.** *Cleome*. —, **BLACK.** *Sinapis nigra*. —, **BOWYER'S.** *Lepidium ruderale*. —, **BUCKLER.** The common name for *Biscutella*; also applied to *Clypeola Jonthlaspi*. —, **GARLIC.** *Erysimum Althæa*. —, **HEDGE.** *Erysimum*. —, **MITHRIDATE.** *Thlaspi arvense*. —, **TREACLE.** *Clypeola*. —, **TOWEL.** *Turritis*; also *Arabis Turrita*. —, **WHITE.** *Sinapis alba*. —, **WILD.** *Sinapis arvensis*.

MUSTARD-TREE of Scripture. *Salvadora persica*; or by some regarded as a species of *Sinapis*.

MUTABILIS. Changeable in colour or in form.

MUTHAR, MUTTER, or MUTTIR. Indian names for Peas, *Pisum sativum*.

MUTIANA. The Mozambique name of a tree which produces Vegetable wax.

MUTICOUS. Pointless. A word employed in contradistinction to some other term indicating being pointed; thus, if, in contrasting two things, one is said to be mucronate, the other, if it had not a mucro, would be called muticous; and the same term would be equally employed in contrast with cuspidate or aristate, or any such. It is also used absolutely.

MUTISIACEÆ. A division of the *Compositæ*, included in the two-lipped suborder *Labatifloræ*, and further distinguished by its cylindrical or somewhat tumid style, the arms of which are usually blunt or truncate, convex on the outside. [J. H. B.]

MUTISIA. A genus of *Compositæ* which gives its name to the tribe *Mutisiceæ*, characterised by their irregular florets, most

of them more or less two-lipped. The genus consists of undershrubs or climbers, with alternate entire or pinnately divided leaves, often terminating in a tendril, and solitary terminal pedunculate flower-heads. The involucre, usually cylindrical, has broad imbricated scales, the receptacle naked, the florets of the disk slightly irregular, with long exserted anthers furnished at the base with long points or tails, those of the ray female and more distinctly labiate. The pappus consists of long feathery bristles. There are above thirty species, natives of South America, and the greater number confined to the Andes of the West and especially of Chili. Many of the species with purple pink or yellow flowers, are highly ornamental.

MUTTY-PAL. A resinous exudation from *Ailanthus malabaricus*.

MYAGRUM. A genus of *Cruciferae*, consisting of erect glabrous annuals, growing in sandy fields in South-eastern Europe. The stem leaves are arrow-shaped and embracing; and the racemes elongate, spike-like, with small pale yellowish flowers. The pouch is indeliscent, of a corky texture, compressed at the apex and attenuated at the base, one-seeded. [J. T. S.]

MYALL-WOOD. The violet-scented wood of *Acacia homalophylla*, and other species.

MYANTHUS. A spurious genus of orchids, now reduced to *Catasetum*, plants having been found, as already mentioned under *MONACHANTHUS*, bearing flowers of the three supposed genera on one spike. As a section it is distinguished by having the two cirrhi at the base of the column, instead of its apex as in *Catasetum*. [A. B.]

MYCELIUM. A word equivalent to spawn, denoting the vegetative part of *Fungi*, the greater portion of what most readily attracts notice being frequently merely the fructification. The vegetative part of a mushroom, for instance, is represented by the delicate white down and strings which traverse the soil; the fruit is the stem, pileus, and gills, which we call the mushroom. The mycelium of *Fungi* is sometimes filamentous, sometimes cellular, and has received different names in different families. The mould-like web of *Sphaeria aquila* has not, however, more title to notice than the indistinct apparently scarcely organised stain of which the spawn of *Sphaeria pulvis pyris* consists. In those cases, however, which are apparently so obscure, if a thin slice of the matrix be submitted to the microscope, delicate threads will be found penetrating the tissues in every direction.

As the spawn of *Fungi* assumes various forms, and may be dry or moist, fleshy or filamentous, friable or gelatinous, and as it frequently remains for a long time dormant without producing fruit, a number of spurious genera, as *Himantia*, *Rhizomorpha*, &c., have been introduced into systems, which it has taken the labour of years to eradicate. Occasionally the spawn

bears a kind of fruit, which has tended to make a correct estimation of its nature more difficult. The spawn of *Sphaeria Desmazierii*, for instance, in the absence of the capsules, might be taken for a true mould. Spawn may be either annual or perennial. In the latter case it may 'run' for years without bearing fruit, till a favourable season occurs, a fact which will account for the apparently capricious growth of many species.

The spawn of our common mushroom is raised artificially for sale by nurserymen. Many attempts have been made to prepare the spawn of truffles, but they have as yet been unsuccessful. The introduction of the spawn of valuable varieties of mushroom will, we have no doubt, some day cause a considerable change in the produce of the mushroom bed. [M. J. B.]

MYCETALES. An important alliance of cryptogams, consisting of *Fungi* and lichens, which are so closely allied, and so distinct from other cryptogams, that in any natural arrangement they must be placed in one section. They derive nutriment either from the matrix on which they grow, as *Fungi*, or from the surrounding air, as lichens. *Algae* are distinguished by their deriving nourishment by their whole surface from the water in which they are submerged. There are, however, exceptions in either case, and though there is seldom the slightest difficulty in determining the alliance to which each particular object belongs, it is almost impossible to draw up satisfactory general characters from fruit or structure. Both lichens and *Fungi* produce a distinct spawn or mycelium, whereas in *Algae* the new plant arises at once from the spore. [M. J. B.]

MYCINA. Such a shield as occurs in the genus *Baomyces* among lichens.

MYCODERMA. A spurious genus, assigned sometimes to *Fungi*, sometimes to *Algae*, consisting of a peculiar condition of certain moulds when developed in liquids. Common yeast is an example. [M. J. B.]

MYCOLOGY. A name derived from two Greek words importing a knowledge of *Fungi*. It is equivalent to the barbarous word *Fungology*, which, like *Muscology*, has been retained sometimes as a good selling title, with a full sense of its incorrectness. Though *Mycology* in the first instance regards simply the classification of *Fungi*, no truly scientific man will be content without ascertaining in some measure the properties of the subjects of his investigation. We consider ourselves bound, therefore, in the present volume, to bring forward more particularly those species into notice which have some economical value, or which are to be avoided as dangerous. [M. J. B.]

MYGALURUS. A genus of grasses belonging to the tribe *Pectuceae*, now included in the section *Vulpia* of *Pennisetum* itself. *P. vaginatum*, or *Mygalurus vaginatus*, is a small annual grass, which generally grows

among sandhills near the sea, and flowers early in the season, before most other kinds of grasses. It is scarcely of any agricultural value, though rather interesting botanically. [D. M.]

MYGINDA. A genus of *Celastraceae*, differing from *Myrsine* chiefly in its leaves being usually opposite, and in its inflorescence; and from *Elaeodendron* and its allies in the ovules being always solitary in each cell of the ovary. It consists of about eight species, from various parts of South America: shrubs with usually small leaves, and minute flowers either solitary or in cymes on axillary peduncles, which are often very short.

MYLITTA. A curious genus of underground *Fungi* supposed to be allied to the real truffles, but whose affinities are uncertain, as the fruit has not yet been found in a perfect state. *M. australis*, the Native Bread of Australia, is a large subglobose fungus, sometimes many inches in diameter, with a black skin which chips off in little fragments, enclosing a veined white mass, which at first is soft, and has a peculiar acid smell, but when dry becomes extremely hard and horny. It is eaten by the natives, and is probably very nutritious. The other species are either spurious or belong to different genera. [M. J. B.]

MYOGALUM. A genus of *Liliaceae*, of which *Ornithogalum nutans* is the type. It differs from *Ornithogalum* by having the leaves of the perianth connivent in the shape of a bell; in the stamens having broader filaments, almost resembling petals, and having two lobes at the apex, between which is the anther; and in the capsule being more fleshy than in *Ornithogalum* proper. *M. villosus* is a European plant which occurs but rarely in England; it has a loose raceme of large green and white flowers. [J. T. S.]

MYOPORACEÆ (*Myoporinae*, *Myoporadæ*) A group of corollifloral dicotyledons, belonging to Lindley's echioid alliance of perigynous Exogens, but of doubtful ordinal value. Smoothish shrubs, with simple exstipulate leaves often covered with transparent glands, and bractless flowers. Calyx five-parted, persistent; corolla gamopetalous, hypogynous, more or less two-lipped; stamens four, didynamous; ovary two to four-celled, the cells one to two-seeded; ovules pendulous; style one. Fruit a drupe, or dry and two to four-celled. Natives chiefly of Australia, some occurring in the warm parts of South America. Some botanists consider the order as a division of *Verbenaceae*. *Myoporum* is the most familiar amongst the few genera, which contain about fifty species. [J. H. B.]

MYOPORUM. The typical genus of *Myoporaceae*, containing upwards of thirteen species of shrubs, chiefly from Australia. They have alternate rarely opposite entire or serrated leaves, and white or rarely purple flowers on axillary peduncles, which are either solitary, in pairs, or in fascicles. The

branches and young leaves are viscid. The calyx is five-parted, sometimes a little enlarged around the fruit, the corolla campanulate, with a short tube and unequally five-lobed limb, the four stamens are scarcely didynamous; and the ovary is two-celled, or frequently, by the reduplication of the margins of the carpels, four-celled, with a single ovule in each cell. The fruit is a baccate drupe. [W. C.]

MYOSOTIDIUM. A genus of *Borraginaceae*, from the Chatham Islands off New Zealand, with the habit of *Myosotis*, but the ovary is like that of *Cynoglossum*, and the mature nuts are winged like those of *Omphalodes*; the wing, however, is not introflexed, and the nuts adhere to the receptacle and are not attached to the style. The root-leaves are ovate, stalked, about as large as those of a small cabbage, the upper ones much smaller and sessile, and all glabrous and shining. The flowers are large, purplish-blue, in scorpioid racemes, arranged in a corymb, and having a five-parted calyx, and a salver-shaped corolla with a very short tube, the throat of which is closed by five scales. Nuts smooth, with undulated wings. [J. T. S.]

MYOSOTIS. The Forget-me-not or Scorpion-grass genus, belonging to the *Borraginaceae*, and comprising numerous European and Northern Asiatic, a few North American, and three or four Australian species. It is distinguished by its five-parted or five-cleft calyx; by its straight-tubed corolla with five spreading flat or concave contorted lobes, and the throat closed by five short convolving scales; and by its smooth and shining compressed nuckles, which are not perforated at their narrow base. They are more or less erect herbs, of small size, with rather rigid spreading or adpressed hairs; stalked root-leaves, shorter and broader than those of the stem; and scorpioid racemes of smallish blue rose or white flowers, sometimes with yellow eyes. The name of the genus is derived from two Greek words signifying mouse-ear, in allusion to the shape and hairiness of the leaves of some species, five of which are natives of this country. Of these *M. palustris* is the plant now known as Forget-me-not. [A. S.]

MYOSURUS. A minute plant belonging to the *Ranunculaceae*, and well marked by having its seeds arranged on a long columnar receptacle, so as to produce no very fanciful resemblance to a mouse's tail, whence its name. *M. minimus*, or Mouse-tail, the best known species, rarely attains more than three or four inches in height, and bears a few linear spatulate leaves and leafless stalks terminating in a small greenish flower. It grows most frequently among corn, in a chalky or gravelly soil, but is often overlooked in consequence of its small size. French, *Queue de Souris*; German, *Müseschwänzchen*. [C. A. J.]

MYSE. *Brassica Rapa*.

MYRIACTIS. A genus of erect branching herbs of little beauty, belonging to the

composite family. They have ovate or lance-shaped coarsely-toothed leaves, and daisy-like flower-heads, disposed in a pincled manner at the end of the stem. The achenes are compressed and naked, or tipped with a coriiform pappus. There are five species, all found in India, and one common also to Persia. [A. A. B.]

MYRIANGIUM. A genus of gelatinous lichens, which was found about the same time in Australia and Algeria, and has since been met with in the Channel Islands and the United States. The aca are broad and packed irregularly, and not parallel to each other as in most lichens, on which account principally Nylander considers it as belonging to a distinct tribe. They appear to grow constantly on the living bark of trees, especially ash. In the two original species the fructification is capsular, or closed with a veil; but in *M. Ourisii* the disk is exposed. [M. J. B.]

MYRIANTHUS. The name of a tree of tropical Africa, constituting a genus of *Artocarpaceae*. The leaves are digitate; the male flowers borne on thick branching receptacles, somewhat like those of *Ilex*; and the perianth four-parted, containing four stamens united at their base. The fruit is fleshy, and consists of several ovaries fused together. [M. T. M.]

MYRICA. By some botanists *Myrica*, *Comptonia*, and *Clarisia*, or in fact the whole of the plants of the order *Myricaceae*, are combined into a single genus. The first of these, the Linnean genus *Myrica*, is technically distinguished from the two latter by its stamens being four to eight in number, as well as by the hypogynous scales of its female flowers, regarded by some as a perianth, being sessile and having no glands inside. Representatives of the genus are found widely scattered over the temperate regions of both hemispheres, in North America, at the Cape of Good Hope, in Northern India, China, and Japan; and in Europe we have *M. Gale*, the Sweet Gale or Bog Myrtle, and the badge of the Campbells. They also occur within the tropics in South America, but are there confined to the cool mountainous regions. Most of the species are shrubs, but some grow into small trees; and they are mostly abundantly furnished with glands and dots filled with aromatic secretions, whence arises the fragrance for which they are noted. Their leaves are simple, and their flowers, of separate sexes, in catkins, borne generally on distinct plants. The fruits are nuts or drupes, often of small size, covered all over with a thickish coating of a waxy resinous secretion. Hence arises the chief economic value of the genus; for in the countries where the plants abound the fruits are largely collected, and when properly treated yield an abundance of excellent wax, from which very tolerable candles are manufactured. [A. B.]

MYRICACEÆ. (*Galecoria*.) A natural order of monochlamydeous dicotyledons, belonging to Lindley's amental alliance of

diclinous Exogens. Shrubs or small trees with resinous glands, alternate leaves, and unisexual flowers. They have no perianth; stamens two to eight, the anthers two to four-celled; ovary one-celled, with hypogynous scales, the ovules solitary, and orthotropical. Fruit drupaceous, often covered with wax, and with adherent fleshy scales. They inhabit temperate and tropical countries, and have aromatic, tonic, and astringent properties. [J. H. B.]

MYRICARIA. A genus separated from *Tamarix*, and containing those plants of the order *Tamaricaceae* which have ten stamens, and feathery seeds inserted in the middle of the valves of the capsule. *M. germanica* is a shrub from six to eight feet high, with very narrow flat leaves, and spikes of pink flowers, indigenous throughout most parts of Europe and the Caucasus. There are several other species, some shrubby, some herbaceous, but none possess any particular interest. [C. A. J.]

MYRIOCARPA. A genus of *Ericaceae*, consisting of half a dozen trees or shrubs, from the hotter regions of the Andes of America, remarkable for their exceedingly long and slender pendulous racemes or spikes, along which are arranged hundreds of minute green flowers.

MYRIOMELES. A name given by Lindley to an East Indian evergreen shrub, more generally considered as forming a section of *Photinia*.

MYRIOPHYLLUM. A genus of aquatic or marsh herbs, belonging to *Eutrochiaceae*, and characterised by the truncate or toothed calyx, two to four petals (sometimes absent), two to eight stamens, and the two or four obtuse or plumose stigmas. There are fifteen species, which are widely distributed throughout the world, as well in cold as in tropical countries. The flowers are unisexual, small, and inconspicuous, axillary, solitary, or spiked. The leaves, which are feathery or pinnate, are opposite alternate or whorled. There are three British species, which are called Water Milfoil; they are generally distributed, the commonest being *M. verticillatum*. [J. Br.]

MYRIOPTERIS. *Cheilanthes*.

MYRIOTHECA. *Marattia*.

MYRISTICACEÆ. (*Myristiceae*, *Nutmegs*.) A natural order of monochlamydeous dicotyledons, belonging to Lindley's mesispermial alliance of diclinous Exogens. They are trees with alternate exstipulate entire not dotted leaves. Flowers unisexual; perianth trifid, rarely quadrifid, in the females deciduous; stamens three to twelve, the filaments combined into a cylinder; ovary free, composed of one or more carpels, one-celled, the ovule solitary erect, the stigma somewhat lobed. Fruit succulent, one-celled, two-valved; seed solitary, usually covered by a laciniated arillus; embryo small, at the base of rudimental albumen; cotyledons foliaceous. Natives of the tropical regions of Asia and America. Acridity

and aromatic fragrance are the properties of the order.

[J. H. B.]

MYRISTICA. A genus of plants remarkable as furnishing the Nutmeg and Mace of commerce. It belongs to the *Myristicaceæ*, and consists of lofty trees or shrubs, natives of tropical countries, and especially of India. They are most of them aromatic, and abound in a reddish acrid juice. The leaves are entire; the flowers dioecious, very small, clustered in the axils of the leaves, or sometimes in panicles. The perianth consists of three or four segments, more or less united together, and enclosing a variable number of stamens, which are united into one parcel below. The ovary is free, with a single inverted ovule. The fruit is fleshy, but divides when ripe into two pieces, disclosing the seed covered by the arilode or mace.

M. moschata, or *M. officinalis*, is largely cultivated in the Molucca Islands, Java, Sumatra, Bengal, &c. It is a tree of twenty to twenty-five feet in height, with oblong aromatic leaves, and fruit very much like a peach, having a longitudinal groove on one side, and bursting into two pieces, when the enclosed seed, covered by the false aril or arilode, which constitutes the substance known as Mace, is exposed. The seed itself has a thick hard outer shell, which may be removed when dry, and which encloses the nucleus of the seed, the Nutmeg of the shops. The nutmeg consists of the albumen or perisperm, with the embryo at one end, and is covered by a thin membrane, which adheres closely to its surface, and projects into the substance of the albumen, thereby giving it the mottled appearance for which it is so remarkable.

In the Banda Isles, the principal seat of the cultivation of the Nutmeg, the fruits are gathered at three seasons, July, November, and March or April. The mace, which at first is of a beautiful crimson colour, is dried in the sun, or by artificial heat if the weather be unfavourable, when it speedily assumes a golden-yellow colour. The nutmegs are dried, and then the outer shell of the seed is removed. Occasionally they are imported in the shell, a procedure which prevents the ravages of the nutmeg insect, but on the other hand adds considerably to the weight and to the waste. The nuts are sometimes washed over with lime to protect them from the attacks of the insect just mentioned. Several kinds of nutmegs are met with in commerce, perhaps the produce of as many different species. The most esteemed are those of Penang, which are about an inch in length, of the shape of a damson, pale-brown and furrowed on the exterior, internally grey with red veins, the odour and taste aromatic. Penang mace is also considered better than that from Java or Singapore, and is of a pale cinnamon colour when dry. Maces and nutmegs are in large use as spices, and medicinally as stimulants and carminatives; in large doses they have narcotic properties.

At one time the culture of nutmegs was

almost entirely in the hands of the Dutch, who took every means to monopolise the growth of the plants, in which they were in a measure defeated by a kind of pigeon, which, extracting the nutmeg from its pulpy covering, digests the mace, and voids the nutmeg uninjured. It is related that the Dutch used to burn nutmegs when the crops were too abundant, in order to keep up high prices. Old ladies in the country, to this day, keep a nutmeg in their pocket, as was customary in their younger days, when the effects of the war with France, and of the Dutch monopoly, rendered all spices very expensive. *M. fatua*, *Otoba*, *tomentosa*, *spuria*, *acuminata*, and other species, yield nutmegs in Brazil, in the Philippine Islands, and in Madagascar. The produce of some of these, especially of *M. fatua*, finds its way into the English market under the name of Long or Wild Nutmegs; they are longer and more pointed and of inferior quality to the true Penang nutmeg. Nutmegs contain both a fixed and a volatile oil; the former is extracted by pressure, and forms what is called butter of mace; the latter is obtained by distillation. Nutmegs are occasionally sent into the market



Myristica moschata.

after the oil has been distilled from them, and in a comparatively valueless condition. The French are said to have various ingenious methods of dressing up inferior nutmegs to resemble good ones, and even to fabricate artificial nutmegs of bran, clay, and the powder of nutmegs. [M. T. M.]

MYRMECODIA. A genus of cinchonaceous shrubs, natives of the Molucca Islands. They are epiphytes with a tuberous stock, whence issue a few short fleshy branches. The leaves are stalked; the stipules peltate, ciliated; the flowers axillary sessile, with an undivided calyx, and a funnel-shaped corolla; the latter has a four-lobed limb, and hairy throat, into which the four very short stamens are inserted. The fruit is succulent, surmounted by the calyx, four-celled, four-seeded. [M. T. M.]

MYROBALANÆ. A natural group of dicotyledonous plants, now included in the *Combretaceæ*.

MYROBALAN. *Terminalia*. —, **BASTARD**, or **BELLERIC**. The fruit of *Terminalia Bellerica*. —, **OHEBULIC**. *Terminalia Chebulu*. —, **CITRINE**. *Terminalia citrina*. —, **EMBLIC**. The fruit of *Emblia officinalis*. —, **INDIAN**. The small unripe fruit of *Terminalia citrina*.

MYRODIA. A genus of *Sterculiaceæ* of the tribe *Helicteree*, consisting of South American trees or shrubs often aromatic, with alternate entire or scarcely toothed leaves, and white flowers, not large for the order, usually solitary on short peduncles opposite the leaves. They have an obconical three to five-toothed calyx, five petals, ten to fifteen two-celled anthers sessile at the top of the column on the outside, and a two or three-celled ovary sessile within the base of the column. The fruit is dry and indehiscent, containing one or two seeds. There are about seven species, of which no particular properties are recorded, except that, in common with others of the family, the mucilaginous roots may be used medicinally. Some botanists have united the genus with *Quararibea*, which, however, has very different anthers and belongs to the tribe *Bombaceæ*.

MYROSPERMUM. This name, given in consequence of the myrrh-like odour of the seeds, is applied to a genus of tropical American trees or shrubs, of the family *Leguminosæ*. The leaves are unequally pinnate, and marked with pellucid dots. The flowers are white or rose-coloured in axil-



Myropernum peruliferum.

lary or terminal clusters; they have a bell-shaped five-toothed calyx, a papilionaceous corolla, ten distinct stamens, a stalked ovary, and a thread-like lateral style. The fruit is indehiscent, with one or two seeds, and is borne on a stalk, the upper part of which is winged.

M. Pareira, a tree found growing in Central America, yields the drug known as Balsam of Peru. This is procured by making incisions into the bark, thrusting cotton rags into the

wound, and lighting a fire round the tree to liquify the balsam. When the rags are saturated, they are boiled in water, and as the water cools, the balsam collects below. (*Pereira*.)

Balsam of Peru is a thick treacly-looking liquid, with a fragrant aromatic smell and taste. It has been used in chronic coughs, and as an application to ulcers, but is now rarely employed. Balsam of Tolu is a product of a similar character, derived from *M. toluiferum*. It is at first soft, but becomes hard and brittle by exposure. It is used for like purposes as the Balsam of Peru, and in the manufacture of pastilles, &c. [M. T. M.]

MYRRH. A aromatic medicinal gum-resin yielded by *Balsamodendron Myrrha*; also the common name of *Myrrha*. —, **FALSE**. *Ammyris cinnamifera*, also called *Balsamodendron Roxburghii*.

MYRRHIS. A genus of umbellifers, having each half of the fruit with five equal sharp ribs, and no oil-vessels. The species are hairy odoriferous herbs. One of them, *M. odorata*, is a well-known plant, often cultivated and used in various ways. The name is from the Greek word for perfume. [G. D.]

MYRRH-SEED. *Myrospermum pubescens*.

MYRSINACEÆ. (*Myrsinacæ*, *Ardisiacæ*, *Ardisiads*.) A natural order of corollifloral dicotyledons belonging to Lindley's cortical alliance of perigynous Exogens. Trees, shrubs, or undershrubs, with alternate or opposite coriaceous exstipulate leaves, and hermaphrodite or occasionally unisexual flowers; calyx four to five-cleft, persistent; corolla monopetalous, equal; stamens four to five, inserted into the corolla, opposite its segments, the filaments distinct, the anthers sagittate, erect; ovary one-celled, the ovules definite or indefinite, campylotropal, immersed in a free central placenta. Fruit fleshy, one or many-seeded. They are found in Africa, Asia, and America, and are said to abound chiefly in islands with an equable temperature. Little is known of their properties. There are thirty-three genera, and above three hundred species. *Myrsine*, *Ardisia*, *Theophrasta*, and *Clusia* are some of them. [J. H. B.]

MYRSINE. A genus of *Myrsinacæ*, consisting of shrubs or small trees, mostly evergreen, and glabrous or nearly so, with alternate coriaceous entire or rarely toothed leaves, and small flowers on very short pedicels in dense axillary clusters. This inflorescence distinguishes them from all other genera of the order except *Samara*, which has the petals quite free, and *Reptania*, which has scales alternating with the corolla lobes, whilst in *Myrsine* the corolla is lobed only, without scales. There are a considerable number of species, all tropical, or nearly so, but dispersed over both the New and the Old World. Their properties are little known. The berries of *M. africana*, a species widely dispersed over Africa from Abyssinia and the Azores to the Cape, and

occasionally to be seen in European green-houses, are said to be mixed with barley by the Abyssinians as food for their asses and mules.

MYRSIPHYLLUM. A genus of *Liliaceæ* from the Cape of Good Hope, consisting of branched twining plants, with ovate-lanceolate or lanceolate leaves obliquely heart-shaped at the base, and white flowers on nodding pedicels two or three together at the base of the leaves, from the axils of small white scales, which are in fact the true leaves, the organs generally so called being metamorphosed branches as in *Asparagus*. The perianth is persistent, bell-shaped, six-parted, and there are six stamens with subulate filaments. The berry is globose, three-celled. [J. T. S.]

MYRTACEÆ. (*Myrti*, *Granateæ*, *Myrtileblooms*.) A natural order of calycifloral dicotyledons belonging to Lindley's myrtal alliance of epigynous Exogens. Trees or shrubs with entire exstipulate usually opposite and dotted leaves, often having an intramarginal vein. Calyx limb sometimes cohering at the apex; petals attached to the calyx, alternating with its segments; stamens inserted with the petals, twice as many or indefinite, the filaments distinct, or united in one or more parcels; ovary adherent to the tube of the calyx, one to six-celled; style and stigma simple. Fruit dry or fleshy, dehiscent or indehiscent. They are natives chiefly of warm countries, as South America and the East Indies; many, however, are found in more temperate regions, and some of the genera are peculiar to Australia. Many yield an aromatic volatile oil. This is particularly the case with those having pellucid dots in their leaves. Some yield edible fruits; others furnish astringent and saccharine substances. The leaves of certain species of *Leptospermum* and *Melaleuca* are used as tea in Australia. The leaves of *Melaleuca minor* (*Cajuputi* of some), a native of the Moluccas, yield the volatile oil of cajuput. Pimento or allspice is the berried fruit of *Eugenia Pimenta*, a tree of the West Indies and Mexico. The flower-buds of *Caryophyllus aromaticus*, a tree which was originally a native of the Moluccas, but is now cultivated in the East and West Indies, constitute the cloves of commerce. The species of *Eucalyptus* are the gigantic gum-trees of Australia, some of which attain a height of two hundred feet. Guavas are produced by species of *Psidium*. *Punica Granatum* yields the pomegranate. There are about 100 genera and 1,500 species. An illustration of a myrtaceous tree is given in Plate 7. [J. H. B.]

MYRTE. (Fr.) *Myrtus*.

MYRTILLE. (Fr.) *Vaccinium Myrtillus*.

MYRTLE. *Myrtus communis*. —, **CANDYBERRY.** *Myrica cerifera*. —, **DUTCH MYRTLE;** also a broad-leaved variety of *Myrtus communis*. —, **JEWS.** A three-leaved variety of *Myrtus communis*. —, **OTAHUTE.** *Securinega*. —, **ROMAN.** A

common broad-leaved variety of *Myrtus communis*. —, **SAND.** An American name for *Lepophyllum*. —, **TASMANIAN.** *Fagus Cunninghamii*. —, **WAX.** *Myrica cerifera*. —, **WEST INDIAN.** *Eugenia*.

MYRTLEBLOOMS. Lindley's name for the *Myrtaceæ*.

MYRTUS. The typical genus of *Myrtaceæ*, the species of which are widely scattered, the greater number, however, being found in the mountains of tropical South America, extending into the temperate parts of Chili, and even as far south as the Falkland Islands; others occur in Central Asia and New Zealand, while about a dozen species, which some botanists distinguish as a separate genus under the name *Josephia*, are confined to the Mauritius, Bourbon, and the neighbouring islands. They vary greatly in stature. *M. Nymularia*, a native of the Falkland Islands, spreads over the ground like our European thyme, while the Common Myrtle generally forms a large bush, and others are small trees. Their leaves are opposite, entire, and marked with transparent dots; and their white or yellowish-white flowers are borne singly in the axils of the leaves. The genus is principally distinguished from its congeners by its seeds, which are contained in a globular two or three-celled fruit, crowned with the calyx lobes, few or many in each cell, and of a kidney or horse-shoe shape with a bony shell.

M. communis, the Common Myrtle, is well known by its shining evergreen leaves, and white sweet-scented flowers. Though extremely abundant in Italy, Southern France, Spain, &c., it is not indigenous to Europe, but only naturalised, having originally been brought from Western Asia, where, at the present day, it is found in a wild state as far east as Afghanistan. In England it is not sufficiently hardy to withstand the frost of very severe winters, except in the extreme southern parts, although it frequently survives long enough to attain its full growth. Several varieties exist, differing principally in the size and form of the leaves, in the shape and colour of the fruits, and in the flowers being single or double. Amongst the ancients the Myrtle was held sacred to Venus, and was a plant of considerable importance, wreaths of it being worn by the Athenian magistrates, by the victors in the Olympic games, and by others; besides which various parts were used in medicine, in cookery, and by the Tuscans in the preparation of myrtle wine, called *Myrtidanum*, for which purpose it is still employed. In modern times its chief use is in perfumery, particularly in the preparation of sachet powders, pot-pourris, &c.; and a highly perfumed astringent water, known as *Eau d'ange*, is distilled from its flowers. The fruits, which have a sweetish powerfully aromatic taste, are eaten in a fresh state, or dried and used as a condiment. The wood is of great hardness and beautifully mottled or veined, but from its small size it is only fit for turnery purposes.

M. orbiculata is one of the species placed by some botanists in the genus *Josinia*, on account of the calyx and corolla having four parts instead of five, but the distinction does not hold good, and they are consequently referred to *Myrtus*. It is a large shrub, with thick dark green leathery elliptical or nearly round leaves, and an abundance of yellowish-white fragrant flowers, with small petals and numerous conspicuous stamens. In the Mauritius and adjacent islands, where this and the allied species are natives, their wood, on account of its hardness, is called Bois de Clous, or Bois de Nèfle (Medlar wood). The fruits are eatable.

[A. S.]

MYSORE-THORN. *Cassipouia septaria*.

MYSTROPETALINÆ, MYSTROPETALON. An order and genus of non-cæcous root-parasites allied to *Balanophoraceæ*. The genus is considered by Dr. Hooker as the type of a distinct natural order. It has a sheathing stem, covered by imbricated scales, and terminated by dense heads of flowers which present three villous bracts. The male flowers at the top of the spike are one to three-valved, the sepals united at base, the two extrorse stamens inserted on the petals and opposite to them. The female flowers have a superior tubular three-toothed perianth, and a one-celled ovary on a disk, with pendulous ovule, filiform style, and three-lobed stigma. The fruit is a rounded achene. The two known species are natives of South Africa. [J. H. B.]

MYXA. The same as *Cordia*, from which some authors have separated it.

MYXOGASTRES. A natural order of gasteromycetous *Fungi*, characterised by their semigelatinous state when young, and by their thin brittle peridia, containing a mass of dust-like spores, with or without the admixture of a few threads. In consequence of their peculiar condition when forming their spores, it is often impossible to see their mode of attachment or origin; when this, however, has been possible, they have been found attached to threads either naked or contained in a distinct hyaline sac or ascus. Some doubts have been lately raised as to the title of these productions to a place in the vegetable kingdom, because the matter of which they are composed resembles a substance called sarcode, known only in animals, and because the spores in some instances, when germinating, produce a soft body resembling some Infusoria. Another peculiarity is that the peridium often contains carbonate of lime, a substance, however, which abounds in many *Algae*. There are, however, so many arguments in favour of their vegetable character, and especially the fact that they do not all germinate in the same way, that there is a true filamentous mycelium in *Zyconia terrestris*, added to the spiral threads in *Trichia*, that the mere circumstance of motion in the young state, or peculiarity of substance, is not sufficient to overthrow it. The occurrence of starch in animals, or the infusoroid character of the spores

in many *Algae*, might as well be taken as proofs that animals, whilst

been raised, on the other hand, whether the Infusoria containing sarcode should not be arranged with vegetables, though we do not subscribe to such hasty opinions.

Myxogastrous *Fungi* seem more than all others to be independent of the nature of the matrix on which they are produced. We have seen them growing on lead, and there are well-authenticated examples of their being produced on iron which a few hours before was red-hot. Indeed we possess a portion of such a specimen from the herbarium of Schweinitz. Most of them are microscopical, but *Ethallium*, which is the pest of hothouses, attains a considerable size, while both *Reticularia* and *Licea* afford specimens of similar habits. Few orders, however, of *Fungi* present so many elegant objects for the microscope, both in respect of form and colour. They are found in all parts of the world, but prefer temperate to hot climates; but neither extreme heat nor moisture is favourable to their growth, though they require a damp atmosphere. [M. J. B.]

MYZODENDRON. A genus of *Loranthaceæ*, found growing parasitic upon the beeches of Tierra del Fuego and Antarctic America, to as far north as Valdivia, and characterised by its almost membranous one-seeded fruits being furnished with three long generally feathery bristles. These bristles are of a viscid nature, and serve the same purpose as the glutinous matter of our well-known mistletoe berries, viz. that of attaching the fruit to a tree until the seed germinates and takes root in the bark. They also serve to effect the transport of the fruits from the parent plant to other trees by attaching them to the plumage of birds. [A. S.]

NABEE. The Bish or Bikh, a powerful Indian poison obtained from *Aconitum ferox*.

NABK. The berries of *Zizyphus Lotus*.

NÆGELIA. A genus of *Gesneraceæ*, of which the type is the well-known *Gesneria zebrina*. It consists of perennial herbs with catkin-like scaly stolones, broad richly-shaded velvety-surfaced leaves, and erect racemes of large showy flowers, the ample campanulate cylindrical tube of which is somewhat ventricose beneath, and has a short and slightly two-lipped limb. The flowers are furnished with a five-lobed glandular ring, and a stomatomorphous stigma. *N. cinnabarina*, like *N. zebrina*, has scarlet blossoms, and there are many garden varieties remarkable for the pile of richly-coloured hairs which clothe the surface of their leaves. [T. M.]

NAGEESA. A strong durable Indian timber, obtained from *Mesua ferrea*.

NAGEIA. A genus formerly proposed by Gærtner for the *Myrica Nagi* of Thun-

berg, a Japanese tree which has since been shown to be a species of *Podocarpus*.

NAGELIA. A genus of the pome-bearing division of *Rosaceæ* (*Pomaceæ* of Lindley) allied to *Cotoneaster*, with which it agrees in the structure of its flowers and in its general appearance; but the fruit, which is of a pale pink colour, about as large as a pistol-ball, has a brittle semitransparent flesh, and the thin putamen of *Pyrus*, instead of the hard bony stone of *Cotoneaster*. It is founded on the *Cotoneaster denticulata*, a Mexican shrub, and is further marked by having a semimembranaceous calyx, small spreading petals, ten to fifteen stamens, and a spheroidal pome, crowned by the calyx. The same name has been given to a rhamnaceous shrub from Java, now referred to *Gouania*. [T. M.]

NAGKUSHUL, NAGKES'R. Indian names for the fragrant flowers of *Mesua ferrea*.

NAGLA-RAGEE. An Indian name for *Elettaria coriacea*.

NAGUR-MOOTH. *Cyperus pertenuis*.

NAHLEH. An Arabic name of the Date Palm, *Phoenix dactylifera*.

NAIADACEÆ. (*Fluriales, Potameæ, Naiads*.) A natural order of monocotyledonous plants belonging to Lindley's hydral alliance of Endogens, consisting of plants living in fresh or salt water, and having cellular leaves with parallel veins, and inconspicuous flowers. The latter are hermaphrodite or unisexual. Perianth of two or four pieces, often deciduous, sometimes wanting; stamens definite, hypogynous; ovary free, of one or more carpels, with a solitary ovule. Fruit dry, one-celled, usually indehiscent; seed erect or pendulous, exalbuminous. The few species are found in various parts of the world, and have no properties of importance. [J. H. B.]

NAÏADE. (Fr.) *Najas marina*.

NAIL. Half an inch, or the length of the nail of the little finger.

NAILWORT. *Draba verna*; also *Saxifraga tridactylites*.

NAIN D'AMÉRIQUE, or NAIN FLA-GEOLET. (Fr.) *Phaseolus tumidus*.

NAJAS. A genus giving its name to the order *Naiadaceæ*, and consisting of about eight widely distributed species. It is distinguished by its mostly dioecious axillary naked flowers, the males with a single nearly sessile anther enclosed in a membranous spathe, and the females with a single ovary tapering into a short style bearing two to four awl-shaped stigmas. All the species are little branching herbs, growing under water, with narrow opposite or whorled, usually toothed, broad-based leaves, and insignificant flowers which produce little seed-like nuts. *N. flexilis*, a common North American species, has of late years been found in Connemara. [A. S.]

NAKED LADIES. *Colchicum autumnale*.

NAKED SEEDS. Seeds having no pericarpal covering, as in conifers and cycads.

NAMA. A genus of *Hydroleaceæ*, containing half a dozen diffuse herbs or shrubs, natives of America, with entire leaves, and blue or white axillary or terminal flowers. The calyx consists of five persistent sepals; the corolla is tubular and funnel-shaped; there are five included stamens inserted in the tube of the corolla; the ovary is two-celled, containing numerous ovules, and bearing two distinct styles with obtuse stigmas; the capsule is two-celled, dehiscent loculicidally, and containing numerous small seeds. [W. C.]

NAMÉDOU. *Alangium hezapetalum*.

NANA, or NANON. A South American name of the Pineapple, *Ananassa sativa*.

NANANTHEA. A genus of *Compositæ* peculiar to Corsica, and represented by a single species, *N. perpusilla*, which is a smooth branching herb, seldom above an inch high, with very minute white-rayed flower-heads placed singly on the end of a slender stalk longer than the leaves. Its chief characteristics are the oval compressed achenes without pappus, thick style branches, narrow naked receptacle, and involucre of eight to nine distinct scales, placed in a single series. [A. A. B.]

NANCY-PRETTY. *Saxifraga umbrosa*.

NANDHIROBEÆ. A suborder of the *Cucurbitaceæ*, characterised by its anthers not being sinuous, the placenta adhering to the axis of the fruit, and the seeds being numerous. The plants are climbing herbs, natives of hot climates, as India and South America. *Telfairia* and *Peuclaea* are examples. [J. H. B.]

NANDINA. A genus of *Berberidaceæ*, differing from *Berberis* in having several rows of scales on the outside of the six sepals, six white petals without glands, and red globose berries, with two plano-convex seeds. *N. domestica* is a handsome evergreen shrub, with ternately compound leaves, and terminal panicles of flowers. It is a native of China and Japan, where it is extensively cultivated in gardens, and is known by the names of *Nandacuk*, *Nattani*, or *Nandin*. [J. T. S.]

NANEEL. An Indian name for *Bassia latifolia*.

NANGKA. A Bornean name for the Jack-fruit.

NANKAH. The Persian name for *Ajowain*.

NANODEA. A genus of sandalworts, distinguished by the calyx having a four-cleft border; four stamens with very short filaments and two-celled anthers; and a short style ending in two lobes. The only species is a small fleshy plant, a native of *Macleodiana* Straits. [G. D.]

MANODES discolor is a curious little Brazilian and West Indian orchid, with leaves and flowers very much alike in appearance. The plant, which is only an inch or two high, has small rather fleshy greenish-purple leaves, banded with purple, set closely together on opposite sides of a short stem, which is concealed by their sheathing bases; and its little purple flowers are borne solitary upon the summits of the branches, and almost hidden amongst the leaves. The genus belongs to the *Vandee*, and is distinguished by its lip being adnate to the column, and cohering with the lateral sepals above which it is placed, and by its four compressed pollen-masses being sessile side by side on an ovate gland. [A. S.]

NAP.EA. *Sida*.

NAPATAIN. An Indian name for the *Physic-nut*.

NAP-AT-NOON. *Tragopogon porrifolius*.

NAPANTHUS brasiliensis is the sole representative of a genus of *Cyrtandraceae*, peculiar to Brazil, where it inhabits the dense virgin forests of the Organ Mountains. It is a small shrub, with opposite unequal sessile, and towards the apex crenated, leaves; pink flowers arranged in axillary umbels; a tubular calyx, and a funnel-shaped corolla; four stamens, the anthers of which are coherent; an oblong ovary not surrounded by any glandular disk; and a one-celled two-valved capsule with an indefinite number of seeds. [B. S.]

NAPELLUS. *Aconitum Napellus*.

NAPHA-WATER. A delicious perfume distilled from orange-flowers.

NAPIFORM. Turnip-shaped; having the figure of a depressed sphere, as the root of the turnip-radish.

NAPOLEONA. A very singular genus of shrubs, natives of Western tropical Africa, whose place in the natural system is a contested point among botanists. Dr. Lindley places it in a separate order, *Belvisiaceae*. They are shrubs of the size of a pomegranate, with alternate leathery leaves, and sessile axillary flowers in groups of three. The calyx is adherent, leathery, five-cleft; and the corolla of three rows, the outer largest, concave, strongly plaited, and many-toothed, bent backwards so as to conceal the calyx when fully expanded, the next row divided like the crown of the passion-flower into a number of thread-like spreading segments, and the innermost division erect cup-shaped, with the margin bent inwards and divided into numerous small tooth-like segments; ten to twenty stamens are inserted into the base of the corolla in a single row, the filaments being united together below. Within these is a cup-shaped disk, surrounding the adherent ovary, which latter has five compartments, with two ovules suspended in each, a five-cornered style, and a disk-shaped five-angled stigma. The fruit is soft, much like a pome-

granate, the rind very astringent, and containing so much tannin that the natives make a kind of ink from it. *N. imperialis* has produced its cream-coloured flowers in this country. [M. T. M.]

NARANJITAS DE QUITO. The berries of *Solanum quitoense*, called Quito Oranges.

NARASCALO. A hard Mexican wood, probably Ironwood.

NARAVELIA. A genus of *Ranunculaceae*, distinguished from *Clematis* by the presence of petals; from *Atragene* by the petals being longer than the calyx; and from both by the carpels being each seated on a thick hollow stalk. The only species is *N. zeylanica*, the Naravel of Ceylon, a climbing shrub resembling a *Clematis*, but having the leaves with only a single pair of ovate acuminate leaflets, beyond which the leaf-stalk takes the form of a tendril. The flowers are yellow, with four sepals and six to twelve linear petals. [J. T. S.]

NARCISSE. (Fr.) *Narcissus*. — À BOUQUETS. *Narcissus tazetta*. — AULX. *Narcissus Pseudo-narcissus*. — D'AUTOMNE. *Sternbergia lutea*. — DE PÉROU. *Jamene Amancaes*. — DES PRÉS, or SAUVAGE. *Narcissus Pseudo-narcissus*

NARCISSUS. An extensive genus of bulbous plants belonging to the *Amaryllidaceae*. Their distinguishing features are a hypocrateriform perianth having a straight cylindrical tube, a six-parted equal spreading or reflexed limb, and a funnel-shaped bell-shaped or wheel-shaped cup or coronet; six included stamens inserted below the coronet; a three-celled ovary, the ovules in many series; a simple style and obtuse stigma; and a membranaceous capsule.

The numerous species of *Narcissus* are amongst the most beautiful of spring-flowering bulbs. They have linear-lorate leaves, and radical scapes bearing one or many flowers, which are usually yellow but sometimes white, not unfrequently nodding, and generally imbued with a powerful, and when confined rather overpowering, odour. They have been thrown into several groups or subgenera, of which the principal are:—*Ajazz*: the Daffodils, distinguished by having the cylindrical cup longer than the funnel-shaped tube, the filaments adnate to the lower part of the tube, and the style subulate and three-furrowed. The Common Daffodil, *N. Pseudo-narcissus*, is an illustration of this group.

Ganymedes: the Rush Daffodils, distinguished by the slender drooping tube, reflex limb, and short cup, the filaments very unequally adnate to the upper part of the tube, and the style slender. Example: *N. triandrus*.

Hermione: the Polyanthus *Narcissus*, distinguished by the slender cylindrical tube and shallow cup, the filaments unequally adnate near the mouth, and the style slender, as in *N. Tazetta*.

Queltia: the Mock *Narcissus*, distinguished by the subcylindrical tube and

short crown, the filaments unequally adnate to the upper part of the tube, and the style attenuated upwards, as in *N. montanus* and *odoratus*.

The true forms of *Narcissus*, represented by *N. poeticus*, are distinguished by their slender cylindrical tube widened at the mouth, their very short cup, their filaments very unequally adnate near the mouth, and their slender style. [T. M.]

NARCISSUS of Japan. *Nerine sarniensis*.

NARD. The Spikenard, or Nard of the ancients, *Nardostachys Jatamansi*. —, COMMON. *Nardus stricta*.

NARD. (Fr.) *Nardus*. — **ASPIC.** *Lavandula Spica*. — **CELTIQUE.** *Valeriana celtica*. — **SAUVAGE.** *Asarum europæum*.

NARDOO. An Australian name for *Marsilea macropus*, sometimes called *M. hirsuta*, and *M. salutaris*, the spores and spore-cases of which are used by the aborigines for food. They are pounded up, and baked into bread, and also made into porridge; and according to Dr. Beckler both preparations furnish a nutritious food, by no means unwholesome, and free from unpleasant taste, but affording sorry fare for civilised man. Some of the survivors of the Australian exploring expedition, under Mr. Burke, prolonged their lives by the sole use of this food. The plant has been not inaptly described, in the newspapers, as 'a quatrefoil something like trefoil.' It must be very abundant and prolific, as Nardoo fields, probably swampy places in which it abounds, are mentioned; and the survivor of Burke's exploring party found, left in a hut by the natives, a bag of the Nardoo containing sufficient to last him for a fortnight. [T. M.]

NARDOPHYLLUM. A genus of *Compositæ* of the tribe *Asteroidæ*, consisting of about half-a-dozen species from extratropical South America, especially Chili, including *Dactylogyna* of De Candolle. They are all closely allied to *Lepidophyllum* from the same country, to *Chrysanthamnus* and *Ericameria* from North-west America, and to *Pteronia* from the Cape.

NARDOSMIA. A name under which the Winter Heliotrope (*Tussilago fragrans*), and some allied Northern species of *Tussilago*, have been separated generically, on account of trifling differences in the female florets. Together with *Petasites*, of which they have the habit, they are much more appropriately considered as a section only of the well-marked and natural genus *Tussilago*.

NARDOSTACHYS. A genus of Nepalese herbaceous plants belonging to the *Valerianaceæ*. The flowers are in corymb, protected by an involucre; the calyx limb is divided into five persistent leafy segments; the corolla is regular, spurless, its tube enclosing four stamens; the ovary is inferior, three-celled, two of the compartments being empty, and the third containing a single ovule. The roots of these

plants are very fragrant. According to Dr. Royle, those of *N. Jatamansi* constituted the Spikenard of the ancients. [M. T. M.]



Nardostachys Jatamansi.

NARDUS. A genus of grasses belonging to the tribe *Aprostideæ*. The inflorescence is a simple unilateral two-rowed spikes; glumes none; pales two, terminating in a bristle. The common Nard, or Matgrass, is the only species described. It is a worthless grass for agricultural purposes, but, growing on dry bare moory places, is valuable for sheep pasture. [D. M.]

NARGIL, NARIKEL, NARIYUL. Indian names for the Cocoa-nut.

NARTHECIUM. A genus of marsh herbaceous perennials belonging to the *Juncaceæ*, and of which the characters are:—Sepals coloured; filaments hairy; stigma one; capsule three-celled at the base, many-seeded. The genus, which is a small one, is represented in Britain by the Lancashire *Asphodel*, *N. ossifragum*, a plant with creeping roots, ensiform leaves all in the same plane, and scapes terminating in a spiked cluster of pretty yellow flowers. It is common on wet moors and the boggy sides of mountains. Since sheep pasturing in such localities are liable to the rot, it was formerly thought that this disease was attributable to the herbage on which they fed; and hence this innocuous plant received the ill-omened name *ossifragum*, or 'bone-breaker.' An American species, *N. americanum*, is similar in all respects. French *Brisée*; Germ. *Reinbrechgras*. [C. A. J.]

NARTHEX. A genus of *Umbelliferae* closely allied to *Ferula*, but the umbels have no involucre, the limb of the calyx is suppressed, the stylopods are depressed and cup-shaped, the styles recurved, and the fruit compressed at the back with a dilated margin, each half traversed by three central ridges and two lateral ones, which are very minute. There is one vitta in each channel on the back of the fruit, and a variable number on the commissure. *N. asfœtida*, a tall-growing plant much like a *Ferula*, grows in Western Tibet, &c. The plant has recently produced its flowers in the Edinburgh Botanic Garden.

It seems certain, from the researches of Falconer and others, that this plant produces some of the *asafoetida* of commerce, while *Scorodasma fetida*, a gigantic umbelliferous plant found in the sandy steppes east of the Caspian, as well as some other allied plants, also furnish the drug. On cutting into the upper part of the root, a juice exudes which hardens by exposure, and is collected and sent to this country from Bombay. The drug is well known



Narthex asafoetida.

for its disgusting odour, which it seems has charms for some people, as the Persians and other Asiatics use it as a condiment. It has even been called the 'food of the gods,' a strange contrast to its popular name in this country, namely, 'Devil's dung.' In medicine this drug is used as a stimulant in hysteria with excellent effect; also in cases of flatulence and chronic catarrhi. Its smell is a very serious impediment to its use. [M. T. M.]

NARUNGEE. An Indian name for the Sweet Orange.

NASEBERRY. *Achras Sapota*, sometimes called Ncesberry or Nisberry.

NASEBERRY-BULLY TREE. *Achras Sideroxylon*. —, **BROAD-LEAVED.** *Licuma multiflorum*.

NASITORT. (Fr.) *Lepidium sativum*.

NASSAUVICEÆ, or NASSAVIACEÆ. A tribe of composite plants included in the suborder *Labiatifloræ*. In this suborder the hermaphrodite florets, or at least the unisexual ones, are two-lipped. The tribe is distinguished by its style not being tumid, and its arms being long linear truncate, fringed only at the point. [J. H. B.]

NASSAUVIA. A genus of *Composite*, the type of a tribe of *Labiatifloræ*. It consists of low much-branched perennial herbs or undershrubs, with crowded stem-clasping entire or toothed leaves, almost always prickly, and solitary or clustered heads of yellow or white flowers. Each

head contains five bilabiate florets in an oblong cylindrical involucre; the receptacle is naked, the achenes glabrous, with a pappus of linear or capillary bristles. There are about twenty species known, all natives of extratropical South America.

NASTANTHUS. A genus of *Calyceæ*, comprising nine species from elevated dry rocky and exposed situations in the Andes of Chili, all stemless glabrous herbs, with spreading radical leaves mostly cut or toothed, and short succulent scapes bearing numerous flower-heads closely collected into one large terminal globular head.

NASTURTIUM. A genus of *Crucifere*, or *Brassicaceæ* consisting of dwarf uninteresting weedy-looking plants whose stems and leaves partake more or less of the acrid flavour peculiar to crucifers. The genus is said to have derived its name from the effect its acrimony produces on the muscles of the nose—*nasus tortus* signifying a convulsed nose.

N. officinale, the Common Watercress, is a well-known hardy perennial, indigenous to Britain, and usually found in abundance near springs or open running water-courses. It is of a creeping habit, with smooth shining brownish-green pinnatifid leaves, and ovate somewhat heart-shaped leaflets, the terminal one being much larger than the rest. The flowers are small and white, produced towards the extremity of the branches in a sort of terminal panicle.

As a spring salad the young shoots and leaves of Watercresses have been used from time immemorial. They are stated to have been eaten by the ancients along with lettuces, to counteract the coldness of the latter by their warm and stimulating qualities; and at the present day they are to be found almost on every table, the popular belief being that, when eaten fasting, they possess the property of exciting the appetite, and acting as a powerful antiscorbutic. The first attempt to cultivate watercresses by artificial means in Europe was made by Nicholas Meissner at Erfurt, the capital of Upper Thuringia, about the middle of the sixteenth century. The soil and other circumstances being highly favourable for their growth, the experiment proved successful, and the watercresses of Erfurt soon acquired that celebrity for their superior quality which they still maintain, most of the cities on the Rhine as well as the markets of Berlin, 120 miles distant, being constantly supplied with them. In the neighbourhood of London the mode of cultivating watercresses was first introduced by Mr. Bradbury at Northfleet, Springhead, near Gravesend, and has continued to spread, particularly in localities favourably situated with regard to springs of water. Near Rickmansworth in Hertfordshire, Waltham Abbey in Essex, Uxbridge in Middlesex, and various other places, there are plantations many acres in extent, which are scarcely sufficient to supply the great demand for this popular salad herb during the season. [W. B. B.]

NASTURTIIUM. The garden name of *Tropaeolum*.

NATA. The Bengalee name of the Bonduc nut tree, *Gulilandina Bonduc*.

NATANS. Floating under water like a *Conferva*.

NATCHNEE. An Indian name for *Eleusine coracana*.

NATIVE BREAD. *Mykita*.

NATJI. A name in Natal for a small variety of *Citrus nobilis*.

NATSIATUM. The name of a genus of *Phytocrenaceae*, represented by a climbing shrub native of tropical Asia, with alternate leaves, and small greenish dioecious flowers, arranged in long hairy pendent clusters. The calyx and corolla are five-parted, and the disk five-lobed, each lobe having two linear teeth. In the male flower there are five stamens alternating with the lobes of the corolla, with anthers opening longitudinally; and in the female the ovary is free, one-celled, with two pendulous ovules. [M. T. M.]

NAUCLEA. An extensive genus of *Cinchonaceae*, principally natives of tropical Asia. Of the several sections, one frequently described as a distinct genus under the name of *Uncaria*, is composed of climbing shrubs having the old or sterile flower-stalks converted into hooked spines; the others consist of middle-sized trees or shrubs. The leaves are opposite or in whorls of three or four, and the flowers crowded together upon receptacles forming dense globose heads.

N. Gambir, or *Uncaria Gambir*, a native of the Malayan islands, yields the Gambir or Terra Japonica of commerce. In a wild state it is a rambling climber, but under cultivation it forms when trimmed a bushy shrub, seven or eight feet high, with smooth oblong ovate leaves, and globular heads of green and pink flowers upon the upper flower-stalks, the lower ones being barren and converted into hooked spines. Gambir, or Terra Japonica, is prepared by boiling the leaves for several hours in large cauldrons of water, after which they are taken out and allowed to drain into the cauldron. The decoction is kept boiling until it thickens, when it is left to cool; and is afterwards poured into oblong moulds, where it remains until it acquires the consistency of clay, and is then cut into small cubes, which are thoroughly dried and hardened in the sun. Among the Malays the chief use of Gambir is as a masticatory, in combination with the areca-nut and the betel-leaf; but considerable quantities are annually exported to China for tanning purposes, and likewise to this country, where it is used for tanning 'kips' for the upper leather of shoes, and also by dyers and curriers. [A. S.]

NAVEA. A genus of *Malvaceae*, allied to *Lavatera*, comprising a single species, native of the Canary Isles. The flower-stalks are axillary or terminal, racemose,

each of them so twisted that what was the lower part of the flower becomes the upper. The involucre or outer calyx is three to four-leaved, ultimately deciduous; the true calyx bell-shaped with four to six segments; petals bluntish, with membranous convolute stalks forming little hollow pouches; column bent downwards; ovary rounded, depressed, of numerous crested lobes, attached to a central prolonged axis, each containing a single seed. Fruit indehiscent. *N. phanicea* has beautiful pluk flowers, and is a rare plant in the Canary Isles. The generic name is given in honour of J. de Nava, the founder of the Botanic Garden at Orotava. [M. T. M.]

NAVARRETIA. [A section of the Polemoniaceae genus *Gilia* (which see), containing about twelve species, natives of Chili and New California. It was formerly regarded as a distinct genus, but cannot be separated from *Gilia*.] It consists of annual herbs, generally glutinous, often foetid, with pinnatisect alternate leaves, the lower ones sometimes entire, and flowers in dense heads furnished with spiny bracts. The calyx is obconical or tubular, campanulate, with five very sharp lobes; the corolla tube slender and the limb spreading, cut into oblong lacinae; the stamens usually exserted; the disk minute; and the capsule ovoid and obtuse, with ovoid wingless seeds. [W. C.]

NAVELWORT. *Cotyledon*. — **VENUS'S.** *Omphalodes linifolia*.

NAVE-SHAPED. The same as *Modioliform*.

NAVET. (Fr.) *Brassica Napus*. — **D'ÉTÉ.** *Brassica campestris*. — **D'HIVER.** *Brassica Napus oleifera*. — **DU DIABLE.** *Bryonia alba*. — **SAUVAGE.** *Brassica Napus*.

NAVETTE. (Fr.) *Brassica Napus sylvestris*.

NAVEW. *Brassica campestris*.

NAVIA. A genus of Brazilian herbs belonging to the *Bromeliaceae*, having tufted leaves and downy flower-stalks, bearing tufts of flowers in the axils of the bracts. The perianth is divided into three outer and three inner segments, two of the former larger and more acutely keeled than the third, the three inner petaloid segments conjoined below into a tube; stamens six, hypogynous; ovary free, three-celled; stigmas three, thread-like; capsule membranous, three-valved. [M. T. M.]

NAVICULARIA. A genus of grasses now included in *Panicum*.

NAVICULAR. Boat-shaped. The same as *Cymbiform*.

NAW. A kind of Ironwood met with in Ceylon.

NBBEK. An Arabian name for the fruit of the Jujube.

NEB-NEB, or NIB-NIB. The pods of *Acacia vera*, which are used for tanning in Egypt.

NEBOO. An Indian name for the Lemon.

NEBULOSE. Clouded.

NECKERA. A beautiful genus of mosses, the type of the *Neckera*, which are distinguished from *Hookeria* by the pinnate branching, and the cuculliform frequently pilose veil. The peristome is double or single, and the branches almost always flattened. The foliage is peculiarly elegant, and is frequently beautifully undulated, as in *N. crispata*, which is one of our finest mosses. *Neckera*, however, obtains its maximum in hotter countries, though *N. pennata*, which is almost cosmopolitan, occurs as far north as Scotland. [M. J. B.]

NECKLACE-SHAPED. The same as *Molliform*.

NECKLACE-TREE. *Ormosia*.

NECKWEED. *Cannabis sativa*.

NECROSIS. Canker. A drying and dying of the branch of a tree, beginning with the bark and eating gradually inwards.

NECTANDRA. A considerable genus of *Lauraceae*, abounding in Peru, Guiana, and the West Indian Islands. The species all form large forest trees, with alternate leaves, and loose axillary panicles or corymbs of perfect flowers, having a six-parted wheel-shaped calyx, the segments of which fall away, while the tubular part increases in size and ultimately forms a cup, surrounding the lower part of the one-seeded fruit; the twelve stamens are arranged in four series, the nine outer fertile, and the three inner sterile.

The Greenheart or Bibiri tree of British Guiana, named *Nectandra Rodiei* by Sir R. Schomburgk, but by some botanists considered a variety of *N. leucantha*, is a large tree sixty or seventy feet high, frequently without branches for the first fifty feet, the trunk being between two and three feet in diameter and covered with an ash-coloured bark, which, under the name of Bibiru bark, is used medicinally as a tonic and febrifuge, its properties being due to the presence of an uncrystallisable alkaloid, found likewise in the seeds. These latter, however, are more remarkable for containing upwards of fifty per cent. of starch, which the Indians mix with rotten wood, and make into a bitter disagreeable kind of bread. The most valuable part of the tree is its timber, large quantities of which are regularly imported for shipbuilding purposes, its great strength and durability, together with the long lengths in which it is obtainable, rendering it well suited for beams, planking, and similar purposes; and its reputation is so high that it is placed in the first or twelve-year class in Lloyd's list of shipbuilding woods, though it is by no means free from the attacks of the ship-worm, or of the fungi which are such a fertile cause of decay in ships' timbers. [A. S.]

NECTAR. The honey of a flower; the superfluous saccharine matter remaining

after the stamens and pistil have consumed all that they require.

NECTARILYMA. A collection of long hairs found on the inner surface of some flowers, as *Menyanthes*.

NECTARINE. A smooth-skinned variety of the Peach, *Amygdalus persica*.

NECTARIUM, NECTARY. A place or thing in which honey is secreted. Sometimes also applied to any supplementary or anomalous organ in a flower.

NECTAROSCORDUM. A genus of bulbous *Liliaceae* founded on *Allium siculum*, which differs not only from *Allium*, but from the great majority of the order, in having the ovary adhering to the perianth at the base so as to be partly inferior; the perianth also differs from that of *Allium* in being somewhat bell-shaped, with a short pear-shaped tube, and a six-parted limb. In its habit, odour, and umbellate flowers, it quite agrees with *Allium*. The leaves are linear-lanceolate, channelled; and the scape two or three feet high, with a loose umbel of green and purplish flowers on drooping pedicels. [J. T. S.]

NECTAROSTIGMA. A gland secreting honey in certain flowers, as in *Bananeus*.

NECTAROTHECA. Literally, a flower or nectar case; the spur of certain flowers.

NECTRIA. A genus of ascomycetous *Fungi* closely allied to *Sphaeria*, and comprising all the species which have naked bright-coloured perithecia. Several exhibit the most brilliant tints. *N. cinnabarina* occurs in every garden on dead currant twigs, always succeeding the common *Tubercularia*, which is supposed to be merely a young state of the *Nectria*. The species are numerous, and abound in temperate regions in either hemisphere, though not confined to them. [M. J. B.]

NEEA. A genus of tropical American trees and shrubs belonging to the *Nyctaginaceae*. The flowers are panicled, without involucre, but having a tubular perianth, within which are included five to eight stamens of unequal length; the ovary contains a single erect ovule. The fruit is contained within the hardened persistent base of the perianth, but is not united with it. [M. T. M.]

NEEDLES, SPANISH. An American name for *Bidens bipinnata*.

NEEDLE-SHAPED. Linear, rigid, tapering to a fine point from a narrow base, as the leaves of juniper.

NEELA. An Indian name for Indigo.

NEELE. *Lolium temulentum*.

NEEM, or NIM. *Melia Azadirachta*.

NEENOOKA. An Indian name for *Clypea hernandifolia*.

NEESIA. A genus of *Malvaceae*, of the tribe *Bombaceae*, very nearly allied to *Dioscorea*; but the numerous filaments are

almost free, and each bears only one or two ring-shaped anthers. There are two species, one from Java, the other from the Malayan peninsula: both very large trees, with alternate leaves scaly-white underneath, and rather large reddish flowers in short racemes or clusters along the branches. The fruit is hard and woody, covered with asperities, and much resembling the durian in outer aspect, but without its edible pulp.

NÉFLIER. (Fr.) *Mespilus*. — COTONNIER. *Cotoneaster vulgaris*. — DU JAPON. *Eriobotrya japonica*.

NÉGRETE. (Fr.) A kind of olive.

NEGRO-CORN. A West Indian name for the Turkish Millet or *Blumra*.

NEGRO'S HEAD. *Phytalephas macrocarpa*.

NEGUNDO. North American and Japanese trees belonging to the *Aceraceae*, and distinguished from the true maples by having pinnate leaves. *N. fraxinifolium*, the Box Elder or Ash-leaved Maple, is a tree of forty feet high, growing on the banks of rivers from Pennsylvania to Carolina. The leaflets are opposite, deeply toothed, the terminal one usually three lobed. [According to Mr Hind, the trees are tapped for sugar in Canada. The variegated-leaved variety is a beautiful ornamental shrub.] [C. A. J.]

NEILLIA. A genus of *Rosaceae* of the group *Spiræoidæ*, and closely allied to *Spiræa* itself, from which, however, it is distinguished by its seeds having copious fleshy albumen. Two species are known, both natives of the Himalayas, and both shrubs with simple doubly-serrated leaves, and racemes of white flowers. [A. S.]

NEIPPERGIA *chrysantha* is a species of *Acanthaceae*, erected into a genus by Morren. The points relied upon for its separation were the erect instead of pendulous flower-racemes, and the presence of a long blunt papillose horn arising from the lower part of the lip; but the racemes are not always erect, and other species of *Acineta* have analogous horns of different forms. It is a native of Mexico, and has long racemes of large golden-yellow flowers, which have an aromatic odour at night but are odourless during the day. [A. S.]

NEJA. A genus of *Compositæ*, consisting of half a dozen South Brazilian perennials or low undershrubs, generally hispid with long spreading hairs, and bearing scattered narrow linear finely pointed leaves, and yellow flower-heads. In essential characters they only differ in their rather narrower achenes from *Chrysopsis*, with which they ought probably to be united. The *N. gracilis*, occasionally met with in our gardens, is a rather neat and pretty greenhouse plant.

NELSONIA. A small genus of *Acanthaceae*, widely distributed over tropical and subtropical regions in both the Old and the New Worlds. The species consist of diffuse often tomentose herbs, growing in low moist localities, furnished with smallish

leaves, and small solitary flowers covered by a single large bract, the lateral ones being either deficient or very small. These flowers are arranged in terminal or axillary spikes like those of *Origanum*. The calyx is unequally five-parted, and the corolla two-lipped, with only two stamens, one cell of the anther placed above the other. The capsule has eight small seeds in each cell. [W. C.]

NELUMBIACEÆ, NELUMBICUM. A natural order and genus of beautiful thalassifloral water-plants, belonging to Lindley's nymphaeal alliance of hypogynous Erogens. They have an elongated horizontal rootstock, from which are sent up long cylindrical leafstalks, bearing the plate-like leaves in a peltate manner on their summit. These leaves are circular in outline, with radiating venation, and covered on the upper surface with a glaucous bloom. The flowers are also borne on long stalks, traversed like those of the leaves by a number of air-canals, regularly disposed. The calyx consists of four to five deciduous sepals; the corolla of numerous deciduous petals, arranged in several rows; the stamens are numerous, in several rows, attached with the petals to the base of the receptacle; the stigma is sessile; the receptacle or torus is in form like a funnel; and the ovaries, which are numerous, are placed in sockets on the upper surface; the ovule solitary, or sometimes two placed side by side. The seeds contain an embryo without albumen, but with thick cotyledons, and a much-developed plumule.

N. speciosum, the Sacred Lotus, is interesting for its associations, as well as for the beauty of its rose-coloured flowers. It is found throughout India, China, Japan, Australia, the Malay and Philippine Islands, Persia, and even the Caspian Sea, but is no longer to be met with in the Nile. Herodotus, however, describes the plant with tolerable accuracy, comparing the receptacle of the flower to a wasp's nest. Strabo and Theophrastus, likewise, mention the plant as a native of Egypt. Sculptured representations of it abound among the ruins of Egyptian temples, and many other circumstances prove the veneration paid to this plant by the votaries of Isis. In a manuscript of Dioscorides supposed to be of the twelfth century, formerly in the Rinuccini library at Florence, there is a figure of the *Nelumbium*, under the name *kuamos*, while under the name *lotos* a tolerably good representation of *Oeltis australis* is given. But the worship of the Lotus was by no means confined to the ancient Egyptians, for in India, Tibet, China, and Japan, the plant was deemed sacred, and indeed it is still employed in religious invocations and ceremonies. The leaves are covered with a fine microscopic down, which, by retaining a film of air over the upper surface, prevents it from being wetted when water is poured on it, the water rolling off in drops; this has a very pretty appearance, the drops of water looking like drops of molten silver. The Hin-

doos have a proverb founded on this peculiarity of the leaves, to the effect that the good and virtuous man is not enslaved by passion nor polluted by vice; for though he may be immersed in the waters of temptation, yet like a lotus leaf he will rise uninjured by them. The leafstalks abound in spiral fibres, which are carefully extracted and used as wicks to burn in the temples of India, before the idols. The rootstock and seeds are eaten as food in China, India, and Australia, and medicinal properties are assigned to the viscid juice of the leafstalks.

The young leaves of these plants float on the surface of the water, but as the stalk supporting them lengthens they are carried upwards. The fact of the contact of the lower surface of the leaf with the water, together with the structure of the upper surface of the leaf as before described, accounts for the peculiar position of the breathing pores or stomates, which are only to be found within a small space in the centre of the upper surface of the leaf opposite to its junction with the stalk. This space is of a lighter colour than the rest of the upper surface, and is devoid of the covering of microscopic hairs, &c. The breathing pores are in communication with the air-canals in the stalk. [M. T. M.]

NEMA. In Greek compounds = the filament.

NEMATANTHERA. The name of a Surinam shrub which constitutes a genus of *Piperaceæ*. The leaves are alternate, oblique at the base, ribbed; the stipules small, opposite the leaves, deciduous; the spikes stalked, with fleshy peltate bracts, in the axils of which the flowers are placed; the stamens two in number, with very long slender anthers which separate from the filament at a joint. The ovary, which is in the same flowers with the stamens, is sessile, with three lanceolate stigmas. [M. T. M.]

NEMATODES. Filamentous, thread-like; a term applied to *Conserveæ*.

NEMATANTHUS. A genus of *Gesneraceæ* inhabiting humid places in South American forests, and consisting of fleshy shrubs, with lengthened scandent, often rooting branches; opposite oblong leaves; solitary axillary flowers rather large in size, and of a purplish colour; a five-cleft calyx having linear segments; a corolla with obconical tube gradually merging into a funnel or bell-shaped expansion; and a one-celled two-valved capsule, containing an indefinite number of seeds. [B. S.]

NEMATHEOIA. Warty excrescences of the fronds of certain rose-spored *Alga*, producing tetraspores, as in *Phyllophora*.

NEMATOGERAS. The five species of New Zealand orchids described under this generic name have now been combined with *Corysanthes*. They are curious little terrestrial plants, with solitary broad membranous leaves, and solitary dirty purple flowers. In technical characters

they differ from the original species of *Corysanthes* by having very long filiform lateral sepals projecting horizontally from beneath the lip, and similar long filiform erect petals. [A. S.]

NEMEA. A word used by Fries for cryptogams, to indicate that they germinate by means of the protrusion of a thread, and do not possess true cotyledons. It is, however, to be remarked that many *Algae* cannot be said to germinate at all, and in *Selaginella* and some other allied Acrogens germination consists in cell-division without the slightest appearance of a thread. [M. J. B.]

NEMESIA. A genus of herbaceous annual plants belonging to the *Scrophulariaceæ*, distinguished from *Linaria* by the compressed capsule which opens lengthwise in the middle. The species are natives of the Cape of Good Hope, and grow from a few inches to a foot high or more, with opposite or whorled leaves, and terminal racemes of unpretending flowers usually of a purplish hue. [C. A. J.]

NEMOCHLOA. A genus of cyperaceous plants belonging to the *Rhynchosporææ*, and described by Stendel under *Pleurostachya*. They are all Brazilian. [D. M.]

NEMOPHILA. A genus of herbaceous annual plants, with diffuse brittle stems, pinnatifid leaves, and conspicuous flowers, belonging to the *Hydrophyllaceæ*, and well marked by the reflexed teeth between the lobes of the calyx. Several species are in common cultivation, of which *N. insignis*, introduced by Mr. Douglas from California, is by far the most beautiful, and is much prized as a border plant for its showy large flowers of a clear brilliant blue with a white centre. *N. atomaria* bears white flowers singularly dotted with purple-black. *N. maculata* has whitish flowers with one large purple spot at the tip of each petal. [C. A. J.]

NEMOROSE. Growing in groves.

NE MOUBLIEZ PAS. (Fr.) *Myosotis palustris*.

NÉNUPHAR. (Fr.) *Nymphaea*. — JAUNE. *Nuphar*.

NEODRYAS. An inconspicuous little orchid from Bolivia, with the habit of a *Polystachia*. *N. rhodomera* has flowers with a concave broadly oblong cordate lip, upon a long claw, through which runs an obtuse crest ending, just beyond the junction of the claw with the lamina, in a callosity composed of two four-lobed plates, one on the top of the other. Their column is semiterete, channelled in front, and prolonged upwards into two ears which are notched at the tips. The two pyriform pollen-masses are attached to a reniform gland by a ligulate caudicle. [A. S.]

NEOGYNE. Proposed as a genus by the younger Reichenbach, but since reduced by Lindley to a section of *Calogyne*, characterised by its flowers being closed and hav-

ing carinate sepals with saccate bases and a bisaccate lip. Only one species is known *Calogyne* (s. *Neogyne*) *Gardneriana*, a very fine plant of Nepal and Khasya, with long flask-like pseudobulbs, very large five-nerved lanceolate leaves, and dense nodding terminal or radical racemes of large pure white flowers, with a yellowish stain on the lip, each flower having beneath it a conspicuous petal-like bract. [A. S.]

NEOTINEA *intacta* is the *Aceras intacta* or *Aceras secundiflora* of most botanists, a common South European orchid, which has recently been found wild in Ireland. It was first separated as a distinct genus by an Italian botanist, and named *Tinea*, which name has been changed to *Neotinea* by Reichenbach. [A. S.]

NEOTTIA. With the exception of the longer column and the generally cucullate anther-bed, there are no technical characters for separating this genus of orchids from *Listera*; but it is well marked and easily distinguishable by the habit of its species, all of which are leafless brown-stemmed plants with sheathing scales in place of leaves. Only about four species are known, one of which, a peculiar withered-looking plant, *N. nidus-avis*, is the Bird's-nest Orchid of this country, while the others belong to Northern Asia. Owing to confusion in nomenclature, a large number of species of *Spiranthes* erroneously bear the name of *Neottia* in many works. [A. S.]

NEOTTOPTERIS. *Thamnopteris*.

NEOWIEDIA. *Apostasia*.

NEOZA. An Indian name for certain edible Pine seeds.

NEP. *Nepeta Cataria*. —, WILD. *Dryoma duica*.

NEPENTHACEÆ. A natural order of monochlamydeous dicotyledons, belonging to Lindley's euphorbial alliance of diclinous Exogens. They consist of herbs, or half-shrubby plants, with alternate leaves, slightly sheathing at the base, and forming an ascidium at the extremity. Flowers dioecious, the perianth four-parted, inferior; males: stamens united in a solid central column, anthers about sixteen, forming a spherical head, extrorse; females: ovary free, four-cornered, four-celled, stigma sessile; capsule four-celled, four-valved, with loculicidal dehiscence, and indefinite ascending seeds. They are natives of swampy ground in the East Indies and China, and have no known properties. The pitchers have been found to contain a solution of binoxalate of potash, and some chemists have detected muriate of soda, malic, and other acids in them. Spiral vessels abound in all parts of pitcher plants, and the woody bundles are without concentric zones. [J. H. B.]

NEPENTHES. The sole genus of *Nepenthaceæ*. About twenty species are known, by far the greater part of which are natives of Borneo, Sumatra, and the adjacent islands of the Indian Archipelago; but a few

extend to Continental Asia, and one to as far north as the Khasya mountains, and another to China. One is confined to Ceylon, and two to Madagascar. The oddity of the foliaceous organs in this genus, with their remarkable terminal pitcher-like appendages, has given rise to some difference of opinion amongst botanists as to which part of the leaf is the petiole or stalk, and which the lamina or blade. It has been commonly stated that the broad part at the base is a leafy stalk, and that the lid of the so-called pitcher is the true lamina. The recent investigations of Dr. Hooker, however, have confirmed the statement long ago made by Griffith, that the basal portion, that which appears like an ordinary leaf, is the true lamina, tapering downwards into a more or less evident stalk; and that the pitcher-like appendage is a modification of the prolonged midrib of the leaf, or, rather, of a gland situated at the apex of the midrib.

The size and shape of the pitchers differ considerably in the different kinds. Dr. Hooker has described one species from Borneo, and named it after Rajah Brooke (*N. Rajah*), in which the blade of the leaf is eighteen inches long by seven or eight broad, the excurrent midrib or tendril twenty inches long and as thick as the finger, and the pitcher twelve inches long by six inches in diameter, of a broad ampulla form, with two fringed wings in front.

One of the species sometimes seen in hot-houses in this country is *N. Rajahiana*, a native of Singapore, Malacca, Sumatra, and Borneo. This, like many others, has two kinds of pitchers. Those on the lower leaves are of an ampulla form, with two fringed wings in front, about four inches long by two wide, and beautifully spotted with rich brown; while those on the upper leaves are less beautifully coloured, a good deal longer, and funnel-shaped, narrowing gradually to the base, where they gracefully curve upwards. *N. distillatoria*, the Cingalese species, is so called because its pitchers are partly filled with water before they open; but that is also the case with the other species. The Cingalese use the tough flexible stems as withes. [A. S.]

NEPETA. A genus of the labiate order, distinguished by the calyx having about fifteen ribs, and an oblique five-toothed mouth; and the corolla with the upper lip straight and notched, and the lower usually three-cleft. The species are natives of Europe and the temperate parts of Asia; they are numerous, and owing to differences in character have been divided into several subgenera. [G. D.]

NEPHELAPHYLLUM. A small genus of terrestrial orchids belonging to the tribe *Epidendrea*, and mostly natives of the islands of the Indian Archipelago. The plants belonging to it have creeping sheathed stems, stalked ovate or cordate leaves, usually purplish beneath and spotted or clouded above, and flowers in racemes on terminal scapes. [A. S.]

NEPHELIUM. Three celebrated Chinese and Malayan fruits, the Litchi, the Longan, and the Rambutan, are produced by different trees belonging to this genus of *Sapindaceae*, which contains in all about twenty-five species, and is confined to Southern Asia and the Indian Archipelago, except a single species found in the Feejee and neighbouring islands. They are mostly trees of small size, with alternate pinnate (rarely simple) leaves, and panicles of small flowers at the ends of the branches, producing bunches of globular or egg-shaped warted or rough prickly fruits, which do not open in a regular manner when ripe; each fruit contains a single seed covered with a fleshy arillus. Their flowers have from four to six sepals, sometimes united into a cup-shaped calyx, as many petals or none, twice as many stamens inserted inside the ring-like disk, and a short-stalked, two-lobed, two-celled ovary occupying the centre of the flower.

N. Litchi, the Litchi, or, as it is variously written, Litschi, Li'tchi, Lichi, Leechee, or La'tji, is the most celebrated of the indigenous fruits of China, and is now frequently imported to this country, and sold in the



Nephelium Litchi.

fruit shops. There are several varieties, but the most common is nearly round, about an inch and a half in diameter, with a thin brittle shell of a red colour covered all over with rough wart-like protuberances; others are larger and heart-shaped. When fresh, they are filled with a white, almost transparent, sweet jelly-like pulp, surrounding a rather large shining brown seed; after they have been gathered some time the pulp shrivels and turns black, and then bears some resemblance to prunes. The Chinese are very fond of these fruits, and consume large quantities of them, both in a fresh state and when dried and preserved in various ways. The tree, which grows about twenty feet high, is a native of Southern China, but is only known in a cultivated state. It has abruptly pinnate leaves composed of from two to four pairs of oblong or lance-shaped, pointed, shining leaflets about three inches long and of a thick leathery texture, and bears panicles of small flowers which are without petals, having only a small cup-shaped slightly four or five-toothed calyx.

N. Longanum, the Longan tree, is likewise a native of Southern China, where, like the last, it is much cultivated for the sake of its fruit. Its leaves have generally five pairs of leaflets much resembling those of the Litchi, but it is readily distinguished by its flowers having a deeply five-parted calyx and five narrow hairy petals about the same length as the calyx. The Longan is a smaller fruit than the Litchi, varying from half an inch to an inch in diameter, and quite round, with a nearly smooth brittle skin of a yellowish-brown colour. It contains a similar semitransparent pulp, of an agreeable sweet or subacid flavour, and is largely sold in the Chinese markets.

N. lappaceum yields the Rambutan or Ramboostan, a well-known and favourite fruit in the Malayan Archipelago. It is a small tree, with leaves composed of from five to seven pairs of oblong leaflets; and its flowers have a five or six-cleft calyx and no petals. The fruit is of a bright red colour, about two inches long, of an oval form and slightly flattened, and covered with long soft fleshy spines or thick hairs, from which circumstance it takes its name, *rambut* signifying hair in the Malayan language. Like the two above mentioned, the Rambutan contains a pleasant acidulous pulp very grateful in tropical countries. [A. S.]

NEPHRODIDIUM. A genus of aspidioid ferns, distinguished among their near allies by their reniform indusia, and their connitively anastomosing veins. In the former peculiarity they agree with *Lastrea*, which has free veins; and some botanists unite both these groups under the present name, distinguishing *Aspidium* (including *Polystichum*) by its peltate indusia. As limited by the characteristics of reniform indusia and connitively anastomosing venation, *Nephrodium* is still an extensive genus, distributed freely over the warmer parts of the Old and New Worlds, and consisting mostly of species which have more or less the aspect of the common male fern. The most familiar species is *N. molle*, which is everywhere met with in collections of cultivated plants, as well as among dried ferns from nearly all parts of the world. [T. M.]

NEPHROID. Kidney-shaped.

NEPHROLEPIS. A genus of polypodiaceous ferns belonging to the tribe *Aspidiaceae*, and to that section of it with free veins and reniform indusia. They are pinnate ferns, with narrow elongate fronds, and articulated pinnae; and produce from their crown long slender stolones, which at intervals bear other fasciculate crowns, and sometimes also develop fleshy tubers. One tuber-bearing species, *N. undulata*, has annual fronds; but the majority are evergreen, and are very easily recognised by the features we have indicated. [T. M.]

NEPHROPHYLLUM. A genus of *Convolvulaceae* founded on a single species from Abyssinia, a small humifuse plant, with a slender creeping stem, rooting at

the joints, reniform entire leaves, and solitary axillary flowers on very short peduncles. In habit and structure it is very near to *Dichondra repens*, from which, however, it differs in having a one-celled ovary with two ovules, a single style, and a fruit composed of a single utricle. [W. C.]

NEPHROSTA. The spore-case of lycopods.

NEPTUNIA. A genus of *Leguminosae* of the suborder *Mimosae*, consisting of undershrubs or stiff but slender herbs with bipinnate leaves, flowers in globular heads, the lower ones barren with elongated petals, the upper ones fertile with definite stamens as in *Desmanthus*, but differing from that genus chiefly in its broad flat short pods. There are not many species, all natives of hot climates in America or in the Old World. *N. oleracea*, which is common in many parts of tropical Asia, Africa, and America, is remarkable for its short stems frequently floating by means of hollow swellings, and branching and rooting so as to cover shallow waters or liquid swamps to a considerable extent. *N. plena*, a terrestrial species without these inflations, is also common to America, Asia, and Africa.

NERAUDIA. A genus of *Urticaceae*, consisting of two Sandwich Island shrubs remarkable for their milky juice, as in *Artocarpus*, whilst the floral characters are those of the true *Urticaceae*. The leaves are entire, the flowers dimorphic, small and green, clustered in the axils of the leaves.

NEREOCYSTIS. One of the most extraordinary seaweeds among the *Laminariaceae*, which occurs on the north-east coast of America, and the opposite shores of Asia. The stem is filiform and many fathoms in length, attached below by branched root-like processes. This swells above into a swollen hollow turnip-shaped or retort-like cylinder a fathom in length, and containing a quantity of fluid, which gives off from the centre a bunch of leaf-like processes many feet in length. The stems become entangled below, and then the plants form large floating islands, which are the favourite seat of the sea-otter, who rocks with the waves and sleeps on the bladders. The plant, though so enormous, appears to be only of annual growth. The stem is employed by the Aleutians for fishing-lines, of whom Mertens informs us that he purchased one, and that they sometimes attain a length of forty-five fathoms. He also saw the bladders used, like the stems of *Ecklonia* (*Fucus*) *buccinalis*, as a siphon. [M. J. B.]

NERIANDRA. A genus of dogbanes, having the calyx five-parted and without glands; the corolla nearly salver-shaped, hairy internally, and somewhat inflated above; five hairy glands between the stamens; and two spindle-shaped smooth ovaries. The species are shrubs, natives of Central America, having entire leaves with glands at their base. The name is a

compound of that of the genus *Nerium* and the Greek for stamens, on account of the resemblance between them in the characters of these organs. [G. D.]

NERINE. A small genus of *Amaryllidaceae*, consisting of bulbous plants from South Africa, distinguished by having a regular six-parted perianth without tube, six stamens having the filaments united by a gibbous junction at the base, and a suberect style with trifid stigma. The plants produce umbellate flower-scapes before the bifarious leaves appear, and their scarlet or rose-colour or pale pink blossoms are very ornamental. The Guernsey Lily, *N. sarniensis*, is one of the most popular species. [T. M.]

NERINE DE GUERNESEY. (Fr.) *Nerine sarniensis*.

NERIUM. A genus of dogbanes, characterised by having a salver-shaped corolla which has a crown of torn appendages in the throat, and a border of twisted unequal segments; five stamens attached to the middle of the tube of the corolla; and



Nerium Oleander.

cylindrical seed-vessels. The species are erect glabrous shrubs, natives of India, the leaves coriaceous with parallel veins. The name is from the Greek word signifying *humid*, to indicate the localities where some of the species grow. *N. Oleander* is supposed to be the willow of Scripture. [G. D.]

NEROLI. An essential oil obtained by distilling orange blossoms.

NERPRUN. (Fr.) *Rhamnus cathartica*.

NERTERA. A genus of *Cinchonaceae*, native of the southern part of South America. *N. depressa* is a creeping herb, with oval fleshy leaves, and minute white flowers, with a calyx whose limb is divided into four minute teeth, a funnel-shaped four-lobed corolla, and four stamens slightly projecting from the tube; the fruit is b like, red, containing two or four stones, each with a single seed. The plant is mentioned by Lindley as the most southern

species of the extensive family of which it is a member. [M. T. M.]

NERVATE, NERVED, NERVOSE. Having several ribs.

NERVATION. The manner in which veins are arranged.

NERVES, NERVURES. The ribs or principal veins of a leaf.

NESSEA. A genus of *Lythraceæ*, consisting of perennial herbs, with opposite or whorled leaves, and axillary flowers. These have a short bell-shaped or cup-shaped calyx with four to seven erect teeth, and as many longer and spreading horn-like processes between them; five blue or purple petals, several exserted stamens, and a roundish three to five-celled capsule. There are two subgenera: *Nesaea*, from Senegambia and Morocco, with one-flowered peduncles and usually twelve to fourteen nearly equal stamens; and *Decodon* from North America, with many-flowered peduncles and ten stamens, the alternate ones much larger than the others. To this last section belongs *N. verticillata*, which is said to be injurious to cows about to calve. [J. T. S.]

NESODAPHNE. Two very large evergreen New Zealand trees, belonging to the *Lauraceæ*, have been formed into a genus under this name, which is derived from the Greek words *nesos*, an island, and *daphne*, a laurel. They have axillary and terminal panicles of small greenish perfect flowers with a six-cleft calyx; twelve stamens arranged in a double series, the outer bursting inwards consisting of six fertile ones without glands, and the inner bursting outwards of alternating fertile and sterile ones; the former having two glands opposite the bases of their filaments, and a one-celled ovary with a short style and simple stigma. *N. Tarairi*, the Tarairi of the New Zealanders, is a tree varying from fifty to eighty feet high, with a trunk about three feet thick, producing a light spongy white wood easily split but not durable, and consequently seldom used except by the natives for their fences. Its leaves are five or six inches long, smooth and shining upon the upper surface, but covered with a bloom on the under side, and with prominent nerves clothed with red or rusty-brown down, as also are the branches and panicles of flowers.

N. Tawa, called Tawa by the natives, is distinguished from the former by its shorter and narrower leaves having finely netted veins on both sides, and being covered with a dense bloom underneath, and by its panicles of flowers being more loosely branched, and not clothed with down. The fruits of both trees are ovoid and deep purple, those of the Tarairi being the largest, and eagerly sought after by birds and by the aborigines; but as their seeds contain a poisonous principle, they require to be well boiled in order to deprive them of their injurious property. [A. S.]

NETTED. Covered with reticulated

lines which project a little; any arrangement of veins which irregularly anastomose.

NETTLE. *Urtica*. —, **BEE.** *Galeopsis versicolor*. —, **CHILI.** *Loasa*. —, **DEAD.** *Lamium*; also *Galeobdolon*. —, **FALSE.** An American name for *Buhneria cylindrica*. —, **GREAT.** *Urtica dioica*. —, **HEDGE.** *Stachys sylvatica*. —, **HEMP.** *Galeopsis*. —, **HORSE.** *Solanum carolinense*. —, **ROMAN.** *Urtica pilulifera*. —, **SMALL.** *Urtica urens*. —, **STINGLESS.** *Pilea*.

NETTLE-TREE. *Celtis*.

NETTLEWORKS. Lindley's name for the *Urticaceæ*.

NEUMANNIA. The name of a Mexican herbaceous plant, constituting a genus of *Bromeliaceæ*. The flowers are arranged in a cylindrical spike, and nearly concealed by the overlapping ovate pointed bracts. The perianth is six-parted, with the outer segments erect, convolute, and one of the three inner ones larger than the other two, and flat. There are six free stamens; and a three-celled ovary slightly adherent to the base of the perianth, and containing numerous ovules. The fruit is leathery, three-valved. The name is also synonymous with *Aphloia*, a genus of *Flacourtiaceæ*. [M. T. M.]

NEURACHNE. A genus of grasses belonging to the tribe *Panicæ*. The inflorescence is in simple oval solitary spikes; glumes nearly equal, nerveless and acute; exterior smallest, hardening about the fruit; flowers two, the exterior neuter, and the interior hermaphrodite; stamens three; styles two, plumose. The species are natives of New Holland. [D. M.]

NEURADA procumbens. A prostrate annual with pinnatifid leaves, small axillary flowers, and a curious flattened circular capsule, surrounded by the prickly calyx, and divided into ten one-seeded cells. It has been referred to various natural orders, but is now usually associated with *Rosaceæ*.

NEUROCALLIS. A genus of acrostichaceous ferns, containing a few tropical species, of which the type is the pinnatifid *N. præstantissima* of the West Indies. Like other acrostichoid ferns, they are dimorphous, and their sori occupy the whole under-surface of the separate contracted fertile fronds. The veins, which are best seen in the sterile fronds, are reticulated in a regular manner, forming hexagonal meshes, which do not contain any free veinlets within the areoles. [T. M.]

NEUROLÆNA lobata is a West Indian tall herb or undershrub, forming a genus of *Compositæ*, with the aspect and chaffy receptacle of the *Helianthem*, but with the bristly pappus of *Senecioneæ*. The leaves are alternate, the lower ones three-lobed, the flower-heads without rays, in terminal corymbæ.

NEUROPELTIS. A genus of *Convolvulaceae*, containing two species, natives of India. They are spreading undershrubs, having the stem and branches whitish, and covered with numerous white elevated dots. The small flowers are in axillary racemes, and have a calyx consisting of five persistent sepals; a funnel-shaped corolla



Neuropeltis racemosa.

divided below the middle into five lanceolate acute lobes, which are valvate and not plicate in aestivation; and a two-celled ovary, with two ovules in each cell, and bearing two styles with fleshy reniform stigmas. The capsule is one-seeded, attached by a decurrent pedicel, considerably below the centre of the floral bract, which becomes enormously enlarged in fruiting, and is very delicate in texture. [W. C.]

NEUROSPERMA. *Momordica.*

NEWCASTLIA. [A genus of *Verbenaceae*, allied to *Physopeltis* and *Mallophora*, from which it differs chiefly in the pentamerous flowers. The species are natives of North Australia], and consist of low shrubs, with crowded opposite entire leaves, hirsute with coarse woolly hairs, and small flowers in terminal spikes remarkable for the long rigid hairs covering the calyx, and giving them the appearance of little hispid balls.

NEZ-COUPÉ. (Fr.) *Staphylea pinnata.*

NHANDIROBA. *Feuillea cordifolia.*

NIBONG. The Malay name for *Oncosperma flamentosa.*

NICANDRA. A genus of *Solanaceae*, distinguished by its pentagonal calyx, which is persistent and finally closes and becomes inflated, with five compressed angles, and encloses a juiceless berry. The flower is broadly campanulate, indistinctly five-lobed, large, blue, white in the centre, where it is marked with five dark blue spots. *N. physaloides*, so called from the resemblance of its fruit to that of *Physalis*, is a stout annual plant about two feet high, with smooth deeply sinuated leaves, and a native of Peru. [O. A. J.]

NICARAGO, BASTARD. *Casalpinia bijuga.*

NICARAGUA WOOD. An inferior kind of Brazil-wood, the produce of *Casalpinia echinata.*

NICHOLSONIA. A genus of *Leguminosae* of the tribe *Hedysaraceae*, originally proposed by De Candolle, but since reduced to a section of *Desmodium.*

NICKER-TREE. *Gulandina Bonduc.*

NICOTIANA. A genus of *Solanaceae* or *Atropaceae*, consisting of sticky-leaved herbaceous plants, natives of tropical America and Eastern Asia, several of which are extensively grown to furnish Tobacco. The genus derives its name from Joan Nicot, a Portuguese, who was the means of introducing the tobacco plant into France. The generic characters are: calyx tubular, bell-shaped, five-cleft; corolla funnel-shaped or salver-shaped, the limb five-lobed; stamens five within the tube of the corolla; ovary two-celled, the style simple, and the stigma button-shaped. Fruit a two-valved capsule, with numerous seeds.

The best-known species, and that which furnishes the largest quantity of Tobacco, is *N. Tabacum*, the specific name, according to Humboldt, being derived from the Haytian word for the pipe in which the herb is smoked, and which has been transferred from the instrument to the plant. It is a handsome plant, attaining a height of three to six feet, with large oblong lance-shaped leaves, some of which are attached to the stem for some distance before they are given off (decurrent). These leaves are covered with minute hairs, on the summit of which a gland is placed, which secretes the viscid fluid that invests the surface of the plant. The flowers are in panicles on the end of the stem. The corolla is more than an inch in length, funnel-shaped, with a distended throat, and of a pretty rose or pink hue. This species is largely cultivated in the Southern States of America, especially Virginia—also in China, Holland, various parts of Germany, France, &c. With us tobacco cultivation is illegal, except on a very restricted scale. *N. rustica* is grown in all quarters of the globe. It is a smaller plant than the preceding, has ovate leaves, and a greenish corolla with a cylindrical tube. It grows more quickly, ripens earlier, and is more hardy than *N. Tabacum*. This species produces East Indian tobacco; also that furnished by the Manila Isles, and the kinds called Latakia and Turkish. *N. persica*, a species not in cultivation in Great Britain, yields Persian tobacco. *N. repanda*, a native of the Havannah, is used in the manufacture of some of the most highly esteemed cigars. Its leaves clasp the stem, and the corolla is white with a slender tube. Other species, such as *N. multivalvis*, *N. quadrivalvis*, *N. latissima*, are also employed in the manufacture of various kinds of Tobacco; the last-mentioned yields the kind known as Orinoco. *N. multivalvis* and *N. quadrivalvis* have, as their

names imply, several-valved or four-valved capsules.

Tobacco contains an extremely poisonous substance called *nicotine*. This, when extracted by the chemist, is a colourless liquid with alkaline properties and an acrid burning taste. This ingredient, as well as a concrete oily substance called *nicotianin*, exists in the unpurified oil which is formed when tobacco is burned. Tobacco in poisonous doses, or when taken in any form by those unaccustomed to its use, produces (according to the quantity taken and the mode of taking) nausea, vomiting, purging, giddiness, remarkable languor and relaxation of the muscles, and in extreme cases cold



Nicotiana glauca.

sweats, fainting, convulsions, and death. Death has occurred from smoking even so small a quantity as two pipes, from the application of the drug to the raw skin, and from the incautious use of injections. Nevertheless, its moderate use is in many instances beneficial, from the sedative effects it produces. Its power of allaying hunger is also well attested. There can be no question, however, that the abuse of this substance does, at the present day, produce much serious impairment, first of the digestive organs, then of the nervous system, till at length the whole frame participates in the ill effects derived from what, under proper restraint, would be beneficial, or at all events harmless. In medical practice Tobacco is now rarely employed. At one time it was frequently used in cases of hernia, in order to relax the muscles and allow of the replacement of the displaced bowel; but for this purpose it has been superseded by the more safe and more efficacious chloroform. [M. T. M.]

Smoking is a custom of very great antiquity in both hemispheres, although previous to the discovery of America it was not common among the inhabitants of the Old World, and the substances smoked were either hemp or such herbs as coltsfoot. But when Columbus and his followers landed in Cuba in 1492, they discovered the now far-famed Tobacco in common use

among the natives; and subsequent explorers found that it was spread over the whole continent of America, where it had been cultivated from time immemorial. The pleasantly soothing effects of this new herb were so enticing that it soon found patrons among the adventurers, and in an almost incredibly short time after their return to Spain, tobacco-smoking began to be practised in Europe; but it did not gain much ground among the nations of the North until the famous Sir Walter Raleigh and his companions introduced the custom into England in 1586. At first it met with the most violent opposition. Kings prohibited it; popes fulminated bulls against it; and sultans sentenced smokers to the most cruel kinds of death. Persecution, however, only helped to spread it. In spite of all penalties the custom rapidly progressed, until, at the present day, it may be said to be universally practised by both civilised and uncivilised man—Tobacco, of all the varied productions of the earth, being the substance most universally used by mankind.

Tobacco now forms one of the most important articles of commerce, and a large revenue is derived from it in this and other countries. In 1863 the total imports into the United Kingdom amounted to 55,122,048 lbs., of which 37,616,240 lbs were retained for home consumption, the duty thereon amounting to 5,986,447l.

A great number of varieties are recognised, and mostly distinguished by the country from which they are derived. Thus, we have American tobacco, from the United States, Maryland, Ohio, Virginian, and Kentucky, which form the bulk of our imports, and come in hog-heads, the leaves being tied together in bundles called 'hands'; from Venezuela, the kinds known as Varinas, Orinoco, and Cumana; from New Granada the Columbian; from Cuba, the Cuban and Havannah; and large imports from Buenos Ayres, Uruguay, Paraguay, Brazil, Peru, &c. Of European tobacco we receive large supplies from Holland, Germany, France, Turkey (Salonica), Italy, Greece, and other parts. Asiatic tobaccos come principally from India, the Philippine Islands (Manilla), Latakia, and occasionally from Persia (Shiraz).

The first process which the leaves undergo after gathering, is that of sweating for three or four days, after which the plants are hung in airy sheds to dry, and then placed in heaps and again sweated for one or two weeks, and while slightly moist packed for exportation. Before being used it is manufactured into cut and roll tobacco for smoking and chewing, into cigars and cheroots, and into snuff. For cutting, the tobacco is moistened and pressed into hard cakes, and then cut by machinery. The principal varieties are Bird's-eye, which contains portions of the stalk; Shag, prepared from dark-coloured Virginian or Kentucky leaves; Canaster or Kanaster (derived from the Spanish *canastro*, a basket, because it was

in baskets), coarsely-cut Ohio, German, Varinas, or Havannah leaves; Returns, which consists of the refuse of the various processes of manufacture; and other kinds known by the name of the countries from which they are derived. Of roll tobaccos, the principal kinds are Pigtail, Negro-head, and Cavendish. Pigtail is the damp leaves spun into cord upon a wheel. The varieties of cigars and cheroots are too numerous for mention. Cigars are made by rolling fragments of leaves called fillings in a strip of leaf, and then winding a finer strip spirally round it. For all the above purposes, except for Bird's-eye, the leaves are stripped of their midribs, technically termed stalks, and these are used in snuff-making; but some snuffs are made from the entire leaves. Scotch, Irish, and Welsh high-dried snuffs are dried or roasted previous to grinding, but Rappées are ground moist. [A. S.]

NICOTIANIN. A volatile oil containing the odorous principle of tobacco.

NICOTINE, or NICOTINA. A colourless liquid alkaloid, the poisonous principle of tobacco.

NICTAGE. (Fr.) *Mirabilia*.

NID D'OISEAU. (Fr.) *Neottia nidus avis*.

NIDOSE. Having a disgusting smell between that of burnt meat and rotten eggs.

NIDULANT, NIDULATE. Nestling. Lying free in a cup-shaped or nest-like body; as in the genus *Nidularia*, or the baskets of *Marchantia*. Also lying loose in pulp, like the seeds of true berries.

NIDULARIACEÆ. A natural order of gasteromycetous *Fungi* of a very singular structure. The peridium or common outer covering, which consists of one or more coats, sometimes separable from each other, contains one or many sporangia, which are free or attached to the walls by an elastic cord. These consist of a cellular dark coat enclosing hyaline cells, from which rise sporophores terminating in the centre and bearing naked spores. The structure is in fact that of one of the hypogæous *Fungi* reduced to single isolated cells, each surrounded by a separate coat and collected within a common envelope. In *Spharobolus* the sporangia are reduced to one, which is exploded with violence in consequence of the eversion of the inner membrane of the peridium. The species are partly European and partly natives of hot climates, or of countries where there are no great extremes of temperature. *Atractobolus*, which should shoot out a spindle-shaped sporangium, appears to be nothing more than the eggs of a mite of the genus *Rhizoglyphus*, but highly curious as containing cellulose in the inner membrane, a very rare circumstance in animals, though not without example, as it occurs also in *Thimzia*. [M. J. B.]

NIDULARIA. A genus of gasteromycetous *Fungi* closely allied to *Cyathus*, but

distinguished by its simple peridium, which either bursts irregularly or opens by a circular mouth, and its sporangia, which are destitute of any umbilical cord. Two or three species are European. *N. pisiformis* has occurred abundantly in Ireland, and has also been found in the S. of England. Though wanting the elegance of *Cyathus* and *Crisidulum*, they are interesting in connection with these genera. *N. dentata* is probably a *Spharobolus*. [M. J. B.]

NIDULARIUM. The mycelium of certain fungi. Also a genus of *Bromeliaceæ*: see *Burr*.

NIELLE. (Fr.) *Nigella arvensis*. — **DES CHAMPS.** *Agrostemma Githago*.

NIEREMBERGIA. A genus of *Atropaceæ* (*Solanaceæ*), consisting of decumbent herbaceous plants, natives of South America, with alternate leaves, and flowers on short stalks opposite to the leaves. The corolla, which is usually white or purple, is funnel-shaped with a slender tube, and a spreading five-lobed limb; stamens five, of unequal length, projecting more or less and somewhat united at the base; stigma kidney-shaped, concealing the anthers; fruit a two-valved capsule, concealed by the persistent calyx. Four or five elegant species are cultivated in this country. [M. T. M.]

NIESHOUT. The South African Sneezewood, *Pteroxylon utile*.

NIGELLA. The English name of Fennel-flower has been given to the plants of this genus of *Ranunculaceæ*, in consequence of their finely-cut leaves resembling those of fennel. About twenty species are known, all erect annuals bearing solitary terminal flowers, and chiefly natives of Asia Minor and the countries bordering the Mediterranean. Their flowers are sometimes surrounded by a leafy involucre, and have five coloured spreading deciduous sepals, from five to ten petals, numerous stamens, and from five to ten single-celled ovaries partly cohering by their bases and terminated by long simple styles, ultimately becoming dry seed-vessels more or less connected to-



Nigella arvensis.

gether and opening along their inner edge. The seeds are numerous, black, acrid, and aromatic. *N. arvensis*, or an allied species, is supposed by some to be the *Fitches* mentioned by the prophet Isaiah (xxviii. 25, 27).

It is a native of Southern Europe, Egypt, the Levant, &c., and has rather hairy stems, about a foot and a half high, with bluish flowers destitute of an involucre, and capsules connected almost to the top and covered with short hard points. French cooks employ the seeds of this plant under the name of *quatre épices* or *route épice*, and they were formerly used as a substitute for pepper. They have a strong pungent fennel-like odour, and an aromatic somewhat acrid oily taste. In Eastern countries they are commonly used for seasoning curries and other dishes, and the Egyptians spread them over bread or put them on cakes like comfits, the ladies considering them to possess the property of augmenting the *embonpoint* so much admired by the Egyptian male sex. They are also used in India for putting among linen to keep away insects; and the native doctors employ them medicinally as a carminative in indigestion and bowel complaints. [A. S.]

NIGELLE AROMATIQUE. (Fr.) *Nigella arvensis*.

NIGER. Black, or black a little tinged with grey. *Nigrescens*, or *nigricans*, signifies blackish; and *nigrinus*, blackened, as when a portion only is black—like the point of the glumes of a *Carex*.

NIGER-SEED. The small black seed of *Guizotia oleifera*.

NIGHTFLOWER. *Nyctanthes*.

NIGHTSHADE. *Solanum*. —, DEADLY. *Atropa Belladonna*. —, ENCHANTER'S. *Circæa*. —, MALABAR. *Basella*. —, THREE-LEAVED. *Tyrlum*. —, WOODY. *Solanum Dulcamara*.

NIGRITELLA. A genus of orchids proposed by Richard for the *Orchis* or *Habenaria nigra*, a small Alpine species with a dense head of remarkably dark-coloured almost black flowers. It has most of the characters of *Orchis*, but the glands of the pollen-masses are half-exposed, almost as in *Gymnadenia*.

NILOUFAR DES ÉGYPTIENS. (Fr.) *Nymphaea carulea*.

NIMA. *Pterisma*.

NIMBLE WILL. An American name for *Muhlenbergia diffusa*.

NIMBOOKA. An Indian name for the Lemon.

NIMMOIA floribunda was described as a genus of *Saxifragaceæ* by Dr. Wight, but is now referred to the mellaceous genus *Amoora*. It is a much-branched herb, native of Bombay, and has alternate sessile coriaceous cordate-lanceolate leaves, and panicle corymbs of small rose-coloured flowers. [A. S.]

NINE BARK. *Spiræa opulifolia*.

NINETY-KNOT. *Polygonum aviculare*.

NIN-TOO DES JAPONAIS. (Fr.) *Lonicera confusa*.

NINZIN. (Fr.) *Panax quinquefolium*.

NIOPO TREE. *Piptadenia peregrina*.

NIPA fruticosa, the only representative of the genus to which it belongs, is palm-like plant, with creeping often incated trunk, feathery leaves, and large round bunches of fruits. It is common met with in the salt-marshes of the coast and islands of the Indian seas, and is generally classed with *Pandaneæ* or *Palmaceæ* but does not quite agree with either of the natural orders. A similar plant abounds the tertiary formations at the mouth of the Thames, where its fruit must at one time have floated about in as great profusion those of *N. fruticosa* do at the present day in Indian rivers. This plant is called *Nipa* and *Susa* in the Philippine Islands. The leaves are unarmed and pinnatisect, often more than twenty feet long. The flowers are monœcious, axillary, and enclosed in spathe, like those of genuine palms; the fruit is a one-seeded drupe, aggregated heads as large as that of a man. The *llage*, called *Nipah*, is used as thatch, a when burnt yields a supply of salt. From the spadix toddy is extracted, converted into syrup, sugar, vinegar, yeast, and strong spirit. The kernel of the fruit edible. [B. S.]

NIPHÆA. A genus of *Gesneraceæ* peculiar to Central America and Venezuela comprising about half a dozen species small herbs with decumbent stems, a more or less densely covered with bracts. The leaves are often crowded together forming rosettes; the corolla is rotate which *Niphæa* may easily be distinguished from all other *Gesneraceæ*, nearly symmetrical, five-lobed, and of a snow-white colour, sometimes marked towards the base with yellow; the stamens are four in number, and their anthers connected; the stigma is mouth-shaped (stomatomorph) and the fruit a capsule. All the known species are favourites in our stoves. *N. oblonga* was the first introduced; *N. rotunda*, *albo-limbata* and its varieties, *N. paniculata*, and *N. caripensis* are newer additions to our collections. [B. S.]

NIPHOLOUS. A genus of polypodiaceous ferns, separated from *Polypodium* by their netted venation, and from other netted *Polypodiaceæ* by the ultimate areolæ of the venation containing free divaric veinlets, and by the surface of the frond being clothed with a felt of minute stellate hair-scales of a brownish or whitish color. The round dot-formed sort are generally numerous, and push out from among the stellate pubescence. In some cases fertile fronds are contracted. One species *N. angustatus*, to which the name *Niphæa* has been sometimes given, bears a single row, of very large size, on each side the costa; but it otherwise agrees entirely with the genuine species, which are represented by the familiar *N. Lingua*; *N. pertusum*. The species are chiefly eastern and tropical, but a few extend to Japan.

others to Australia, and one occurs in South Africa. [T. M.]

NIPHOPSIS. *Niphobolus*.

NIPPLEWORT. *Lapsana*. —, DWARF. *Arnosia pusilla*.

NIRA. A Malay name for the saccharine juice obtained from *Nipa fruticans*.

NIR BIKHI, or NIR BISHI. The Bikh lison, *Aconitum ferox*.

NISA. A genus of shrubs natives of Madagascar, and belonging to the family *Homaliaceæ*. The leaves are alternate; the flowers in spikes occasionally concealed by large coloured bracts; the perianth top-shaped, its limb divided into ten or twelve segments, the inner of which are petaloid; the stamens five or six in number, alternate with as many glands; and the ovary partly adherent to the perianth, and having two or three styles. [M. T. M.]

NISSOLIA. A genus of *Leguminosæ* of the tribe *Hedysaræ*, distinguished by its five-toothed calyx, and its one-seeded pod ending in a ligulate wing. It comprises a few South American trees and shrubs of twining habit, with pinnate leaves, and axillary racemes of white or yellowish flowers. Also *Lathyrus Nissolia*. [T. M.]

NITELLA. A genus of *Characeæ*, distinguished from *Chara* by the component cells being simple and not coated with secondary cells, a circumstance which makes the species peculiarly adapted for observing the curious phenomena of the circulation. *Nitella* was supposed, moreover, to differ from *Chara* in having the antheridia separate from the spore-cases, on distinct plants, or at the tips of the branchlets, while in *Chara* they are placed immediately beneath the spore-cases; but these characters do not hold good. Ruprecht has made of those *Nitellæ* which agree in fruit with *Chara*, a genus *Charopsis*, while in his *Lychnothamnus* the antheridia are placed by the side of the spore-cases. The simpler plan, perhaps, is to consider *Nitella* merely as a subgenus, since even in *Chara* parts of the fronds are uncoated. The species are not so common in this country as those of *Chara*. In Australia most of the *Characeæ* are *Nitellæ*. [M. J. B.]

NITID. Having a smooth even polished surface; as many seeds.

NITRARIA. A genus of *Zygophyllaceæ*, by some considered to constitute a distinct order *Nitrariaceæ*. The species are natives of salt plains in Central Asia and Northern Africa. They are generally thorny shrubs, with fleshy leaves, and solitary or clustered white flowers. The calyx is five-cleft, small, persistent; the petals five, concave; the stamens fifteen, with anthers opening by an oblique cleft; and the ovary free, sessile, three to six-celled, with a single pendulous ovule in each compartment, and a short thick style, terminated by three to six stigmas. The fruit is fleshy externally, bony internally, one-celled, one-seeded by

abortion, and opening at the top by six valves of unequal size. The generic name was given to these plants from their having been first found in the vicinity of some Siberian nitre-works. The fruits are eaten in the Caspian desert, despite their salt taste. Camels also browse on the young shoots. *N. tridentata* has been supposed to be the true Lotus tree of the ancients. *N. Billardieri*, an Australian species, is said to produce fruit of the size of an olive, of a red colour, and with an agreeable flavour much relished by the natives. [M. T. M.]

NITTA-TREE. *Parkia africana*.

NIVALIS. Growing near snow, or appearing at a season when snow is on the ground.

NIVENIA. A genus of *Proteaceæ* having a regularly four-cleft calyx, the concave segments of which bear a nearly sessile anther and a filiform silky style with a club-shaped stigma. The fruit is a nut containing a single shining seed. They are large shrubs, natives of the Cape of Good Hope, with simple or much-divided leaves, the segments of which are filiform and sharp-pointed. Flowers in terminal or axillary spikes; florets in fours within a persistent hairy involucre of four leaves. [R. H.]

NIVÉOLE. (Fr.) *Leucojum*.

NIVETTE. (Fr.) A kind of Peach.

NIVEUS. Snow-white, the purest white.

NOBLE-ÉPINE. (Fr.) *Cratægus Oxyacantha*.

NODE. That part of a stem from which a leaf, whether complete or incomplete, arises.

NODOSE, NODULOSE. Knotted; an irregular form of necklace-shaped. These terms are chiefly applied to roots.

NODOSITAS. A knot; a woody swelling of any kind.

NOIRPRUN. (Fr.) *Rhamnus catharticus*.

NOISERIAIE. (Fr.) A grove of Walnut trees.

NOISETIER. (Fr.) *Corylus Avellana*.

NOISETTIA. A genus of tropical American shrubs of the Violet family. There are only two species, which are erect and little branched. The flowers are in clusters or short racemes, sometimes nodding, and with jointed stalks; the three anterior segments of the calyx are larger than the other two; the five petals are very unequal in size, the posterior one largest and prolonged at the base into a long spur; and the five stamens have the anthers adherent, crested, two of the filaments prolonged at the base, and concealed within the spur of the hindmost petal. The fruit is a three-valved capsule. [M. T. M.]

NOIX. (Fr.) A general term for Nut. — *D'ACAJOU.* The Cashew nut, *Anacardium occidentale*. — *DE BANCOUR.*

Aleurites Ambinuz. — DE BEN. The Ben nut, *Moringa pterygosperma.* — MUSCADE. The Nutmeg, *Myristica moschata.* — VOMIQUE. The Nux-vomica, *Strychnos nuxvomica.*

NOLANACEÆ. (*Nolanade.*) A natural order of corollifloral dicotyledons belonging to Lindley's echial alliance of perigenous Exogens. Herbaceous or shrubby plants, with alternate exstipulate leaves, and having some features in common both with *Convolvulaceæ* and *Boraginaceæ*. Their distinguishing characteristics are their straight inflorescence, their valvate calyx, their plaited corolla, and their ovary of five or more separate carpels, variously combined with united styles and somewhat capitate stigma. They are natives of South America, and consist of half a dozen genera (e.g. *Nolana* and *Alona*), which comprise about three dozen species. [J. H. B.]

NOLANA. A genus of annual *Nolanaceæ*, well marked by the bell-shaped corolla, plaited while in bud. *N. atriplicifolia* is a pretty plant, with prostrate much-branched stems, ovate fleshy leaves, and large axillary flowers (resembling those of a convolvulus), of which the limb is bright blue, and the tube white and yellow. They are all natives of Peru or Chili. [C. A. J.]

NOLITANGERE. The Touch-me-not, *Impatiens Nolitangere.*

NOMBRIL DE VÉNUS. (Fr.) *Cotyledon umbilicus*; also *Omphalodes linnifolia*.

NOMOLOGŸ. That part of Botany which relates to the laws which govern the variations of organs.

NONDA. *Parinarium Nonda*, one of the few edible fruits of Australia.

NONDO. An American name for *Ligustrum actæifolium*.

NONE-SO-PRETTY. *Saxifraga umbrosa.*

NONI. Nine together.

NONNEA. A genus of *Boraginaceæ*, natives of the Mediterranean region and of Middle Asia. It consists of hispid plants, often of annual duration, with terminal leafy racemes of yellow purple or variegated flowers, having a five-cleft calyx swelling at the base as the fruit ripens, a funnel-shaped corolla with a straight tube bearded or with small pilose scales at the throat, and four nuts often reticulated and pubescent, excavated at the base where they are attached to the receptacle, quite free from the style. [J. T. S.]

NONSUCH. *Medicago lupulina*; also *Lychnis chalcedonica.*

NONUS. The ninth.

NOONFLOWER, or NOONTIDE. *Tragopogon pratensis.*

NOONGPOO. The Tamil name of the wine obtained from the Palmyra Palm.

NOOPS. The Cloudberry, *Rubus Chamaemorus.*

NOPAL. (Fr.) *Opuntia vulgaris.*

NOPALEA. The three species to which this generic name is applied have been separated from the old cactaceous genus *Opuntia*, and are characterised by their flowers having the petals erect and drawn together at the top instead of being expanded as in *Opuntia*, and by the stamens being longer than the corolla but shorter than the style. They have round stems, and fleshy jointed flat branches like *Opuntia*; but the tubercles upon the branches are usually unarmed with spines, and the flowers are crimson or reddish instead of yellow or orange. They are natives of Mexico and the West Indies.

N. coccinellifera grows about eight or ten feet high, and has a tree-like appearance. Its stem and older branches are nearly cylindrical and of an ash-grey colour, but the younger parts are flat and of a deep green, the joints being of an oblong or obovate form, and varying from five or six inches to a foot in length, usually unarmed with spines, but having when young several short awl-shaped fleshy leaves, which soon fall off, leaving a white scar and tuft of short wool and bristles. Plantations for rearing the cochineal insect (*Coccus Cacti*) are called *nopaleries*, and sometimes contain 50,000 plants, arranged in lines, and kept about four feet high. The female insects are placed on the plants in August, and in four months the first crop is gathered, two others being obtained in the course of the year. Mexico is the native country of the cochineal, but the greater part of our supply now comes from New Grenada and the Canary Islands; the annual imports being from 1,200 to 1,400 tons, worth about 400l. per ton. Although the name *coccinellifera* (i.e. cochineal-bearing) has been given to this species, it is not the only one upon which the insect feeds, *Opuntia Tuna* being most commonly cultivated for the purpose in Mexico. [A. S.]

NOPUGÈTE. (Fr.) A kind of Olive.

NORANTEA. A genus of *Marcgraviaceæ*, a group regarded by some authors as a sub-order of *Ternstroemiaceæ*. They are epiphytal or scandent shrubs, rarely trees, with coriaceous entire leaves, and terminal bracteated racemes of flowers. The five sepals are imbricated, as are the five petals; the stamens are numerous, with linear innate anthers; and the ovary is three to five-celled, with a sessile radiating stigma, and anatropal ovules. Fruit globose, indehiscent. There are eight species found in the tropical parts of America. [J. H. B.]

NORÇA. The Portuguese name of the Port Moniz Yam, *Tamus edulis*.

NORDMANNIA. A genus of *Thymelacææ*, *Hamamelis One*

cultivation.

[M. T. M.]

NORMAL. When the ordinary structure peculiar to the family or genus of a plant is in nowise departed from.

NORONHIA. A traveller in Madagascar has given his name to this genus of *Oleaceæ*, which comprises a few shrubs, natives of that island and of the Mauritius. The leaves are opposite, entire, with thick woody stalks; and the flowers yellowish, in axillary clusters. Calyx small, persistent; corolla globular thick, four-cleft; anthers two, sessile or nearly so within the tube of the corolla; ovary two-celled, with two pendulous ovules in each. Fruit drupe-like, one-seeded by abortion. [M. T. M.]

NORRISIA. A genus of *Loganiaceæ*, established by Gardner for a Malayan shrub, which Wight had referred to the Brazilian genus *Antonia*, but which differs in the want of any imbricated bracts under the calyx, in the slender tube of the corolla, and in the linear placenta to which the ovules and seeds are attached.

NOSEBLEED. The Yarrow, *Achillea Millefolium*.

NOSEBURN TREE. *Daphnopsis tenuifolia*.

NOSTOC. A genus of green-spored *Algae*, consisting of gelatinous globose or lobed, rarely forked masses, filled with necklaces of globules, some of which, of a larger size than the rest, reproduce the plant by cell-division of the endochrome, or propagate it by zoospores. They resemble so closely young fruitless *Collembata* that they have been supposed to be merely barren lichens. Ascigerous fruit, indeed, has been figured by Bayrhammer in the *Botanische Zeitung* for 1857, but the observation requires confirmation, to show that there has been no delusion about specimens. Many of the species grow on the naked soil on rocks, while others are as constantly immersed in water, whether fresh or brackish. Their colour is usually green, but sometimes is of a decided blue. A species which abounds in streams in China, *N. edule*, is dried, and forms a favourite ingredient in soup, for which its gelatinous substance, rich in bassorin, makes it appropriate. A closely allied alga, *Hormosiphon arcticus*, abounds in the Arctic regions, and affords a mass of wholesome food, which is far preferable to the Tripe de Roche, as it has none of its bitterness or purgative quality. The most singular species we have met with is *N. flagelliforme*, which grows on naked aluminous soil in Texas. This has a long forked frond, and at first would not be taken for a *Nostoc*, though its structure is precisely similar. See FALLING STARS. [M. J. B.]

NOSTOCHINEÆ. A natural order of green-spored *Algae*, consisting of gelatinous fronds or masses made up of necklace-shaped threads, some of whose joints are larger than others. The gelatinous element is more or less predominant, and according to its firmness the forms assumed are more or less definite. *Anabaena*, and one or two other genera, remarkable for the different forms assumed by some of the component joints, are mere floating

masses. *Sphærozyga spiralis* forms clouds in the water, tinging the whole body with a delicate green. *Monormia* is singular, as consisting of a single complicated thread of immense length. The threads, after a time, break up into their component joints, which have been observed by Thuret to have active motion—a fact which he finds especially in aquatic species, enabling them to contend against currents which would otherwise carry them away. The larger joints are often differently coloured from the others. Derbès records their transformation into zoospores. It is probable that in many cases the endochrome is resolved into minute active bodies, and that the cell-division which Thuret observed in *Nostoc* is not a true mode of fructification, but merely a case of multiplication. The large connecting cells are sometimes provided with cilia. Occasionally there is an external tube to the necklaces, in which case we have a close approximation to *Ocellularia*. A few species occur in warm springs, and those, possibly from the presence of iodine, are often used as an outward application in glandular affections. *Nostochineæ* grow in all parts of the world, and are capable of bearing a very low temperature, while their addition to warm springs shows that they are not at all averse to considerable heat. Where the contrast of the component joints as to form, size, and colour is great, they are charming microscopical objects. [M. J. B.]

NOTCHWEED. *Chenopodium Vulvaria*.

NOTELÆA. A genus of *Oleaceæ*, consisting of six or seven species, which form shrubs or small trees, with opposite entire leathery leaves, and axillary racemes of small yellowish-green flowers. The generic name is derived from the Greek words *notos*, the south, and *elata*, the olive, in reference to the genus being confined to Australia and Tasmania. Their flowers have a very small four-toothed calyx; four concave petals cohering in pairs with the two short stamens placed between them; a two-celled ovary, with two pendulous ovules in each cell; scarcely any style; and a notched, two-lobed, or undivided stigma. The fleshy drupe is one-seeded by abortion.

N. ligustrina, the Tasmanian Ironwood tree, is in general only a bush six or eight feet high, but occasionally forms a tree growing thirty feet or more, with a trunk twelve or fourteen inches or sometimes as much as a foot and a half in diameter, yielding an extremely hard dense wood to which the name of Ironwood has been given by the Australian colonists, who use it as a substitute for lignum-vitæ, for making sheaves for ships' blocks, and also for turnery and inlaid work. It is common in Tasmania, and found also in Victoria and New South Wales. Other species yield hard heavy timber, such as *L. ovata*, the Dunga-runga of New South Wales, a small crooked tree, growing from fifteen to twenty feet high, but as they are of small size the timber is of limited use. [A. S.]

NOTHOCHLÆNA. A genus of ferns closely related to *Polypodium*, from which it differs in its small oligocarpous sori, which finally become confluent in narrow lines near the margin, as well as in its aspect, which more nearly resembles that of *Chelidanthus*; the latter, however, being distinguished by the presence of a marginal indusium, which is wanting in *Nothochlæna*. The veins are free. The small tufted fronds are either once, twice, or thrice pinnate, some of them, as *N. pulveracea*, having the under-surface farinose-ceraceous, and others, as *N. lanuginosa* and *sinuata*, having the under-surface scaly, hairy, or woolly. They occur in North and South America, both Indies, Australia and the Eastern Islands, North and South Africa, and the South of Europe. [T. M.]

NOTHUS. False or bastard; usually applied to the false roots formed by parasites when they attack living plants.

NOTOBASIS. The Syrian Thistle, *N. syriaca*, is the only species of this genus of *Compositæ*, and is distinguished from other thistles by the central florets of the flower-head only being fertile. It has stems one to four feet high furnished with white-veined leaves, the lower of which are six to eight inches long, sinuately lobed and coarsely spine-toothed, and the upper pinnatifid, the lobes prolonged into rigid spines. The sessile flower-heads are solitary or two or three together, on short axillary branches, each head fenced in by a very rigid pinnatifid bract, whose spiny points are often two inches in length. The florets are purple. The plant is distributed throughout the Mediterranean region, and in the Canary Islands. [A. A. B.]

NOTOGERAS. A genus of *Cruciferae* from Siberia, the Canary Islands, and the Mediterranean region, comprising small annuals, with the racemes of small yellowish flowers opposite the leaves. The pod is two-valved, four-sided, with two of the angles acute and two obtuse, the valves drawn out into two or four short horns. [J. T. S.]

NOTORHIZÆ. A term derived from two Greek words signifying back and root, and applied to a suborder of cruciferous plants in which the radicle of the embryo lies on the back of the cotyledons. In this case the cotyledons are said to be incumbent, and the radicle dorsal. Among British plants examples are seen in *Hesperis*, *Brassica*, *Sinapis*, *Capsella*, &c. [J. H. B.]

NOTYLLIA. A genus of tropical American epiphytal orchids, with one-leaved pseudobulbs, and radical racemes of inconspicuous flowers, which have the two side sepals cohering beneath the lip, the lip itself unguiculate, quite entire, and free or slightly adherent by its claw to the slender erect column, at the back of which is the anther, containing two solid pollen-masses attached to a wedge-shaped caudicle adhering by a minute gland. [A. S.]

NOUFAR. An Arabian name for *Nymphaea Lotus*.

NOVENI. Nine.

NOYAU. (Fr.) A liqueur flavoured with the kernel of *Cerasus occidentalis*; it is also said to be sometimes prepared from *Convulvulus dissectus*.

NOYER. (Fr.) *Juglans*. — À FEUILLES DE FRÊNE. *Pterocarya fraxinifolia*. — BLANC. *Carya alba*. — COMMUN. *Juglans regia*. — DE CEYLON, DES INDES, or DE MALABAR. *Adhatoda varica*. — DES POURCEAUX. *Carya porcina*. — PACAVIER. *Carya oliviformis*.

NTABA. The Gaboon name for a blood-red wild grape.

NUCAMENTACEÆ. A suborder of *Proteaceæ*.

NUCAMENTACEOUS. Having the hardness of a nut.

NUCAMENTUM. An obsolete term for an amentum or catkin.

NUCLEUS. The word *Nucleus* is variously applied by botanists. Sometimes it is applied to cytoblasts, or to bodies resembling cytoblasts. It is also applied to the centre part of the ovule, in which the embryo is engendered. Bymycologists it is applied to the gelatinous mass of asci or spores which is found in the perithecia of *Sphaeria*, or the analogous fungi among the *Contomyces*; while in *Algae* it is applied to the fructifying mass of the rhodospores, whether contained in a single cell or in a compound cyst or conceptacle, the word *nucleoli* being used when there is a group of nuclei. — PROLIGERUS. A distinct cartilaginous body coming out entire from the apothecia of some lichens, and containing the spores. [M. J. B.]

NUCULANIUM. A pulpy thin-skinned superior fruit, having seeds lying loosely in the pulp; as a grape.

NUCULÆ. A small hard seed-like fruit; also the same as *Gians*; also a small stone or seed.

NUCUMENTACEÆ. A name derived from a Latin word meaning a nut, and applied to a suborder of cruciferous plants, in which there is a one-celled silicle from the absence of replum or partition, and often a single seed, the valves being indistinct and indehiscent. In British plants, this is seen in *Festis*. [J. H. B.]

NUDE, NUDUS. Naked, that is to say, either bald from the total absence of hairs, or uncovered in consequence of the absence of any investing organs. *Nudicaulus* is nearly naked, having scarcely any hairs.

NULLIPORES. A synonym of *Coralines*, more especially applied to the different species of *Melobesia* and similar productions. [M. J. B.]

NUMMULAIRE. (Fr.) *Lysimachia Nummularia*.

NUPHAR. A genus of water-plants of the family *Nymphaeaceæ*, acquiring its

name from an Arabic word applied to *Nymphaea Lotus*. The species are few in number—some say only two: one European and Asiatic, the other American. They have a thick horizontal rootstock, whence proceed the leaf and flower-stalks, which are smooth cylindrical or somewhat triangular. The leaves are heart-shaped roundish or sagittate. The calyx consists of five or six concave yellow persistent sepals; there are ten to eighteen petals, much smaller than the sepals, secreting a honey-like fluid at their base; and numerous stamens in several rows, ultimately bent backwards. The ovary is many-celled on the top of the receptacle, not surrounded by it as in *Nymphaea*, and becomes a globose fruit, bursting irregularly to allow of the escape of the seeds, which are imbedded in pulp.

N. lutea is the well-known Yellow Water-lily, common in most parts of Britain, and frequently associated with the common white water-lily. The flowers have a perfume of brandy—hence the name Brandy-bottles, which is applied in some counties to this plant. The rootstocks bruised and infused in milk are stated to be destructive to cockroaches, and when burnt to be particularly obnoxious to crickets. The leaves and leafstalks have a somewhat bitter and astringent taste. The flowers are used by the Turks in the preparation of cooling drinks, like sherbet. The seeds too, as they contain a quantity of starch, are said to be used in some countries as food. The leaf-stalks and flower-stalks are traversed by a great number of minute air-canals, whose arrangement is the same in both organs. A small variety occurs in the North of Britain, also in Siberia, Canada, &c.; it is sometimes considered as a distinct species under the name of *N. minima*. *N. Kalimiana* does not differ materially from this.

The American species, *N. advena*, has larger flowers than *N. lutea*, with six sepals, and arrow-shaped leaves of thinner texture than those of the European species. The arrangement of the air-canals is the same. These several kinds are frequently grown in ornamental waters in this country. [M. T. M.]

NUT. A hard indehiscent pericarp usually containing only one seed; the same as Glans and Achene. —, **SPURIOUS.** A nut which owes its hardness to some other cause than the induration of the pericarp; as in *Mirabilis*.

NUT. The fruit or kernel of the seed of various plants; more rarely applied to certain tubers. —, **ACAJOU.** The Cashew nut, *Anacardium occidentale*. —, **AR.** *Buntium flexuosum*. —, **BAMBARRA GROUND.** The seed of *Voandzeia subterranea*. —, **BARBADOS.** The seed of *Cucurbita purgans*. —, **BEAZOR.** The seed of *Guilandina Bonducella*. —, **BEDDA.** The fruit of *Terminalia Beleric*, called also Bastard Myrobalana. —, **BEN.** The winged seed of *Moringa pterygosperma*. —, **BETEL.** The seed of

Areca Catechu. —, **BITTER.** *Carya amara*. —, **BLADDER.** *Staphylea*. —, **AFRICAN.** *Bayona*. —, **BIMAH.** The fruit of *Pyrenocoma macrophylla*. —, **BONDUC.** The seed of *Guilandina Bonducella*. —, **BRAZIL.** The seed of *Bertholletia excelsa*. —, **BREAD.** The fruit of *Brotium Aloustrum*. —, **MONKEY.** The fruit of *Adansonia digitata*. —, **BUFFALO.** The fruit of *Pyrrularia oleifera*. —, **BUTTER.** The seed of *Caryocarp nuciferum*; also *Juglans cinerea*. —, **CANDLE.** The seed of *Aleurites triloba*. —, **CASHEW.** The seed of *Anacardium occidentale*; sometimes called Acajou Nut. —, **CASTANHA.** The seed of *Bertholletia excelsa*. —, **CHEST.** *Castanea vesca*. —, **COB.** *Corylus Avellana barcelonensis*. —, of Jamaica. *Omphalea*. —, **COCOA.** The fruit of *Ocotea nucifera*. —, **COLA.** The seed of *Cola acuminata*. —, **COQUILL.** The fruit of *Atalea Junifera*. —, **COROZO.** The Vegetable Ivory, *Phytelphas macrocarpa*. —, **DRINKER'S.** *Strychnos potatorum*. —, **EARTH.** *Arachis hypogaea*; also *Bunium flexuosum*, and *Carum Bulbocastanum*; also *Geocaryum*. —, **EBOE.** The seed of *Dipteryx oleifera*. —, **ELK.** The fruit of *Pyrrularia oleifera*. —, **EUBCEAN.** *Castanea vesca*. —, **FRENCH.** *Juglans regia*. —, **GOORA.** The seed of *Cola acuminata*. —, **GROUND.** *Arachis hypogaea*; also an American name for *Panax trifolium*. —, **HARA.** The drupe of *Terminalia citrina*. —, **HAZEL.** *Corylus Avellana*. —, **HICKORY.** *Carya amara*. —, **HOG.** or **PIG.** *Carya porcina*. —, of Jamaica. *Omphalea*. —, **HOG PEA.** An American name for *Amphicarpaea*. —, **ILLINOIS.** *Carya oliviformis*. —, **IVORY.** *Phytelphas macrocarpa*. —, **JESUIT'S.** *Trapa natans*. —, **JUPITER'S.** The Walnut, *Juglans regia*. —, **KEENA.** The fruit of *Catophyllum Calaba*. —, **KISKY THOMAS.** *Carya alba*. —, **KOLA.** or **KOLLA.** The seed of *Cola acuminata*. —, **KUNDOO.** The fruit of *Carapa Touloucouma*. —, **LEVANT.** The fruit of *Anamirta Cocculus*. —, **LUMBANG.** The seed of *Aleurites triloba*. —, **MALABAR.** *Adhatoda Vatica*. —, **MANILLA.** *Arachis hypogaea*. —, **MARANY.** A name under which the Marking Nut has been occasionally imported into Liverpool. —, **MARKING.** The nuts of *Semecarpus Anacardium*. —, **MOCKER.** or **MOKEE.** The nut of *Carya tomentosa*. —, **MOTE.** The fruit of *Carapa Touloucouma*. —, **OIL.** The fruit of *Pyrrularia (Hamiltonia) oleifera*; also a West Indian name for the seed of *Ricinus communis*. —, **OLIVE.** The fruit of *Elaeagnus*. —, **PACANE** or **PBOCAN.** *Carya oliviformis*. —, **PARA.** The same as Brazil Nut. —, **PEA.** An American name for *Arachis hypogaea*. —, **PHYSTO.** *Cucurbita purgans*. —, **FIG.** *Carya porcina*, and *C. glabra*; also *Carum Bulbocastanum* and *Bunium flexuosum*. —, **PISTACIA.** or **PISTACHIO.** The edible seed of *Pistacia vera*. —, **POISON.** The poisonous seed of *Strychnos nux vomica*. —, **PURGING.** The seed of *Cucurbita purgans*. —, **QUANDANG.** The fruit of *Ficus acuminata*.

—, **RAVENSARA**. The fruit of *Agathophyllum aromaticum*, used as a spice in Madagascar. —, **RUSH**. *Cyperus esculentus*. —, **SAPUCAIA**. The seed of *Locythis zabucajo*; also *L. Ollaria*, and *L. grandiflora*. —, **SARDIAN**. The Chestnut, *Castanea vesca*. —, **SASSAFRAS**. *Nectandra Pictury*. —, **SINGHARA**. The fruit of various species of *Trapa*, especially *T. bispinosa* and *bicornis*. —, **SNAKE**. The seed of *Ophiocaryon paradoxum*. —, **SOAP**. *Mimosa abelargens*. —, **SOUARI**, or **SUWARROW**. The seed of *Caryocar nuciferum*; also *C. butyrosium*. —, **SPANISH**. *Moræa Strychninum*. —, **TAQUA**. *Phytelapha macrocarpa*. —, **VEGETABLE IVORY**. *Phytelapha macrocarpa*. —, **VOMIT**. *Strychnos nux vomica*. —, **WATER**. The fruit of various species of *Trapa*. —, **WOOD**. *Corylus Avellana*. —, **YER, YUR, or JUR**. The fruit of *Arachis hypogæa* and *Buxium flexuosum*.

NUTANT, NUTANS. Nodding; inclining very much from the perpendicular, so that the apex is directed downwards, as the flower of the snowdrop.

NUTGALLS. The galls formed on *Quercus infectoria*.

NUTMEG. *Myristica moschata*; called also *M. fragrans* and *M. officinalis*. —, **AMERICAN**. *Monodora Myristica*. —, **BRAZILIAN**. *Oryptocarya moschata*. —, **CALABASH**. *Monodora Myristica*. —, **CALIFORNIAN**. *Torreya Myristica*. —, **CLOVE**. *Agathophyllum aromaticum*. —, **JAMAICA**. *Monodora Myristica*. —, **LONG**. *Myristica fatua*. —, **MADAGASCAR**. *Agathophyllum aromaticum*. —, **MALE**. *Myristica tomentosa*. —, **PERUVIAN**. The seed of *Laurelia sempervirens*. —, **PLUME**. *Atherosperma moschata*. —, **SANTA FE**. *Myristica Otoba*. —, **STINKING**. *Torreya Myristica*. —, **WILD**. *Myristica tomentosa*, and *M. fatua*.

NUTMEG-WOOD. The wood of the *Palmyra* palm, *Borassus flabelliformis*.

NUTTALLIA. A name given by Torrey and Gray to a North-west American shrub constituting a genus of *Rosaceæ*, remarkable as forming a transition from the *Amygdalæ* to the *Spirææ*. The flowers are dioecious, with only fifteen stamens. There are five distinct ovaries, the fruiting carpels usually fewer, coriaceous, and one-seeded. It is a small tree, with obovate entire leaves, and white flowers in axillary racemes.

NUX. The same as **Nut**. —, **BACCATA**. A nut enclosed in a pulpy covering formed by some external organ, as in the Yew.

NUX VOMICA.

NUYTSIA. The Flame-tree or Fire-tree of South-western Australia is *N. floribunda*, a plant belonging to the *Loranthaceæ*, but differing from all the rest of the order by growing in the ground like ordinary trees, instead of being parasitic like the *Loranthus*, *mistletoe*, &c. It attains the height of twenty-five or thirty feet, and, when covered with its long narrow orange-coloured

flowers, is an extremely brilliant object, and is compared by the colonists to a tree on fire. Its flowers are abundantly produced in large terminal racemes, and are in threes, each three with an involucre of three separate bracts at the base. A large quantity of gum, somewhat like gum-arabic, exudes from its trunk. [A. S.]

NYCTAGE. (Fr.) *Mirabilis*.

NYCTAGINACEÆ. (*Nyctagines*, *Nyctagos*.) A natural order of monocotyledons dicotyledons belonging to Lindley's che-nopod alliance of hypogynous Exogens, and consisting of herbs, shrubs, or trees with opposite often unequal leaves, and involucre flowers. Perianth tubular, coloured, contracted in the middle, becoming indurated at the base, the limb deciduous; stamens definite, hypogynous; ovary superior, one-celled, with a solitary erect ovule. Fruit a caryopsis, enclosed within the enlarged persistent tube of the perianth. The plants of the order have in general purgative qualities. *Mirabilis Jalapa* was at one time considered the Jalapian. *M. dichotoma* is called in the West Indies 'four o'clock flower,' on account of opening its blossoms at that hour in the afternoon. They are natives principally of warm countries. The order comprises about a score of genera, and upwards of one hundred species. Examples: *Mirabilis* (*Nyctago*), and *Pisonia*. [J. H. B.]

NYCTAGINIA. Mexican herbs constituting a genus of *Nyctaginaceæ*. The principal characteristics are: leaves opposite; flowers aggregated within a many-leaved involucre; perianth tubular, dilated at the apex; stamens five, attached to the base of the perianth, and projecting beyond it; style as long as the stamens, terminated by a small button-like stigma; fruit as in *Mirabilis*. [M. T. M.]

NYCTALIS. A genus of gill-bearing Fungi, all the species of which are parasitic on *Russula adusta*, *elephantina*, and one or two allied fungi. They are, however, chiefly remarkable for the comparatively small development of the hymenium in some of the species, and the constant growth of a parasite with curious stellate spores (*Asterophora*) on the extremely thick pileus, or, according to the views of some, the conversion of its tissues into stylospores. *N. parasitica*, which has a different habit, is also described as producing stylospores on the hymenium instead of true fruit; but whether this is really the case, or whether the appearance is due to some parasite, is at present undecided. Tulane has shown that the *Asterophora* is a coniferous form of a species of *Hymenoglyphus* (*Sphaeriales*). [M. J. B.]

NYCTANTHES *Arbor tristis*, the Night Jasmine of India, is a shrub or small tree of the *Jasminaceæ*, with acutely four-angled branches, ovate-acuminate entire leaves, and highly fragrant flowers. These have salver-shaped corollas, the flat limb of which is white with an orange eye, and the long terete tube also bright-orange.

The genus is characterised by its tubular very minutely five or six-toothed or quite entire calyx; and capsular fruit with a single seed in each of the two cells. Its brilliant flowers do not expand till evening, and fall off about sunrise; so that during the day it loses its brightness, whence its specific name *Arbor tristis* or Sad-tree. Its flowers are collected for use as a perfume, and also as a dye, but their colour is not permanent. [A. S.]

NYCTERINIA. A genus of *Scrophulariaceae*, of the tribe *Gratiolaceae*, and allied to *Manulea* in its one-celled anthers. The corolla, as in that genus also, has a long slender tube, and a spreading nearly equally five-lobed limb, with entire or bifid lobes; but the lower stamens, inserted much higher than the others, have small transverse and often abortive anthers. There are about sixteen species, all natives of the Cape Colony, chiefly annuals, with a few perennials or undershrubs, mostly villous and glutinous, drying black like the *Lycopodium*, but with more entire leaves, and flowers in terminal spikes. Two or three species, especially *N. Lycastoides*, have been occasionally cultivated in our gardens.

NYMPHÆACEÆ. (Water-lilies.) A natural order of thalamifloral dicotyledons, belonging to Lindley's nymphal alliance of hypogynous Exogens, and consisting of aquatic plants, with petiole or cordate fleshy leaves, and a rootstock or stem which extends itself into the mud. Sepals usually four, sometimes confounded with the numerous petals, and these often passing gradually into stamens; stamens indefinite, inserted above the petals into the torus, with petaloid filaments, and adnate introrse anthers, opening by two longitudinal clefts; torus large, fleshy, surrounding the ovary, which is many-celled, many-seeded, with radiating stigmas. Fruit many-celled, indehiscent; seeds very numerous, attached to spongy dissepiments. The plants of this order are found throughout the northern hemisphere, and are generally rare in the southern. Little is known in regard to their properties. Some are astringent or bitter, while others are said to be sedative. They have showy flowers, and their petioles and peduncles contain numerous air-tubes. *Victoria regia* is one of the largest known aquatics. It is found in the waters of South America, and is said to range over thirty-five degrees of longitude. There are five genera (e.g. *Nymphaea*, *Victoria*, *Nuphar*), and about sixty species. [J. H. B.]

NYMPHÆA. The technical name of the genus to which the White Water-lily of our streams belongs. It constitutes the type of the *Nymphaeaceae*, and consists of water-plants, found in lakes or rivers almost all over the world. They have a fleshy or tuberous rootstock, sending down rootlets into the mud, and throwing up leaves and flowers. The leaves are usually somewhat circular in outline, entire or toothed, the veins on the under-surface either prominent or depressed; they float on the

surface of the water, but after a time are partially raised from it; the leafstalks are cylindrical, traversed with air-canals, which are arranged in a regular manner. The flowerstalks are like the leafstalks in appearance, and like them are permeated by air-canals, which in some instances are arranged in the same manner as those in the leafstalk, in others are disposed differently. The leaf and flower-stalks vary in length according to the depth of the water in which the plant is growing. The flower is placed on the end of the stalk, and consists of a calyx with four sepals, green on the outside but petal-like on the inner surface, falling off as the fruit ripens; the petals are numerous, arranged in several rows upon the prolonged receptacle, the inner ones passing by insensible gradations into the stamens, which are likewise very numerous—the outer ones petaloid, the inner linear with their stalks not exceeding the anthers in breadth. The ovary is imbedded within the receptacle, on which the outer portions of the flower are inserted; internally it is divided into numerous many-seeded compartments, and surmounted by a plate-like stigma with several diverging rays, and a depressed centre, occupied by a small conical or ovate body. When ripe the fruit sinks towards the bottom of the water, and rots, and thus liberates the seeds.

The flowers vary in form and colour in the different species, as also do the leaves. The best-known, and by no means the least beautiful, of these eminently beautiful plants, is the common White Water-lily, *N. alba*, pretty generally distributed over Great Britain, but found also in other parts of Europe, and in Northern and Central Asia. No flowers show better the transition from petals to stamens than those of the White Water-lily, and they are also interesting from their power of collapsing their petals, and of drooping on to the surface of the water, or even sinking below its surface during the night, emerging and expanding again in the sunlight. This peculiarity is also noticed in several of the foreign kinds, as in the Egyptian *N. Lotus*, of which Moore, in 'Paradise and the Fern,' thus sings

Those virgin lilies, all the night
Bathing their beauties in the lake
That they may rise more fresh and bright
When their beloved sun 's awake.

The rootstocks of *N. alba* are said to be used for dyeing purposes, as they contain gallic acid, and also a large quantity of starch. In France they are used in the preparation of a kind of beer. Numerous species are cultivated in this country, some of which deserve notice, such as *N. odorata* and the small variety of it, *N. odorata minor*. These are North American, and resemble our European species. *N. acutifolia* and *N. carulea* have fragrant blue flowers; the latter is the Blue Lotus of the Nile, and is generally met with in English gardens under the erroneous name *N. cyanea*. One of its varieties, and also another species called *N. micrantha*, or *N. gutenbergensis*, are

remarkable for producing on their leaves, just at the junction of the blade with the stalk, little buds which in process of time become detached and form new plants. *N. gigantea*, a native of Moreton Bay, has very large blue flowers, in which the stamens are much shorter in proportion to the petals than in most of the other species. *N. blanda*, a South American species, and some others expand their flowers at night. *N. Lotus* has white flowers tinted with pink, and strongly toothed leaves, on the under side of which the veins are very prominent. This is the White Lotus of the Nile. Varieties of this species occur in Guinea, India, and elsewhere. Some of them are grown in this country, under the names of *N. dentata*, *N. edulis*, &c. Some of the Indian varieties have red or rose-coloured flowers, such as *N. rubra*, &c. All these are without doubt variations of one common form, of which the *N. Lotus* of the Nile may be taken as the type. The tubers and seeds of some of these are used by the Hindoos as articles of food. The species of this genus are so variable, that much diversity of opinion exists as to the actual number of species, and there is much difficulty in discriminating them.

In addition to the characters laid down in systematic treatises, the writer has derived much assistance in the determination of these beautiful plants by paying attention, amongst other things, to the form of the flower-buds, the arrangement of the air-canals, and the appearance of the seeds. The Botanic Garden at Oxford has for some years been noted for its numerous collection of these lovely flowers, which are cultivated with great success by the Curator, Mr. Baxter. [M. T. M.]

NYSSA. A genus of doubtful affinity, by some made the type of a natural order (*Nyssaceae*), by others associated with *Alangium* or *Cornaceae*. It comprises about eight species, all trees inhabiting the swamps and banks of rivers of North America. Their leaves are alternate, entire and without stipules, their flowers greenish, small, solitary, or in little pedunculate clusters, and polygamo-dioecious. The calyx tube (of the fertile flowers) is adherent to the ovary, five-lobed, and valvate in æstivation; the stamens are from four to ten in number, the corolla is wanting, and the fruit is a berry-like drupe with a single seed, and black bluish or orange-coloured. Several species ornament our arborescences. *N. villosa*, the Sour Gum, Black Gum, Pepper ridge, or Tupelo tree, common from New England to the Carolinas, attains from forty to seventy feet in height, and has remarkably curled woody fibres, so as to render the timber very difficult to split, on which account it is much used for making naves or hubs for heavy carriage-wheels, and also batters' blocks; *N. candicans* is the Ogechee Lime. [B. S.]

NYSSACEÆ. A group of calycifloral dicotyledons, now included in *Alangium*, or *Cornaceae*.

NYSSANTHES. A genus of Australian

Americanaceae, consisting of herbs or undershrubs with opposite leaves and terminal and axillary heads of flowers, having spiny bracts, a four-leaved perigone, the exterior pair of leaves spiny, and two to four stamens united at the base, the stamens strap-shaped. [J. T. S.]

NY TOUCHES PAR. (Fr.) *Impatiens Noli-tangere*.

OAK. *Quercus*; also the Australian name for *Casuarina*. — AFRICAN. *Oldfieldia africana*. — AMERICAN TURKEY. *Quercus obtusiloba*. — AMERICAN WHITE. *Quercus alba*. — BARREN. *Quercus nigra*. — BEAR. *Quercus tinctoria*. — BELOTE. *Quercus Gramuntia*. — BITTER. *Quercus Cerris*. — BLACK. *Quercus tinctoria*. — BLACK JACK. *Quercus nigra*. — BONTANY BAY. *Casuarina torulosa*. — BURR. *Quercus macrocarpa*. — CAP. PADOCIAN. *Ambrosia ambrosioides*. — CHAMPION. *Quercus rubra*. — CHESTNUT. *Quercus sessiliflora*; also the varieties of *Quercus Prinus*. — COMMON. *Quercus Robur* (including *pedunculata* and *sessiliflora*). — CORK. *Quercus Suber*. — CYPRESS. *Quercus pedunculata fastigiata*. — DOMINICA. *Ilex sideroxyloides*. — DURMAST. *Quercus sessiliflora pubescens*. — DYER'S. *Quercus tinctoria*. — EVERGREEN. *Quercus Ilex*. — FEMALE. *Quercus pedunculata*. — FRENCH. *Catalpa longissima*; also *Bucida Buceras*. — GREEN. A condition of oak-wood caused by its being impregnated with the spawn of *Peziza acuminosa*, which communicates a beautiful green tint, of which the turners and cabinet-makers at Tunbridge Wells avail themselves for inlaying and making beads and other articles of ornament. A similar effect is produced in the Sikkim Himalaya by a closely allied species of *Peziza*. — HE. *Casuarina stricta*. — HOLLY, or HOLM. *Quercus Ilex*. — INDIAN. *Tectona grandis*, the Teak tree. — IRON. *Quercus Cerris* and *obtusiloba*. — ITALIAN. *Quercus Esculus*. — JERUSALEM. *Chenopodium Botrys*. — KERMES. *Quercus coccifera*. — LAUREL. *Quercus imbricaria*. — LIVE. *Quercus vitreus*, an important shipbuilding wood. — MALE. *Quercus sessiliflora*. — NEW ZEALAND. *Alectryon excelsum*. — NUTGALL. *Quercus tinctoria*. — PIN. *Quercus palustris*. — POISON. *Rhus Toxicodendron*. — POST. *Quercus obtusiloba*. — RED. *Quercus sessiliflora* and *rubra*. — RIVER. *Casuarina leptoclada*. — SCRUB. *Quercus Catesbeii* and *tinctoria*. — SCRUBBY. *Lophira africana*. — SEA. *Ficus vesiculosa*. — SHE. *Casuarina quadrivalvis*. — SHINGLE. *Quercus imbricaria*. — SILKY, or SILKBARK. *Grevillea robusta*. — SPANISH. *Quercus falcata*. — STONE. *Lithocarpus javanica*. — SWAMP. *Quercus Prinus*; also *Viminaria denudata*. — SWAMP POST. *Quercus lyrata*. — VALONIA. *Quercus Egilops*. — WHITE. *Quercus pedunculata* and *alba*. —, of New South

Wales. *Quasurina leptoclada*. —, WILLOW. *Quercus Phellos*. —, YELLOW. *Quercus Castanea*. —, WAINSCOT. *Quercus Cerris*.

OAK-CURRANT. A kind of gall produced on the oak by *Oynips Quercus peduncul.*

OAKESIA. A North American genus of *Empetraceae*, consisting of a small depressed branched shrub, with narrowly linear leaves in whorls of three or four, and dioecious flowers in terminal heads, surrounded by awned bracts. The perianth is absent, but each flower is surrounded by five or six thin scarious bracteoles; male flowers with three stamens; females with a slender three-cleft style; drupe small dry, with three nuts. [J. T. S.]

OAK-LEATHER. The common name of a kind of spawn found in old oak, running down the fissures, and having when removed somewhat the appearance of white kid-leather. It is figured by Sowerby under the name of *Xylotroma giganteum*. It does not appear very clearly what is its perfect form, whether *Dedalea quercina* or some *Polyporus*. It is extremely common in the United States, where it is sometimes used as a material for receiving plaister, a purpose which it answers admirably from its pliable texture. A substance remarkably similar in appearance is woven by certain insects on walls of granaries in Brazil, the true nature of which may be easily ascertained by microscopical examination, or by burning. A mycelium resembling Oak-leather also occurs in Australia on different species of *Eucalyptus*. The Oak-leather of ships suffering from dry-rot arises from *Polyporus hybridus*. [M. J. B.]

OAK-LUNGS. *Sticta pulmonacea*.

OAK-SPANGLE. A kind of gall produced on the oak by *Diplolepis lenticularis*.

OAR-WEED. A name given to the large and best-known form of *Laminaria digitata*, called by some authors *L. Cloustoni*.

OAT. *Avena sativa*. —, ANIMAL. *Avena sterilis*. —, FALSE. *Arrhenatherum*. —, SEASIDE. *Urtica*. —, WATER. An American name for *Zizania aquatica*. —, WILD. *Avena sativa*. —, — of the West Indies. *Pharus latifolius*.

OB. A prefix signifying inversion. Thus *obovate* is inversely ovate; *obcordate*, inversely cordate; *obclavate*, inversely club-shaped, &c.

OBCOMPRESSED. Compressed, so that the two sutures of a fruit are brought into contact; flattened, back and front.

OBELISCARIA. A genus of *Compositae*, proposed for the *Rudbeckia pinnata*, and two other North American species which have a much longer receptacle, and in which the achenes are considerably flattened laterally, and sometimes bordered by a wing on the inner edge. They would,

however, be much better considered as a section only of *Rudbeckia*.

OBERONIA. A genus of nearly fifty species of orchids, found principally in tropical Asia. All are epiphytal plants, with equitant leaves, and terminal spikes of minute flowers, having free sepals, of which the hind one is smaller than the two others, still smaller petals, a sessile immovable usually concave variously-divided lip, cushioned or keeled at its base and embracing the short column; and a two-celled anther containing four free waxy pollen-masses. [A. S.]

OBESIA. A name given by Haworth to a group of *Stapelia*, now generally included in that genus.

OBIER. (Fr.) *Fiburnum Opulus*.

OBIONE. The name under which certain species of *Atriplex*, as *A. pedunculata* and *portulacoides*, are sometimes separated. The most obvious distinction resides in the perigone of the fruiting flowers, which consists of two parts, three-toothed, free only at the top, and wedge shaped at the base. The pericarp is very thin, ultimately adhering to the perigone tube. [T. M.]

OBLIQUE. Unequal-sided; also slanting.

OBLONG. Elliptical, blunt at each end, as the leaves of *Hypericum perforatum*.

OBOLARIA. A genus containing but one species, *O. virginica*, which has been referred to *Orobanchaceae*, but is now, with greater reason, generally placed in *Gentianaceae*, among which it is remarkable for its imbricate aestivation. It is a low smooth purplish-green perennial herb, simple or sparingly branched, with opposite wedge-obovate leaves, and dull white or purplish flowers, which are solitary or in clusters of three, axillary and terminal, and nearly sessile. It is a native of rich and shady woods in South Carolina, New Jersey, Illinois, &c., flowering from March to May. The capsule is ovoid and one-celled, the seeds covering the whole face of the walls. The name is derived from *obolus*, a small Greek coin, to which, however, its leaves bear little if any resemblance. [J. Br.]

OBOVATE, or OBOVAL. Inversely ovate.

OBOVOID. Approaching the obovate form.

OBROTUND. Somewhat round.

OBTECTO-VEBOSE. Having the principal and longitudinal veins held together by simple cross-veins.

OBTEGENS. Covering over anything.

OBTUSE. Blunt, or rounded. Thus, *obtusely crenated* is when crenatures are quite round, and not at all pointed; *obtusely cut*, when incisions are blunt, &c.

OBTUSE-ANGLED. When angles are rounded, as in the stem of *Salvia pratensis*.

OBTUSIUSCULUS. Rather obtuse.

OBVERSE. The same as Ob.

OBVERSE-LUNATE. Inversely crescent-shaped; that is to say, with the

horns of the crescent projecting forwards instead of backwards.

OBVOLUTE, OBVOLUTIVE. When the margins of one organ alternately overlap those of an opposite organ.

OCA. The Peruvian name for the tuber-bearing *Oxalis crenata* and *tuberosa*.

OCELLATED. When a broad round spot of some colour has another spot of a different colour within it.

OCHNA. A genus of trees or shrubs, natives of Asia and tropical Africa, and giving its name to the order *Ochnaceae*. Their leaves are provided with two axillary deciduous stipules, and their flowers yellow, in racemes, with stalks jointed near the middle. Calyx of five deciduous coloured sepals; petals five to ten, much larger than the sepals; stamens numerous, the anthers opening lengthwise. The lobes of the ovary equal the petals in number, and are placed obliquely upon a thickened receptacle, each containing a single ascending ovule. The style is single, divided into five or ten branches. The fruits succulent, of five, ten or fewer carpels placed on the enlarged receptacle. [M. T. M.]

OCHNACEÆ (Ochnads.) A natural order of thalamifloral dicotyledons belonging to Lindley's rural alliance of hypogynous Exogens, consisting of undershrubs or trees, with alternate simple stipulate leaves and articulated pedicels; sepals five, persistent, imbricated; petals imbricated, as many or twice as many, deciduous; stamens five opposite the sepals, or ten, or indefinite, rising from an hypogynous disk; anthers bilocular, innate, opening by pores, or longitudinally; carpels as many as the petals, seated on an enlarged gynobase or torus. Fruit gynobasic, consisting of several succulent indehiscent monospermous carpels. They grow in tropical countries, and are remarkable for their large succulent torus; they are generally bitter, and some of them are used as tonics. There are twelve genera, including *Ochna*, *Luxemburgia* and *Gomphia*, and about one hundred and forty species. [J. H. B.]

OCHRA, or OCHRO. *Abelmoschus esculentus*. —, AFRICAN, or AUTUMNAL. *Abelmoschus Bammia*, probably a variety of the preceding. —, BUN. *Urena lobata*. —, MUSK. *Abelmoschus moschatus*. —, WILD. *Malachra*.

OCHRACEOUS. Ochre colour; yellow, imperceptibly changing to brown.

OCHRADENUS. A small shrub, native of the East, tropical Africa, and the Canaries, forming a genus of *Rosaceae*, distinguished by its fruit being a berry. It has numerous branches, linear obtuse leaves, and spicate yellow flowers, the peduncles at length becoming spinescent. Calyx rotate, five-toothed; petals absent; hypogynous disk urceolate, the anterior limb truncate, the posterior expanded into a lamina; stamens ten to twenty; berry ovate, three-sided, one-celled, closed, with numerous kidney-shaped seeds. [J. T. S.]

OCHRANTHACEÆ. The name under which it was formerly proposed to separate *Ochranthe*, as a distinct natural order.

OCHRANTHE. A Chinese shrub now included in *Turpinta* (*sapinducea*). It has the old branches grey; the leaves stalked, opposite, serrated, and furnished with ovate serrulate interpetiolar stipules; and a terminal panicle of white flowers, which turn yellowish. Calyx of five coloured sepals, the two exterior shorter; petals five, resembling the sepals; stamens five, hypogynous; disk fleshy, five-angled; ovary free, of three united carpels. [J. T. S.]

OCHREA. A tubular membranous stipule through which the stem passes, formed by the consolidation of two opposite stipules; as in *Polygonum*.

OCHROLEUCUS. Nearly the same as *Ochraceus*, but whiter.

OCHROMA. The well-known Corkwood tree of the New World, forms a genus of *Malvaceae* of the suborder *Bombaceae*, characterized by their flowers having a shortly five-lobed calyx, surrounded by a three-leaved involucre which soon drops off; five petals larger than the calyx; the tubular staminal column covered in the upper part with narrow contiguous spiral one-celled anthers, and five or ten-lobed at the top; and the five narrow stigmas spirally twisted together. The five-celled fruit opens longitudinally through the cells, and contains numerous seeds enveloped in silky wool. It is a tree, with leaves heart-shaped at the base and angular or somewhat five to seven-lobed, and bears its flowers at the ends of the branches.

O. Lagopus grows about forty feet high, and is very common, particularly along the seashores, in the West Indies and Central America, where its soft spongy and exceedingly light wood, called Corkwood in Jamaica, is commonly employed as a substitute for cork, both for stopping bottles and for the floats of fishing-nets. The very buoyant rafts or balsas, the unsinkable properties of which caused such surprise among the discoverers of America, are likewise made of it, whence the tree is called Balsas in some parts of America. Its specific name *Lagopus*, signifying hare's foot, alludes to the fruit, which is about a foot in length and when ripe splits open by five silks, out of which the silk-cotton of the seeds protrudes and spreads over the whole surface, giving it the appearance of a hare's foot. The cotton is used for stuffing pillows and cushions. [A. S.]

OCHROPTERIS. A genus of polypodiaceous ferns, referred to the *Pteridea*, and distinguished amongst those with free veins, chiefly by the oblong transverse sori being placed at the apices of the lobes, the opposite condition from that which occurs in *Lonchitis*, one of the genera of net-veined *Pteridea*, in which the sori are placed in the sinuses of the lobes. *Pteris*, which is technically very closely allied to *Ochropt-*

ria, differs in the more elongated lateral and marginal rather than short apical sori. The only species is *O. pallens*, a large decumbent fern of the Mascaren Islands, with small glossy coriaceous ultimate divisions. *Cheilanthes* differs in its punctiform receptacles, as does *Hypolepis*. [T. M.]

OCHROS. In Greek compounds=pale-yellow; thus *ochroleucus* is pale-yellow blended with white; yellowish-white.

OCHROSIA. A genus of dogbanes, having the corolla funnel-shaped, with the tube swollen in the middle; five stamens inserted in the throat of the corolla; and a single style, ending in two points. The species are shrubs, natives of Mauritius and New Caledonia, having three or four leaves in a whorl, the flowers in terminal or lateral corymbs. [G. D.]

OCTIMUM. An extensive genus of *Labiata* characterized by the large roundish upper tooth of the calyx having winged decurrent margins, the whole calyx being bent downwards after flowering; by the short corolla having the lower lip flat, with the four fertile stamens bent down and lying upon it; and by the style being divided at the apex into two short-pointed or flat-tish lobes. It is widely dispersed throughout the tropical and subtropical countries of Asia, Africa, and America, and consists of strong-scented annual or perennial herbs or small shrubby plants, with flowers disposed in whorls forming terminal interrupted racemes.

O. sanctum, a common Indian and Ceylon species, is frequently planted about Hindoo temples, whence the specific name. It is a hairy-stemmed plant, about a foot high, with small, long-stalked, oval, blunt, downy leaves, toothed along the edges, and small pale purplish flowers; the whole plant, indeed, generally having a purplish tinge. It is much used in medicine by the Cingalese. The leaves of *O. viride*, which is a native of Western Africa, possess febrifugal properties; and at Sierra Leone, where it bears the name of Fever-plant, a decoction of them, drank as tea, is used as a remedy for the fevers so prevalent at that place. It is a shrubby plant, with hairy somewhat four-sided branching stems, having oblong egg-shaped pointed leaves tapering to the base, and with round-toothed margins, smooth or with down on the ribs, and glandular dotted underneath. The leaves of *O. canum* and *gratissimum* in India, and of *O. crispum* in Japan, all very aromatic, are prescribed as a remedy for colds. *O. tenuiflorum* is regarded as an aromatic stimulant in Java; and *O. guineense* is much employed by the negroes as a medicine in cases of bilious fever. [A. S.]

These plants are in all cases destitute of any deleterious secretions: for the most part they are fragrant and aromatic, and hence they have not only been used as tonics, but are also valuable as kitchen herbs. The most important of them is *O. basilicum*, the Sweet or Common Basil,

a tender annual, native of India; which, as a culinary aromatic herb, has been celebrated from a very early period. This plant, which was well known to the ancient Greeks and Romans, though it does not appear to have been cultivated in this country until 1548, is of erect growth, about a foot high, much-branched, and furnished with small oval lanceolate deep-green leaves, and very small flowers arranged in clustered whorls at the extremity of the branches. It is chiefly valued for the leaves and leafy tops, which are the parts that are used, and have a flavour somewhat resembling that of cloves. On this account they are much employed for seasoning soups, stews, sauces, and various other dishes. Under the name of *O. hirsutum*, the seeds of this plant, which form a mucilaginous infusion, are used by the women of India to relieve after pains.

O. minimum, the Bush or Lesser Basil, is a tender annual, and like *O. basilicum* a native of India, from whence it was introduced in 1573. It is much-branched, seldom exceeding nine inches in height, the leaves small, oval, deep-green, and the flowers white. The leaves have a strong aromatic smell, and are employed for seasoning dishes in the same way as those of *O. basilicum*. To preserve the Basil, or indeed any other sweet herbs, the plants should be cut off close to the ground when the flowers are about to open, and hung up in a warm place, shaded from the sun, until they are perfectly dry. Each sort should then be put into a small box eight or ten inches long, five or six inches broad, and seven or eight inches deep; a board the size of the box inside is to be placed over the herbs, which by means of a screw-press are to be pressed into cakes. These are afterwards to be wrapt in clean paper until required for use; and if kept in a dry place, they will retain their aroma for two or three years, as perfect nearly as when they were first gathered. [W. B. B.]

OCTARILLUM. A genus of sandalworts, distinguished by having stamens and pistils in the same flower; the calyx with four sharp divisions; the stamens four; and the style top-shaped, longer than the stamens, and ending in a thick point. The only species known is a shrub found in Cochin China, having alternate entire lanceolate leaves, solitary flowers, and red berries. [G. D.]

OCTO. Eight.

OCTOBLEPHARUM. A genus of acrocarpous mosses forming the small natural order *Octoblepharet*, remarkable for the leaves being of a pale colour, with the chlorophyll cells situated beneath those on the surface, which have the contiguous walls perforated, but do not contain a spiral thread as in *Sphagnum*. It is further remarkable for having a peristome with eight undivided teeth. *O. albidum* is one of the commonest tropical mosses, and if imported in a Ward's case bears cultivation in the stove, where it makes a pretty contrast with *Hymenophyllum* of a dark-green. [M. J. B.]

OCTOMERIA. A genus of orchids distinguished from all others of the *Pleurothallidaceae* by having eight pollen-masses, which, moreover, are all arranged side by side in a single series, cohering together in two sets of four each. It is a small group, confined to the West Indies and South America, and consists of little plants with one-leaved terete-jointed stems, clothed with fibrous sheaths and bearing axillary fasciated or solitary flowers. [A. S.]

OCTONI. Growing eight together.

OCCULUS. An eye, i.e. a leaf-bud.

ODES. A termination in Greek compounds—similar to; as *phylloides*, like a leaf.

ODIALS. The young roots of the Palmyra which are eaten in Ceylon.

ODINA. A genus of *Anacardiaceae*, consisting of trees, natives of India and tropical Africa. They have alternate pinnate leaves placed near the ends of the branches, and small polygamous flowers aggregated together in slender terminal drooping racemes; calyx with four persistent rounded lobes; petals four, concave, placed at the base of an eight-lobed disc, into which also the eight stamens are inserted. In the male flowers the ovary is sterile, divided into four compressed lobes; in the female it is free, sessile, one-celled with a single ovule, and terminated by four erect styles. The fruit is a drupe. *O. Wodder* is a common tree in India, its specific name being derived from the native appellation. The old wood is close-grained and mahogany-coloured, and is used for sheaths of swords; the bark is fibrous, and there exudes from it a gum which is used as an application to sprains and bruises. [M. T. M.]

ODONTARRHENA. A genus of *Cruciferae* closely allied to *Alyssum*, from which it has small claims to be separated on account of the elliptical not suborbicular pouch, and the one-seeded cells, the seeds having the setaceous seed-stalks free from the partition. It is found in Europe and Middle Asia, has the habit of *Alyssum*, and bears small yellow flowers. [J. T. S.]

ODONTOGLOSSUM. An extensive genus of orchids, found principally in the cool mountain regions of Mexico, Peru, New Grenada, and Venezuela. A considerable number of its species have been introduced to this country, and are much prized by cultivators for their magnificent flowers, which are remarkable both for their size and the beauty of their colours. Some species are epiphytal and others terrestrial. Their flowers have spreading free sepals (or the lateral ones rarely united at the base), nearly equal-sized petals, the lip with its base parallel with the column and its limb deflexed and generally crested in various ways, a long column, narrow at the base and exserted or winged at the summit, and two pollen-masses with a narrow caudicle attached to

an oval gland. *O. grande*, a native of Guatemala, has been found to live and flower in the open air in this country during the summer season. Its scape bears from two to five large handsome flowers, each some six or more inches across, yellow, closely marked with cinnamon-brown bands and blotches. *O. tigrinum*, an allied species, has equally large yellowish flowers marked with chestnut-purple tiger-like spots, except on its lip, which is wholly yellow. Its flowers have a powerful odour of violets, and are used by the Mexicans for decorative purposes under the name of *Flor de Muertos*. *O. Pescatorei*, so named after an eminent



Odontoglossum grande.

French orchid-grower, is found in New Grenada. The flower panicle of this species is between two and three feet high and nearly as broad, and bears large semi-transparent flowers, the sepals of which have a faint bluish-coloured stain along their middle, and the lip a yellow stain at its base, and a deep crimson crest. A plant somewhat like the last, dedicated to the Princess of Wales under the name *O. Alexandra*, proves to be *O. crispum*. [A. S.]

ODONTOLOMA. A South American shrub, constituting a genus of *Compositae*, with the one-flowered heads of *Monotis*, but differing in the pappus being reduced to a small toothed ring. It is a native of the Valley of Caracas. The name is also applied to a small group of davallioid ferns here referred to *Aerophorus*.

ODONTOPTERIS. *Ligodium*.

OECHOCLADES. With the exception of *O. maculata*, all the orchids formerly associated under this name are now referred to *Angraecum* and *Saccobolium*, from both of which the remaining species is distinguished by its three-lobed lip. It is a Brazilian pseudobulbous epiphyte, bearing single fleshy spotted leaves, and having

a radicle scape bearing a few small ringent rose-and-white flowers. [A. B.]

CEDEMA. A swelling; the so-called tumid glands found on the woody tissue of conifers.

CEIDIPODIUM. A most interesting genus of mosses belonging to the natural order *Splachniet*, differing from the rest not only in its toothless peristome, but in the swelling at the base of the capsule (*apophysis*) being confluent with both capsule and stem. The columella, moreover, is strongly developed and dilated at the apex, and the spores do not radiate from it. *C. Griffithianum*, the only species, is not like the other *Splachniet* decidedly an inhabitant of dung, but grows in the crevices of Alpine rocks, where it attracts notice from its pale very obtuse leaves. It is found rarely in Europe, and occurs in several localities in Great Britain. [M. J. B.]

CEDOGONIUM. A curious genus of green-spored *Alga*s belonging to the natural order *Conjugata*, but producing fruit by the division of a cell and not by the junction of the cells of two contiguous threads. The propagation is very much like that described under *Bulbochate*, except that the product of impregnation is a simple zoospore which throws out rootlike holdfasts at the base as soon as it becomes stationary, and is not resolved, as in *Bulbochate*, into four distinct spores. The spores of *Cedogonium*, though at first green, often become of the most brilliant red. Multiplication sometimes takes place by the division of the threads, which is readily effected from the peculiar structure of the dissepiments. The species are numerous. Few foreign species have been observed at present, so that we know little or nothing of their geographical limits. *Vesiculifera* of Hassall is the same genus. [M. J. B.]

CEIL DE BOEUF. (Fr.) *Anthemis tinctoria*; also applied to *Chrysanthemum Leucanthemum*, the species of *Euphrasium*, and *Adonis autumnalis*. — **DE BOURRIQUE** The seeds of *Mucuna urens*. — **DE CHAT.** The seeds of *Gutlandina Bonduc*. — **DE CHEIST.** *Aster Amellus*. — **DE OISEAU,** or **DE PERDRIX.** *Adonis vernalis*. — **DE PAON.** *Anemone Pavonina*. — **DU SOLEIL.** *Tulipa Scutis solis*.

CEILLET. (Fr.) *Dianthus*. — **À BOUT-QUET,** or **À RATAPIA.** *Dianthus Caryophyllus*. — **BADIN.** *Dianthus Hispanicus*. — **DE DIEU.** *Lychnis Flos Jovis*, and *L. coronaria*; also *Agrostemma Githago*. — **D'INDE.** *Tagetes erecta*. — **DINDE TACH-ET.** *Tagetes signata*. — **DE PORTE.** *Dianthus barbatus*. — **DES CHARTREUX.** *Dianthus carthusianorum*. — **DES FLEURISTES.** *Dianthus Caryophyllus*. — **DES PRES.** *Lychnis Flos cuculi*. — **GIROFLE.** *Dianthus Caryophyllus*. — **JANSENISTE.** *Lychnis Viscaria*. — **MARIN.** *Statice Limonium*. — **MIGNARDISE,** or **PLUME.** *Dianthus plumarius*. — **PETT D'INDE.** *Tagetes patula*. — **VELU.** *Dianthus Armeria*.

CEILLETTE. (Fr.) *Papaver somniferum*.

CENANTHE. A genus of *Umbellifera*, consisting for the most part of plants frequenting wet or marshy places, or even growing in water. The leaves are much divided, and the umbels compound, generally without a common involucre, but with partial involucrels of many narrow bracts. The outermost flowers are usually on long stalks, sterile and with large petals; the inner ones on shorter stalks. The fruit is cylindrical or ovate, surmounted by the teeth of the calyx, and by the long styles, which latter are dilated at the base; and the carpels marked by five convex ribs, between which, within the rind, run as many ritts.

The species are distributed throughout the whole of the northern hemisphere, but are rare in America. Some of them are



Cenanthe crocata.

met with in this country, and certain of these are very poisonous. *C. crocata* is a stout branched species attaining a height of three to five feet; the root consists of a number of thick whitish parsnip-like tubers; the leaves are twice or thrice pinnate, with broad lozenge-shaped segments; the umbels are on long terminal stalks, the outer florets imperfect; and the fruits are somewhat cylindrical, densely packed. The juice of the stem and roots becomes yellow when exposed to the air. The roots act as a narcotic acrid poison, and from their resemblance to parsnips have been the cause of frequent and sometimes of fatal accidents. The difference between this plant and the parsnip is, however, sufficiently obvious in the foliage, inflorescence, &c.; thus the root of the parsnip is single, while there are several tubers in *C. crocata*. The locality in which the plant is found, and its wild not cultivated condition, should likewise induce caution. The plant has been used with beneficial result in certain skin-diseases; also in the form of poultices to ulcers, &c., as well as for the purpose of poisoning rats and moles.

C. Phellandrium, the Water Dropwort, is less poisonous than the preceding. It grows in wet places or even in the water,

its rootstock varying in appearance, according to the locality. Thus if in deep or running water the rootstock and stem are long and slender; in other cases thicker and erect. The leaves are repeatedly pinnate, with very small segments, which when under water become long and hair-like. The umbels are smaller than in the foregoing, opposite to the leaves or in the forks of the branches. The variety that grows in deep running water is by some considered a distinct species under the name *C. Auvitatis*.

C. fistulosa has fibrous roots, some of which become swollen and tuberous. The stem is thick and hollow, slightly branched, the root-leaves twice pinnate, with small wedge-shaped segments, the stem-leaves with long hollow stalks and a few pinnate linear segments at the top. The umbel terminating the main stem has in general three rays, and all the flowers are fertile, while the umbels that occur on the branches have more than three rays; but the flowers are barren. This is perhaps the most common species. *C. pimineloides* has tuberous roots, leaves much more divided than in the last, stems nearly solid, all the umbels with many rays, and having fertile and barren flowers intermixed; the latter are on longer stalks than the former. The shape of the leaves and tubers is subject to much variation. Mr. Benthall combines with this species *C. Lachenalii*.

In spite of the dangerous qualities of some of these plants, others are innocuous, and their tuberous roots are eaten as food. Cultivation, and the locality in which the plants are grown, will go far towards explaining this seeming anomaly. The name, derived from two Greek words signifying wine-flower, is applied in allusion to the vinous odour of the blossoms. [M. T. M.]

CENOCARPUS. An exclusively South American genus of *Palmacea*, consisting of six or seven species, abounding principally on the banks of the Amazon and Orinoco and their tributaries, forming lofty trees with smooth straight stems, and bearing a terminal crown of large pinnate leaves, the segments of which are narrow and somewhat crisped. Their broom-like flower-spikes spring from beneath the leaves, and are enveloped in double woody spathe, the inner of which is entirely closed when young, but ultimately opens and falls off. The flowers, which have no bracts at their base, are of separate sexes on the same spike. The fruits are oval or nearly round, and have a granular fibrous oily flesh, enclosing a single seed of a nutmeg-like appearance inside.

Several species common on the Amazon, such as the Patawa *C. Batava*, the Bacaba *C. Bacaba*, as well as *C. distichus*, yield colourless sweet-tasted oil, used in Pará for adulterating olive-oil, and excellent both for cooking and for lamps. The Indians also prepare a palatable but slightly aperient beverage, by triturating the fruits in water and adding sugar and mandioca-flour. The stiff slender nerves of the de-

cayed base of the leafstalks of *C. Batava* are used by the Indians for making arrows for their blow-pipes. [A. S.]

GENOTHERA. A genus of onagraceae, distinguished by having the border of the calyx four-cleft, reflexed, and fugacious; and the seeds numerous, without an appendage. The species are chiefly herbaceous, natives of North and South America, their lower leaves with triangular footstalks, and usually crowded; and the upper leaves alternate, almost sessile, entire or slightly toothed, rarely pinnatifid. The flowers present considerable difference in colour, being in some yellow, in others white or purple, and they usually open at night. Many species are handsome border flowers, and have the recommendation of being easily cultivated. *G. biennis*, one of the best known, has now become naturalised in some parts of England; and a large white-flowered *Genothera* has run wild over some parts of the Nellocherry hills in India. [G. D.]

GEONIA. A small genus of epiphytal orchids, with distichous coriaceous leaves, and showy flowers. They are found in Madagascar, Mauritius, and Bourbon; and are allied to *Angræcum*, from which they are distinguished by the three-lobed hooded lip, and the pollen-masses having two glands, and no caudicle. [A. S.]

GERSTEDDELLA. *Epidendrum centropetalum*, a Central American orchid, was first described under that name by Reichenbach, who, however, soon afterwards raised it to the rank of a genus called *Gerstedella*, and split it into two so-called species; now, however, he reverts to his original view, and combines the two species under the original name. [A. S.]

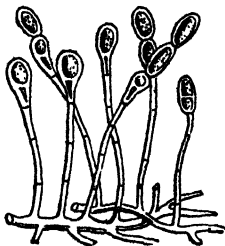
OFFBITEN. *Scabiosa succisa*.

OFFSET. A short lateral shoot, bearing clustered leaves at its extremity, and propagating a plant; as in houseleek.

OIDES, OLDEUS. See *Odes*.

OIDIUM. A genus of naked-spored moulds, which has obtained considerable notoriety from its connection with the Vine Mildew, which arises from the attacks of *O. Tuckeri*. This fungus derived its name from a gardener at Margate, who was one of the first to use sulphur as a remedy. It is now pretty clear that the *Oidium* of the vine, like some other supposed species, is but an early stage of some *Erysiphe*, though the perfect plant has not yet been found. Another form of fruit, indeed, besides the necklace-like spores, has occurred, consisting of little cysts filled with minute bodies or stylospores, such as occur in undoubted species of *Erysiphe*. Though, however, several supposed species of *Oidium* are referable to *Erysiphe*, there still remain true species. Some, which grow on decayed wood and other substances, are remarkable for their tawny or golden-yellow spores; but another species with large pallid spores, *O. fructigenum*, deserves notice, from its frequently forming patches

of little concentric tufts on pears, apples, and other fruits. Whether it is itself productive of decay, or only contingent to it, is uncertain. In the white mealy species, the necklaces of spores are very short, seldom exceeding three joints, but in others they are often much longer. [M. J. E.]



Oldium Tuckeri.

OIGNON (Fr.) *Allium Cepa*. — D'ESPAGNE, or D'HIVER. *Allium fistulosum*.

OIL. The general name for a variety of fatty matters, fixed or volatile: those of the former class more or less of a solid or fluid consistence, and those of the latter being known also as essential oils. We here mention only some of the more important of the oils of vegetable origin. — ALLSPICE. An aromatic oil obtained by distillation from the fruits of *Eugenia Pimenta*. — ALMOND. The fixed oil obtained by pressure from the kernels of *Amygdalus communis*, used both in manufactures and medicine. That of Bitter Almonds is very poisonous. — ANDIROBA. The same as Carap Oil. — ANISE. The volatile oil distilled from the fruits of *Pimpinella Anisum*; see also Oil of Star-anise. — ASAFOETIDA. The volatile oil obtained by distillation from the gum-resin of *Narthex Asafoetida*. — ASPIC. The same as Oil of Spike. — BACABA. A fixed oil obtained from *Orbocarpus Bacaba*, used in Pará both for lamps and cooking. — BALM. The volatile oil distilled from *Melissa officinalis*. — BALSAM OF PERU. An acrid oily fluid obtained from *Myrospermum peruvianum*. — BANCOUL. The same as Lumbang Oil. — BAY. A fixed oil obtained from the berries of *Laurus nobilis*. — BEROH-NUT. The fixed oil obtained from the mast or nuts of *Fagus sylvatica*. — BEN. A limpid fixed oil obtained from the seeds of *Moringa pterygosperma*, used in perfumery, and for lubricating delicate machinery. — BERGAMOT. The volatile oil obtained from the rind of the fruit of *Citrus Bergamia*; a similarly fragrant oil is obtained from *Mentha citrata*. — BIRCH-BARK. An empyreumatic volatile oil, distilled from the bark of *Betula alba*, employed in the preparation of Russia leather. — CADE.

An empyreumatic oil obtained from the wood of *Juniperus Oxycedrus*. — CAJUPUT, or CAJUPUTI. The stimulant antispasmodic oil distilled from the leaves of *Malaleuca minor*. — CAMPHOR. A limpid oil obtained from *Dryobalanops aromatica*, employed in the preparation of scented soap; also the volatile oil obtained from the branches of *Camphora officinarum*. — CARAP. The solid fixed anthelmintic oil obtained from the seeds of *Carapa guianensis*, also called Crab Oil; in South America it is used for burning. — CARAWAY. The volatile oil distilled from the fruits of *Carum Carad*. — CARDAMOM. The volatile aromatic oil distilled from the seeds of *Elettaria Cardamomum*; also a fixed oil obtained from the same plant. — CASHEW APPLE. A vesicatory oil obtained from the pericarp of *Anacardium occidentale*. — CASHEW-NUT. The edible fixed oil of the kernels of *Anacardium occidentale*. — CASSIA. The heavy volatile oil obtained from the bark of *Otmanomum Cassia*. — CASSIE. The volatile oil distilled from the flowers of *Acacia Farnesiana*. — CASTANEA. The fixed oil expressed from the seeds of *Bertholletia excelsa*. — CASTOR. The fixed oil obtained from the seeds of *Ricinus communis*, used medicinally; the common jungle lamp-oil of India is an inferior kind of this. — CEBADILLA. A fixed fatty oil obtained from *Asagraea officinalis*. — CEDAR. The volatile oil distilled from the wood of *Abies Cedrus* and *Juniperus virginiana*. — CEDRAT. The same as Citron Oil. — CHAMOMILE. The volatile stimulant oil distilled from the flower-heads of *Anthemis nobilis*. — CHEEROJEE, or CHEEROONJEE. A fixed oil obtained from the fruit of *Buchanania latifolia*. — CHERRY. A volatile oil obtained from the bark of *Cerasus serotina*. — CHERRY-LAUREL. A volatile oil obtained from the leaves of *Cerasus Lauro-cerasus*. — CINNAMON. The heavy volatile medicinal oil obtained from the bark and leaves of *Cinnamomum zeylanicum*. — CITRON. The fragrant volatile oil obtained from the fruits, rind, and leaves of *Citrus medica*. — CITRONELLE. The volatile oil of the Lemon Grass. — CLOVE. The heavy volatile oil obtained from cloves, *Caryophyllus aromaticus*; the name is also applied to the oil obtained from cinnamon leaves. — COCOA-NUT. The fixed oil pressed from the fruit of *Cocos nucifera*, used in manufactures, and throughout Western India for illumination. — COCUM, or KOKUM. A solid fixed oil obtained from the seeds of *Garcinia purpurea*. — COHUNE. A fixed oil obtained from the kernels of *Attalea Cohune*. — COLZA. The fixed oil expressed from the seeds of *Brassica campestris*, much used as a lamp-oil and for manufacturing purposes. — COONDI. The same as Kundah Oil. — COPAIVA. A volatile oil distilled from the balsam of *Copaifera multijuga*, and other species. — COROOKO. An Indian medicinal oil obtained from *Argemone mexicana*. — COTTON-SEED. The fixed oil

from the seeds of *Gossypium*. —, CRAB. The same as Castor Oil. —, CROTON. The fixed medicinal oil expressed from the seeds of *Croton Tiglium*; the same name is also used in India for an oil obtained from other species of *Croton*. —, CUBEB. A volatile medicinal oil obtained from the fruit of *Cubeba officinalis*. —, CUMARU. The same as Tonquin Oil. —, CUMIN. A volatile oil distilled from the fruits of *Cuminum Cyminum*. —, DILL. The volatile oil obtained from the fruits of *Anethum graveolens*. —, DOMBA. The same as Poonseed Oil. —, EPIE. A fixed oil obtained from the seeds of *Bassia latifolia*, resembling Ipca Oil, and adapted for the same purposes. —, ERGOT. A volatile medicinal oil obtained from Ergot of Rye. —, EUPHORBIA. An acrid oil obtained from the seeds of *Euphorbia Lathyris*. —, EXILE. A fixed oil obtained from the kernels of *Thevetia nerifolia*. —, FENNEL. The volatile medicinal oil distilled from the fruits of *Foeniculum dulce* and *F. vulgare*. —, FLORENCE. A fine kind of Olive Oil. —, FUSEL. An essential oil distilled from wine. —, GARLIC. The stimulant volatile oil obtained from *Allium sativum*. —, GENTIAN. The oil obtained from the root of *Gentiana lutea*. —, GERANIUM. The volatile oil distilled from the leaves of *Pelargonium odoratissimum*; also a commercial name for Grass Oil. —, GINGELLY, or GINGILIE. A fixed oil of fine quality expressed from the seeds of *Beniam indicum*. —, GINGER-GRASS. The same as Grass Oil. —, GRASS. The volatile oil obtained from *Andropogon Calamus aromaticus*, employed in medicine and perfumery. —, GROUND-NUT. The fixed oil expressed from the seeds of *Arachis hypogaea*, used as food, and for lamps. —, HEMP-SEED. The fixed drying oil pressed from the seeds of *Cannabis sativa*, used by painters, and for soap-making. —, HOP. An acrid oil obtained by pressure from the flower-heads of *Humulus Lupulus*. —, HUTS-YELLOW. The fixed oil of *Gutsotia olifera*. —, ILPA, ILLIPOO, or ILLUPIE. A fixed solid oil obtained from the seeds of *Bassia longifolia*, and useful for manufacturing purposes. —, JASMINE. The volatile perfumery oil obtained from *Jasminum officinale*, *grandiflorum*, *Sambac*, &c. —, JATROPHA. An oil obtained from the seeds of *Chocrea purpurea*; and *C. multifida*. —, JUNIPER. The volatile oil obtained by the distillation of the green berries of *Juniperus communis*. —, KANARI. The fixed oil of *Cannarium commune*, used in the East for culinary purposes. —, KATJANG. An Eastern name for an oil said to be obtained from the seeds of *Arachis hypogaea*. —, KEENA. An oil obtained from some species of *Calophyllum*. —, KEKUNE. The same as Lumbang Oil. —, KBORA. An Eastern volatile perfumery oil obtained from *Pandanus odoratissimus*. —, KHATZUM. A solid fixed oil obtained from the seeds of *Vernonia anthelmintica*. —, KHUS-KHUS. The fragrant attar prepared from *Andropogon*

muricatus. —, KIKUEL. An oil said to be obtained from the seeds of *Saipadora perovica*. —, KOKUM. The same as Cocum Oil. —, KOSSUMBA. The fixed oil obtained from the seeds of *Carthamus tinctorius*. —, KRUIIN, or KRUNE. A crude elastic gummy substance imported from Borneo. —, KUNDAH, or OOODNDI. The fixed oil obtained from *Carapa guineensis* (*C. Tou-loucouma*), also called Mote Grease; it is suited for lamps, and has anthelmintic properties. —, KUKUL. The Sandwich Island name for Lumbang Oil. —, KURUNJ, KURRING, or POONGA. A stimulant fixed oil obtained from the seeds of *Pongamia glabra*; it is brown and almost tasteless, and is said to gelatinise at 55°. —, KYAPOOTIE. The same as Cajepot Oil. —, LAUREL. The volatile oil obtained from the berries of *Laurus nobilis*; also a fixed solid oil from the same plant. —, LAVENDER. The fragrant volatile oil distilled from the flowers of *Lavandula vera*. —, LEMON. The volatile perfumery oil obtained by pressure from the rind of the fruit of *Citrus Limonum*. —, LEMON-GRASS. The volatile perfumery oil obtained from *Andropogon citratus*. —, LILY. An infusion of the flowers of *Lilium candidum* in oil. —, LINSEED. The fixed drying oil obtained by pressure from the seeds of *Linum usitatissimum*, much used in oil-painting and varnish-making. —, LUMBANG. The fixed oil expressed from the nuts of *Aleurites triloba*, a good substitute for rape oil. —, MAOE. The volatile oil obtained from the earlilode of *Myrtica moschata*; also a fixed oil obtained by pressure from the same. —, MAOUJA. A concrete yellow oil obtained from the fruit of *Acrocomia sclerocarpa*. —, MADIA. A fixed oil obtained from the seeds of *Madia sativa*. —, MAHOWA-SEED. The same as Epio Oil. —, MALE FERN. The anthelmintic oil obtained from the rhizomes of *Lasurus Filix-mas*. —, MARGOSA. The solid fixed oil expressed from the seeds of *Melia Asadirachta*. —, MARJORAM. The volatile Oil of Origanum, obtained by distillation from *Origanum vulgare*; Oil of Sweet Marjoram is obtained from *O. Majorana*. —, MARKING-NUT. The acrid vesicatory oil of the pericarps of *Benecarpus Anacardium*. —, MARMOTTES. A fixed oil obtained from the kernel of *Prunus Brigantiaea*, a substitute for oil of almonds. —, MEADOW-SWEET. A product of salicine. —, MEZEERON. The acrid volatile oil of the root of *Daphne Mesereum*. —, MOGREE. The same as Oil of Jasmine. —, MUSTARD. An excellent fixed oil obtained from *Sinapis nigra*, and in India from other species, as *S. glauca*, *dichotoma*, *juncea*, &c.; also a volatile or essential oil obtained from the mare of *S. nigra*. —, MYRRE. A volatile oil obtained from *Balsamodendron Myrrha*. —, NAHOR. An oil obtained from the seeds of *Mesua ferrea*. —, NAMUR, or NEMAUR. The fragrant deep yellow Grass Oil, obtained from *Andropogon Calamus aromaticus*. —, NAPALA. The fixed oil obtained from the seeds of *Cucurbita purgans*. —, NAPOOTA. An East African oil, ob-

tained from the Agatti, and used as a substitute for olive oil in India. —, NARCISUS. A perfumery oil obtained by maceration from the flowers of *Narcissus odoratus*. —, NARPAULAH. A fixed oil obtained from the seeds of a *Croton* allied to *C. Tiglium*. —, NEM. The same as Margosa Oil. —, NEROLI. The volatile fragrant oil obtained by distilling the flowers of *Citrus Bigaradia* and *C. Aurantium*, much used in perfumery and for flavouring. —, NUT. The fixed drying oil pressed from the kernels of *Corylus Avellana* and *Juglans regia*; also a commercial name for the oil expressed from the seeds of *Arachis hypogaea*. —, NUTMEG. The volatile medicinal oil obtained from *Myristica moschata*; also a fixed solid oil from the same plant. —, OLIVE. The fixed oil expressed from the pericarps of *Olea europaea*, so much valued for its domestic, economical, and medicinal uses, and commonly known as Sweet Oil. —, ONION. An acid medicinal volatile oil obtained from *Allium Cepa*. —, OONDEE. The same as Poonseed Oil. —, ORANGE. The volatile perfumery oil distilled from the rind of the fruit of *Citrus Aurantium* and *Bigaradia*; Orange-leaf Oil is a volatile oil distilled from the leaves of the same plants. —, ORIGANUM. The same as Oil of Marjoram. —, OUABE. An excellent lubricating fixed oil obtained from the seeds of *Omphalea diandra*. —, PALM. The dark yellow fixed oil obtained from the fruits of *Elais guineensis* and *melanococca*, used in manufactures, and for lubrication. —, PAND. The volatile perfumery oil distilled from *Michelia Champaca*. —, PANDANG. The volatile fragrant oil distilled from *Pandanus odoratissimus*. —, PATAWA, or PATATA. An excellent fixed oil, equal to that of olives, obtained from *Cnecarpus Batava*, used in Pará both for cooking and for lamps. —, PATCHOULI. The volatile perfumery oil obtained by distilling the leafy tops of *Pogostemon Patchouli*. —, PENNY-ROYAL. The stimulant volatile oil distilled from *Mentha Pulegium*. —, PEPPER-MINT. The volatile aromatic oil distilled from *Mentha piperita*. —, PHOOLWA. The fixed oil of the seeds of *Bassia butyracea*, also called Vegetable Butter, and commonly burnt in India. —, PHYSIC-NUT. The fixed oil expressed from the seeds of *Curcuma purpurascens*. —, PIMENTO. The same as Oil of Allspice. —, PINHOEN. A purgative oil obtained from *Cucurbit multifidus*. —, PINNACOTTAY. The same as Poonseed Oil. —, PIQUIA. A concrete oil obtained in Brazil from the pulp of the fruit of *Caryocarpus brasiliensis*. —, POONGA. The same as Kurunj Oil. —, POONGUM. The fixed oil obtained from *Sapindus emarginatus*. —, POONSEED, or POONAY. A fixed oil obtained from the seeds of *Calophyllum Inophyllum*, and used for lamps and medicinal purposes. —, FOOTUNGEE. A fixed oil obtained in India from the fruits of *Calophyllum spurius*. —, POPPY. The fixed drying oil obtained from the seeds of *Papaver somniferum*, used for the same purposes as olive oil. —, FORTIA-NUT.

A fixed oil obtained in India from *Theopista populnea*. —, POTATO. An acid limpid liquid obtained from potato spirit. —, PROVENOE. An esteemed kind of Olive Oil, the produce of Aix. —, PURQUEIRA. A Portuguese name for Physic-nut Oil. —, RAM-TIL. The fixed oil of *Quisqualis oleifera*, used exclusively for burning. —, RAPE-SEED. The fixed oil pressed from the seeds of *Brassica Napus*, &c. —, RHODIUM. A volatile balsamic oil distilled from the wood of the species of *Rhododendron*. —, ROSE. The same as Attar of Roses; an oil obtained by distillation from *Rosa damascena*, *centifolia*, and others. —, ROSEMARY. The volatile oil distilled from the branches of *Rosmarinus officinalis*. —, ROSIN. An oil obtained from the resin of the pine-tree, used by painters for lubricating machinery, and other purposes. —, RUE. A volatile stimulant oil obtained from the shoots of *Ruta graveolens*. —, SAFFLOWER. The same as Kosumba oil. —, SANDAL, or SANDER'S WOOD. The volatile oil obtained from *Santalum album*, much esteemed as a perfume. —, SAPUCAIA. The fixed oil expressed from the kernels of *Leocythis Zabucajo* and others. —, SASSAPARILLA. The volatile medicinal oil obtained from Sarsaparilla. —, BASSAFRAS. The volatile stimulant oil distilled from the wood of *Sassafras officinale*; also a volatile oil obtained from *Nectandra cymbarum*, an excellent solvent for resinous gums. —, SAVIN. The volatile oil distilled from the green tops of *Juniperus Sabina*. —, SEED. An indefinite name for several kinds of oil which enter into commerce, especially for those made from til, poppy, and other Indian seeds. —, SENNA. A volatile medicinal oil distilled from senna-leaves. —, SERINGA. An oil obtained in Brazil from the fruits of *Siphonia elastica*. —, SERPOLET. The essential oil distilled from *Thymus Serpyllum*. —, SESAMUM. The fixed oil obtained from the seeds of the black til, a variety of *Sesamum orientale*. —, SHANGHAI. The fixed oil of *Brassica chinensis*. —, SIMBOLKE. A fixed oil obtained from the seeds of *Bergera Knightii*. —, SIBI. Lemon-grass oil. —, SOAP-NUT. Pongum Oil. —, SPEARMINT. The volatile aromatic oil distilled from *Mentha viridis*. —, SPIKE. The volatile oil obtained from *Lavandula spica*, used by painters on porcelain, and in preparing varnish for artists; also, the oil of *L. Stoechas*. —, SPIKENARD. A druggist's name for Grass Oil. —, SPURRY. A lamp-oil obtained from *Spergula scotica*. —, STAR-ANISE. The volatile oil distilled from the fruits of *Illicium anisatum*. —, SUNFLOWER. The fixed oil expressed from the achenes of *Helianthus annuus*, scarcely inferior to olive oil. —, SWEET. Olive Oil. —, SWEET-BAY. The volatile form of Laurel Oil. —, TALLINOONAH. Kundah Oil. —, TAR. The volatile oil obtained by distilling tar. —, TRUSS. A Chinese oil obtained from *Arachis*, and used both for food and burning in lamps. —, THYME. The volatile oil obtained from *Thymus vulgaris*, also ap-

plied in the shops to Marjoram Oil. —, **TOBACCO**. A volatile poisonous oil distilled from *Nicotiana Tabacum*. —, **TONQUIN**. The expressed perumery oil obtained from the seeds of *Dipteris odorata*. —, **TUBEROSE**. A perfumery oil obtained by maceration from the flowers of *Polt-anthes tuberosa*. —, **TUMIKA**. A concrete fixed oil obtained from the seeds of the wild mangosteen, *Diospyros Embryopteris*. —, **TURPENTINE**. The volatile oil obtained by distillation from the resinous juice of *Pinus sylvestris, maritima*, and other coniferous trees; it is much used in house-painting. —, **UGGUR**. An oil distilled from the wood of *Aquilaria Agallocha*, and esteemed for its perfume by the Orientals. —, **VALISALOO**. The same as Ram-til Oil. —, **VERBENA**. An essential oil distilled from *Aloysia citriodora*; also, the same as Lemon-grass Oil. —, **VE-TIVER**. The same as Khus-khus Oil. —, **VIOLET**. A perfumery oil obtained by maceration from the flowers of *Viola odorata*. —, **WALNUT**. The fixed drying oil obtained from the kernels of *Juglans regia*, valuable for domestic purposes. —, **WINTERGREEN**. The aromatic volatile oil obtained from the fruit of *Gaultheria procumbens*, used in medicine and by perfumers. —, **WOOD**. The balsam-like product of *Dipterocarpus turbinatus*; also a product of *Chlorocylon Swietenia*. —, **WORMSEED**. The volatile anthelmintic oil obtained from *Ambrina anthelmintica*. —, **YAMADOU**. The fixed oil expressed from the seeds of *Myristica sebifera*. —, **ZAKKOUH**. An oil obtained in Palestine from *Elaeagnus hortensis angustifolia*.

OILCAKE. The residuum after expressing the oil of various seeds, especially linseed and rape, which is used for cattle-feeding, and as a manure.

OIL-PLANT. *Sesamum orientale*.

OIL-SEED. *Guisotia oleifera*; also *Betula communis*. —, **SIBERIAN**. A Canadian name for *Camelina sativa*.

OILY-GRAIN, *Sesamum*.

OKENIA. A genus of *Nyctagmaceae*, named in honour of the German philosopher Oken. The only species, *O. hypogaea*, a native of Vera Cruz, has a prostrate stem, viscid leaves, and solitary purple flowers, enclosed within a three-leaved involucre. The perianth has a regularly five-cleft limb with notched segments, and from fifteen to eighteen stamens, united at the base. The fruit is marked with ten ribs, and is enclosed within the hardened corky base of the perianth. [M. T. M.]

OKRA, or OKRO. *Abelmoschus esculentus*. See also **OKRA**.

OLACACEÆ. (*Oleaceae, Olacadae*). A natural order of thalamifloral dicotyledons belonging to Lindley's herbarial alliance of hypogynous Exogens. Tropical or subtropical trees or shrubs, with simple alternate exstipulate leaves, which are, however, sometimes abortive. Calyx small, gamosepalous; petals three to six, hypogynous,

free, or adhering in pairs by means of the stamens, valvate in maturation; stamens hypogynous, the fertile three to ten, alternate with the petals, the sterile opposite to them, inserted either upon the external elevated margin, or outside the conspicuous disk; ovary one to three or four-celled; ovules one to three, pendulous from a central placenta; fruit fleshy, one-celled, one-seeded, indehiscent, often surrounded by the enlarged calyx. [J. H. B.]

OLAX. The typical genus of *Olacaceae*, containing about two dozen species, mostly Asiatic and Australian. A few are small trees, but the greater number are erect or climbing sometimes thorny shrubs, with entire smooth leaves, and small whitish flowers either solitary or in short axillary racemes. The calyx is cup-shaped and very small at first, but it increases in size and eventually entirely encloses the ripe fruit; the petals are either six, joined in pairs by the fertile stamens covering between them, or five, four being in pairs, and the fifth free; three (rarely four or five) of the stamens are fertile and five or six sterile, the former being alternate with and the latter opposite the petals to which they all partly adhere; and the free one-celled ovary contains three ovules hanging from the apex of a free central column, and ripens into a dry one-seeded fruit.

O. zeylanica is a small tree about twenty feet high, abundant in the southern part of Ceylon, where it is called Malla. Its young branches are sharply angled and marked with fine transverse wrinkles; its leaves egg-shaped, pointed, and smooth, and its racemes consisting of a few short-stalked flowers. The Cingalese eat the leaves in their curries; and use the wood, which possesses a foetid smell and saltish taste, in putrid fevers. [A. B.]

OLDENLANDIA. Some botanists regard this as a section of *Hedyotis*, while others make it a separate genus, characterised by the fruit not separating into two carpels, but opening at the top in two valves, bearing the partition in their centre. It is a very extensive group of *Cinchonaceae*, and is widely dispersed over tropical and subtropical Asia, Africa, Australia, and tropical and temperate America. The species are low spreading herbaceous or rarely erect somewhat shrubby plants, with opposite or whorled leaves, having their stipules united with the leafstalks and usually fringed with several bristles, and small flowers either solitary or in clusters in the axils of the leaves or rarely in terminal leafy panicles. The calyx and corolla are four-lobed, the anthers protruding out of the corolla tube, and the style entire or two-lobed.

O. umbellata, the Chayroot plant, is in its wild state a low widely-spreading almost stemless plant, but under cultivation it assumes a more erect habit and grows six or eight inches high. It is a biennial, with narrow somewhat whorled leaves, and small white flowers in short racemes, having one to three-flowered stalks. Its long

slender twisted roots, commonly known as Chay-root, yield a red dye, and are largely employed by the dyers of Southern India, the plant being there extensively cultivated. Several shades varying from pale to very deep red are dyed with them, or by combination with other dyestuffs a fine chocolate is produced, while with an iron mordant they give a deep black. The celebrated red turbans of Madras are dyed with chayroot, as also are the chocolate-and-red handkerchiefs known as pulicats or landanas, which are exported to the West Indies and slave States of America for the use of the negroes. [A. S.]

OLDFIELDIA. During the past half century several kinds of hard timber have been brought into use by shipbuilders, and among these not the least important is that known as African Oak or African Teak, which, however, botanically speaking, is neither an oak nor a teak; but, according to the most reliable information, is the produce of a large tree belonging to the *Euphorbiaceae* to which the name of *Oldfieldia africana* has been given. All that is at present known of this tree is its leaves and its fruit. The former are digitate, having from five to nine short-stalked leaflets radiating from a common leafstalk; and the latter a roundish three-furrowed three-celled capsule nearly one inch in diameter, splitting through the middle of the cells into three valves bearing the partition in their centre but having no external mark indicating its position, each cell containing one or two seeds hanging from the central column. Though nearly one-third stronger than either English oak or Malabar teak, African Oak or Teak is not so generally useful as those woods, its ponderous weight detracting greatly from its value and rendering it unsuitable as an exclusive material for shipbuilding, the vessels built entirely of it being too heavy. It is, however, very useful in certain parts, such as for beams, keelsons, waterways, shelf-pieces, &c., and particularly in steamboats, as it will stand a great degree of heat in the wake of fire, where there is a free current of air, but when in confined situations it decays rapidly. The sapwood, like that of other timbers, is also very subject to decay; and even the solid heartwood does not escape the attacks of large larvæ, or from being perforated by teredos. [A. S.]

OLD-MAID. A West Indian name for *Vinca rosea*.

OLD-MAN. A name given by rustics to the Southernwood, *Artemisia Abrotanum*.

OLD-MAN'S BEARD. *Clematis Vitalba*; also *Geropogon*, and *Tillandsia usneoides*.

OLD-MAN'S EYEBROW. *Drosera binata*.

OLD-MAN'S HEAD. *Pilocereus senilis*.

OLD SOW. *Melilotus cœruleus*, or *Trigonella carulea*, which gives its peculiar flavour to chappizger cheese.

OLD-WOMAN'S BITTER. *Picramnia Antidesma*; also *Citharexylum cinereum*.

OLD-WOMAN'S TREE. *Quina jamaicensis*.

OLEACEÆ. (*Oleaceæ*, *Lilacæ*, *Fraginæ*, *Olivæ-vorticæ*.) A natural order of corolliflorous, dicotyledonous belonging to Lindley's solanum alliance of perigenous Exogens, and consisting of trees or shrubs, with opposite simple or compound leaves, and hermaphrodite or unisexual flowers. Calyx gamosepalous, persistent; corolla four-cleft, sometimes of four petals connected in pairs by means of the filaments, sometimes wanting; stamens free, two (rarely four), alternate with the corolline segments; ovary free, two-celled; ovules in pairs, collateral or pendulous. Fruit drupaceous, baccate or capsular, sometimes samaroid; seeds often by abortion solitary. The plants of the order are bitter, tonic, and astringent, and some yield fixed oil. *Olea europæa* is the olive-tree; and several species of *Ornus*, more particularly *O. rotundifolia* and *O. europæa*, yield manna. They are natives chiefly of temperate regions, and occur in North America, Asia, Europe, and New Holland. There are upwards of a score of genera, including *Olea*, *Fragaria*, and *Syringa*; and nearly 150 species. [J. H. B.]

OLEA. The order *Oleaceæ* takes its name from this genus, of which, in addition to the Common Olive, about thirty species are known, mostly belonging to Asiatic and African countries, but some few occurring in Australia and New Zealand. Many are trees varying from twenty to fifty feet high, and producing hard useful timber, while others are large shrubs. All have



Olea europæa.

entire leathery evergreen leaves, and small whitish frequently fragrant flowers, either in axillary racemes or clusters or in axillary or terminal panicles. They have a four-lobed calyx and corolla, the latter wanting in the New Zealand species, two stamens placed opposite each other with their anthers projecting, and a two-celled ovary with two pendulous ovules in each cell. The fruit has an oily flesh and a bony two-celled stone, one of the cells being

frequently abortive, and the other ripening only one seed.

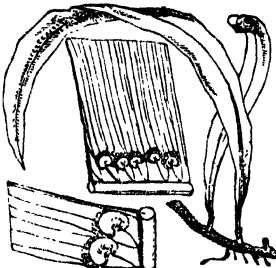
The Common Olive, *O. europæa*, was one of the plants brought into cultivation at a very early period of man's history, and considerable doubts now exist as to its native country; some authors supposing it to have originally belonged to Western Asia, from whence it migrated into Southern Europe and Northern Africa, while others regard it as indigenous to both Europe and Asia. The tree seldom exceeds twenty feet in height, and has oblong or lance-shaped leaves smooth upon the upper surface but hoary underneath, axillary erect racemes of flowers, and pendulous ellipsoidal fruits. It is a tree of slow growth, very tenacious of life and of great longevity—so great, indeed, that it is thought probable that the trees at present existing in the Vale of Gethsemane are those which existed at the commencement of the Christian era.

Two varieties of Olive are distinguished, namely: the Oleaster or Wild Olive, the branches of which are more or less four-angled and spiny, the leaves oblong or oval, and the fruit small and valueless; and the Cultivated Olive (var. *sativa*), which has roundish unarmed branches, lance-shaped leaves, and large oily fruits varying in form, size, and colour in each of the numerous subvarieties. The principal products of this tree are olive-oil and pickling olives, and for these it is extensively cultivated in Italy, Southern France, Spain, and other parts of Southern Europe, in Northern Africa, Western Asia, Australia, &c. The oil is derived from the flesh of the fruit, and is obtained by first passing the olives through a mill with crushing stones arranged so as to bruise the flesh without breaking the kernels, after which the mass is put into bags and subjected to pressure in a screw-press—the first product being termed virgin oil. A second quality is obtained by moistening the marc or cake with boiling water and re-pressing it; and a third by crushing the cake so as to break the stones, and then boiling and again pressing it. Olive-oil is imported from several Italian ports, and also from France, Spain, Portugal, Morocco, &c. That from Leshorn, called Florence oil, is the kind used in this country as salad oil, and comes in flasks surrounded by rushwork; but Gallipoli oil, which forms the bulk of that imported, comes in casks, and Lucca oil in jars holding fifteen gallons. In the olive countries, oil forms an important article of food, but with us it is only eaten as a condiment, the bulk of the large quantity imported being consumed in the arts and manufactures. The pickling olives are the unripe fruits deprived of a portion of their bitterness by soaking in water to which lime and wood ashes are sometimes added, and then bottled in salt-and-water flavoured with aromatics. The wood of the Olive-tree is beautifully clouded and veined, especially the root part. [A. S.]

OLEAGINOUS. Fleasy in substance, but filled with oil.

OLEANDER. *Nerium Oleander*.

OLEANDRA. A genus of ferns belonging to the *Aspidææ*, amongst which they are known by their simple fronds, combined with free veins, and sori placed near the base of the veins. They have globose sori and reniform indusia, and hence having also free veins, they are technically



Oleandra Wallisb. fil.

not far removed from *Lastrea*; but their aspect is altogether different, and they are generally regarded as distinct. The rhizomes are creeping in some, as *O. nodosa*, erect and frutescent in others as *O. neriformis*; but the stipes are nodosely articulate, and the fronds undivided and strap-shaped, the veins being simple or forked and parallel, and the sori placed very near the mid-rib of the fronds. They are tropical or subtropical plants of Asia, Africa, and America. [T. M.]

OLEANDRE. (Fr.) *Nerium*.

OLEARIA. A genus of *Compositæ* of the tribe *Asteroidææ*, very nearly allied to *Aster* itself, and only distinguished from *Eurybia*, which generally represents *Aster* in Australia and New Zealand, by the pappus being more distinctly double, and the outer ring of achenes being shorter and often more chaff-like. It consists of about a dozen shrubs, natives of Australia or New Zealand, with small entire or toothed leaves, cottony underneath. The flower-heads are usually larger than in *Eurybia*, and either solitary or two or three together at the summit of the branches. One species, *O. dentata*, from New South Wales, has been occasionally cultivated in our greenhouses.

OLEASTERS. Lindley's name for the *Elaeagnaceæ*.

OLERACEOUS. Having esculent properties, that is to say, fit for kitchen use, of the nature of a potherb. Also, growing in cultivated places.

OLPERSIA. A genus of acrostichaceous ferns with creeping rhizomes and dimorphous fronds, found chiefly in tropical America. The typical species is *O. cernua*,

which has pinnate sterile fronds, the pinnae traversed by parallel simple or forked veins, connected at the margin by a straight marginal vein. The fertile contracted fronds are pinnate-pinnatifid or bipinnate, and covered on both surfaces with spores. With this are sometimes associated a few other species having the marginal vein arcuate, as in the South American *O. longifolia*; or having the marginal vein zigzag with an excurrent veinlet from each exterior angle, as in the St. Helena *O. subdiaphana*. [T. M.]

OLIBANUM, AFRICAN. The fragrant gum-resin produced by *Boswellia papyrifera*. —, **INDIAN.** The gum-resin of *Boswellia thurifera*, also called *B. serrata*.

OLLETTE. (Fr.) *Papaver semiferum*.

OLIGOS. In Greek compounds—a small number. It is generally used in contrast with many (*poly*), when no specific number is employed, as in the definition of things the number of which is small, but variable; thus *oligocarpus* is applied to sori in which the spore-cases are few in number.

OLIO DI MARMOTTA. A Piedmontese name for the oil obtained from the buds of *Rhododendron ferrugineum*.

OLIVACEUS, OLIVE-GREEN. A mixture of green and brown.

OLIVE. *Olea europaea*. —, **BARBADOS WILD.** *Bontia daphnoides*. —, **BLACK.** *Bucida Buceras*. —, **CALIFORNIAN.** *Oroodaphne californica*. —, **SPURIUS, of Victoria.** *Nicolaia ligustrina*. —, **WILD.** *Elaeagnus angustifolia*; also *Rhus Cotinus* and *Daphne Thymalea*. — of India. *Olea dioica*; also *Patrinia Roxburghii*. —, of the West Indies, *Ximelia americana*; also *Bucida Buceras*, and *Bucida capitata*.

OLIVE-BARK TREE. *Bucida Buceras*.

OLIVETIER. (Fr.) *Elaeodendron*.

OLIVE-WOOD. *Elaeodendron*; also the yellowish fancy wood of the Olive-tree.

OLIVEWORTS. Lindley's name for the *Oleaceae*.

OLIVIER. (Fr.) *Olea*; also applied to the West Indian wood of *Bucida Buceras*. — **BATARD.** *Bontia daphnoides*. — **DE BOHEME.** *Elaeagnus angustifolia*. — **DES BARBADES.** *Bontia daphnoides*. — **ODORANT.** *Osmanthus*.

OLLUCO. (Fr.) *Melios tuberosa*.

OLMEDIA. A genus of Peruvian trees of the family *Arizocarpaceae*. The flowers are dioecious; the males attached to a globose receptacle, surrounded by an involucre of numerous bracts, and having a tubular perianth with two or four erect segments, opposite to which the stamens are placed; the females solitary, surrounded by numerous overlapping bracts, tubular, contracted at the throat, with a slightly four-toothed limb, an ovate one-celled ovary, with solitary pendulous ovules, and a style dividing into two long thread-like

branches. The fruit is enclosed within the thickened fleshy perianth, protected by the involucre. [M. T. M.]

OMALANTHUS. A small genus of *Emmenanthes* confined to the eastern of Asia

of inconspicuous unisexual flowers, the males in clusters of three or four on the upper part of the spike, and the females solitary at the base. Both have a calyx of two flat semicircular leaves notched and glandular at the base; the males containing six to ten stamens with short flat filaments partly adhering to each other, and the females a somewhat cylindrical two-celled ovary, terminated by a thick two-pronged style and two stigmas. The fruits are two-celled and two-valved, each cell containing a solitary seed. [A. S.]

OMALOTHECA. A generic name adopted by some authors for the *Gnaphalium supravum*, which differs from other species in the outer row of female florets being in a single series, and in the flattened achenes. It is a small tufted perennial herb found in Alpine places in Europe and Western Asia, and not uncommon on some of our highland mountains. The narrow leaves are clothed with white down, and the small flower-heads at the end of the stalk have brown involucre scales. Sometimes very dwarf varieties about half an inch high are found, and in these the flower-heads are sessile in the midst of the leaves. [A. A. B.]

OMANDER-WOOD. A variety of Calamander wood obtained in Ceylon from *Diospyros Ebenaster*.

OMBROPHYTUM. A genus of *Balanophoraceae*, consisting of fleshy herbaceous plants, with shield-like rootstocks which are attached to the roots of trees. The flower-stalk is surrounded at the base by a leathery or woody sheath, the flowers themselves being crowded along the sides of the little stalks supporting the peltate bracts, unisexual and monocious, the females having two styles. These plants, according to Pöppig, are boiled and eaten like fungi; they spring up suddenly in Peru after rain, whence the name from the Greek *ombros*, a shower, and *phuton*, a plant. [M. T. M.]

OMIME-ROOT. *Plectranthus ternatus*.

OMLAH. A Bengal name for *Embilca officinalis*.

OMGBA. *Ceratostichus*.

OMPHALARIA. A small genus of gelatinous lichens, remarkable for its conidia being generated in the same manner as *Harmatococcus* is multiplied. [M. J. B.]

OMPHALEA. A genus of tropical *Euphorbiaceae*, consisting of trees or tall woody climbers, remarkable for the structure of the male flowers, in which the staminal body is composed of a mushroom-shaped receptacle or disk, round the edge

of which are two three or four sessile anthers. The leaves are alternate or nearly opposite, large broad and entire; the flowers in terminal panicles, intermixed with narrow leaf-like or coloured bracts, each bract having in its axils a small cyme of one central female flower and two or more lateral male ones, or sometimes all are males. There are five species known, two from Madagascar, and three from the West Indies and tropical South America. Amongst the latter *O. triandra* has a white juice, which turns black in drying, and is said to be used either for making ink or as glue; and the seeds both of that species and of *O. diandra* are eatable, after extracting the deleterious or poisonous embryo. The *O. diandra* especially, is cultivated in St. Domingo and Jamaica, under the name of Nissettler or Gohnut, from the resemblance of the flavour of the seeds to that of the European nut.

OMPHALOBUM. A genus of trees and shrubs now united with *Connarus* (*Connaraceae*), met with in the tropical parts of Asia, Africa, and America. The leaves are ternate or pinnate; and the flowers in axillary clusters, or crowded together in a panicle at the end of the branches. They have much the same structure as that of *Connarus*, but differ in that the fruit consists of five pods (fewer by abortion), which are slightly stalked, one-celled, one or two-seeded, and two-valved. Zebra-wood is stated by Schomburgk to be the produce of *O. Lambertii*, a native of Guiana. *Guetaria speciosa*, a richinaceous plant, is also stated to furnish this wood. [M. T. M.]

OMPHALODES. A genus of herbaceous plants, belonging to the *Borragnaceae*, distinguished by having the four nut-like seeds furnished with an inflexed margin which renders them cup-shaped. They are natives of Southern Europe, Asia Minor, and the Caucasus; and several species are grown in English gardens, under the name of Venus's Navelwort. *O. linifolia* is a common border annual with linear leaves, and white flowers tinged with blue. *O. perna*, the Petite Consoude of the French, is a charming perennial with creeping shoots, ovate heart-shaped leaves, and blue flowers like those of forget-me-not, a common ornament of shrubberies. [C. A. J.]

OMPHALODIUM. The central part of the hilum, through which vessels pass into the raphe or chalazæ.

OMUM. The Telligu name of *Ptychotis* flowers.

ONAGRACEÆ. (*Onagraridæ*, *Epilobiaceæ*, *Citræacæ*, *Onagradæ*.) A natural order of calycifloral dicotyledons belonging to Lindley's myrtal alliance of epigynous Exogens, consisting of herbs or shrubs, with simple leaves, and the parts of the flower usually tetramerous. Calyx tubular, the limb usually four-cleft (sometimes two, three, or six) and cohering in various ways, the motivation valvate; petals usually of the same number as the calycine segments; stamens usually four or eight,

epigynous, the filaments distinct; ovary two to four-celled, usually with an epigynous disc; ovules anatropal. Fruit succulent or capsular, one to two or four-celled. They inhabit chiefly temperate regions of Europe, Asia, and America, and are found sparingly in Africa. Some yield edible fruits, as *Fuchsia*; others furnish edible roots, as *Oenothera biennis*; and both *Trapa natans* and *T. bicornis*, remarkable for their horned fruit, supply edible seeds. There are about twenty-two known genera, and upwards of 300 species. [J. H. B.]

ONAGRAIRE. (Fr.) *Oenothera*.

ONAGRES. (Fr.) *Onagraceæ*.

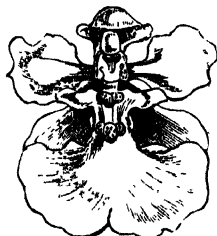
ONCIDIUM. One of the largest of the genera of orchids, comprising upwards of 200 species, and exclusively confined to tropical America. As many of the species are found growing at great elevations in the mountain regions, they do not, in cultivation in this country, require such an elevated temperature as might at first be expected; indeed, *O. Warczewiczii*, which grows on oaks in the mountains of Costa Rica and Veraguas, at an elevation of 8,000 to 10,000 feet, where the thermometer stands at 40° Fahrenheit in November, actually perishes as soon as it descends into the warm zone. In its botanical features the genus comes extremely close to *Odontoglossum*. Its flowers have similar spreading sepals and equal-sized petals, with the two lateral sepals sometimes united beneath the lip, and the lip itself continuous with the column and tubercled or crested at its base. The chief distinction resides in the column being shorter, and not narrowed at the base like that of *Odontoglossum*.

O. Papilio is well known in the orchid-houses of this country by the name of the Butterfly-plant, a name applied to it on account of the appearance of its flowers, which are borne singly upon the ends of very long slender stalks, and have the petals and hind sepal long and narrow, and the lateral sepals shorter and much broader. It is a native of Trinidad and Venezuela. In some species the racemes or panicles of flowers are of very great length. This is especially the case in *O. altissimum*, a West Indian species, with bright-yellow and brown-spotted flowers, in which they are thirteen feet long; in *O. corymephorum*, a Peruvian species, which has twining scapes between fifteen and twenty feet long, bearing numerous flowers, which have dull-brown sepals, pale cinnamon-and-white petals, and a deep crimson-and-white lip; and in *O. falcipetalum*, a Venezuelan plant, which has great scrambling panicles twenty feet long, with large brown flowers as much as three inches in diameter. In a great number of them the prevailing colour of the flowers is yellow, usually variegated, however, with other tints, but in *O. concolor* the flowers are wholly yellow, and very large.

One section of the genus consists of

species with what are called terete (i. e. almost cylindrical) leaves. The most remarkable of these is *O. Sprucei*, found by Mr. Spruce on the Rio Negro in Brazil, where the natives call it *Babo de Satú* or *Armadillo's Tail*, in allusion to these terete leaves, which are between two and three feet long and nearly an inch thick, like the tail of some animal.

O. Lunceanum is remarkable for the rich vanilla-like fragrance of its flowers. The tubercular development at the base of the lip is shown in the accompanying figure of *O. bicallosum*. [A. S.]



Onchium bicallosum.

ONCOBA. A genus of *Ficoidiaceae* (*Bizizaceae*), which, as recently defined by Oliver, includes the genus *MAYNA* (which see). The principal marks distinguishing the two genera are the large terminal flowers, radiate stigma, and smooth fruit of *Oncoba*, as contrasted with the small flowers in axillary racemes, the minute stigma, and echinate fruit of *Mayna*; but certain African species break down these grounds of distinction. As now defined, the genus includes about twenty two species, and shrubs, natives of tropical and subtropical Africa and America. They are all distinguished from the allied genera *Carpotroche*, and *Dendrostylis*, by the simple style. The fruit of *O. spinosa* has a hard shell, which is applied to ornamental and other purposes by the natives of Upper Guinea. [J. Br.]

ONCOSPERMA. The two species of *Oncosperma*, a genus of Palmæ, are placed by some botanists in *Areca*. They are lofty elegant palms, with slender spiny trunks marked with circular scars, terminal pinnate leaves with very spiny sheathing footstalks, and penulous flower-spikes springing from below the leaves and enclosed in double spathes. The flowers are unisexual and usually in threes, one female between two males upon the lower part, and in pairs higher up; in structure they resemble those of *Areca*, except that the males uniformly have six stamens with short stout free filaments and arrow-shaped anthers; and the three stigmas of the females closely connive. The small round one-seeded fruits bearing the remains of the stigma on one side have a granular (not fibrous) flesh enveloping a thin shell, which closely adheres to the seed.

O. flamentosa, the Nibung or Nibong of

the Malays, is a very elegant palm found growing in masses in swampy places upon the coasts of Malacca, Sumatra, Borneo, and the islands of the Indian Archipelago. It attains a height of forty or fifty feet, and has leaves ten or twelve feet in length, with very numerous narrow drooping leaflets about two feet long. In Borneo the delicate white heart of unexpanded leaves, called the cabbage, is highly esteemed as a vegetable. The unsplit trunks are used for house-building, for posts, &c., and the hardest part of the split trunks for rafters, flooring, &c. [A. S.]

ONCOPORUM. A genus of South-west Australian *Pittosporaceae*, having a calyx of five small leaves, a corolla with five petals, five stamens alternate with the petals, and a short filiform style with a simple stigma. These are succeeded by a membranaceous two-celled seed-vessel, each cell containing from six to ten seeds. It consists of climbing shrubs with alternate leaves, and white flowers occasionally striped with purple. [R. H.]

ONE-BERRY. *Paris quadrifolia*.

ONE-BLADE. *Convallaria bifolia*.

ONE-SIDED. Having all the parts turned one way, in consequence of a twist in their stalks.

ONION. *Allium Ceba.* —, BARBADOS. *Ornithogalum scilloides.* —, BOH. *Onumda regalis.* —, POTATO. A variety of *Allium Ceba.* —, SEA. *Urginea Scilla.* —, TREE. *Allium proliferum.* —, WELSH. *Allium fistulosum.*

ONOLEROMA. A name given by De Candolle to some Eastern species of *Carthamus* separated from the rest of the genus on account of the outer florets being neuter without a pappus, whilst the hermaphrodite central ones have a pappus of linear chaff like bristles. They are thistle-like plants, with yellow flowers.

ONOBRYCHIS. A handsome genus of *Leguminosae* of the tribe *Papilionaceae*, which may be distinguished by its pinnate leaves without tendrils, its spicate flowers, and its wrinkled one-seeded legume or pod. Our only British species is *O. sativa*, the Common Sainfoin, which occurs not unfrequently on English downs where the substratum is calcareous; it is said, however, not to be met with in Scotland or Ireland.

Sainfoin has been much cultivated as a shifting fodder crop, especially on the oolite soils, in which its deeply-penetrating roots, by bringing up organic matter from below, act most beneficially in the formation of a thicker crust of soil. This crop was formerly capable of holding on to the soil for as long as eight years, but latterly it has become so mixed with burnet (*Poterrum Sanguisorba*) as to be very materially injured as a crop, the burnet growing so much faster than the Sainfoin, that the land is taken possession of by the former to the prejudice of the latter. The mixture takes place in the seed, more especially

in foreign samples; for as the weed and the crop-plant are harvested together, and the two seeds are somewhat similar in colour, it has escaped detection by the careless and uneducated farmer, and consequently the seedman has not been particular in their separation. They are, however, very different in shape. The best way to avoid errors of this kind is to buy the Sainfoin seed decorticated. The leaves of both plants are pinnate, but the leaflets of the Sainfoin are entire, whilst those of the burnet have deep saw-like teeth. [J. B.]

ONOCLEA. A very distinct genus of ferns associated with the *Aspidiæ*. The principal and perhaps only species is *O. sensibilis*, sometimes called the Sensitive Fern, but having no other claim to this name beyond the fact of its speedily withering when cut. This has a creeping rhizome, and dimorphous fronds, the sterile ones pinnato-pinnatifid, bright-green, with closely reticulated veins, and the fertile bipinnate, with small incurved bacciform pinnules, in which lie a few large globose sori having a special cucullate indusium behind each. It is North American, and quite hardy in our ferneries. [T. M.]

ONOMATOLOGY. That branch of knowledge which relates to the rules to be observed in the construction of names.

ONONIS. A numerous genus of *Leguminosæ*, abounding principally in the countries bordering on the Mediterranean. None of the species grow very tall, the majority being undershrubs about two feet high. They have trifoliate or rarely simple leaves, with the leaflets generally toothed, and the stipules adhering to the leafstalks; and solitary yellow or purple flowers growing from the axils of the leaves, but sometimes forming terminal leafy racemes. The calyx is cut into five narrow segments; the upper petal of the papilionaceous corolla is large and striated, while the two lower ones terminate in a pointed beak, and the stamens are all united into a sheath. The pods are few-seeded and usually inflated.

O. arvensis is indigenous to this country, where it occurs in barren pastures, on the borders of ill-cultivated fields and similar places. It is usually a low-spreading undershrub, often with creeping underground stems, but is sometimes more erect and one or two feet high, and has thorns when growing in dry situations. In England its most common name is Restharrow, but in Sussex, Hampshire, and some other counties it is also called Cammock; and the country people, having the idea that it communicates its nauseous goat-like odour to the cheese made from the milk of cows who have eaten it, call the cheese so tainted cammocky. The name Restharrow has arisen from its tough underground roots causing stoppages when harrowing or ploughing fields where it abounds. [A. S.]

ONOPORDON. A genus of spinous herbaceous plants belonging to the tribe

Cynarocephalæ, of compound flowers, and distinguished among its congeners by having a plose pappus, the hairs of which are at the base united into a ring, four-ribbed seeds, and a honeycombed receptacle. *O. Aconitium*, or Cotton-thistle, the only English species, is a plant of dry waste places, with dull-green woolly very spinous leaves, of which those seated on the stem are prolonged at the base so as to run down the stem, and give it the appearance of being armed with prickles on all sides. The stem is three to four feet high or more, branched above, and bears many large heads of dull purple flowers, of which the involucre is nearly globose and very spinous. It is less common in Scotland than in England, but according to Sir W. J. Hooker it is cultivated in the former country as the Scottish thistle. Some foreign species, and among them *O. arabicum*, are cultivated for the picturesque effect produced by their stately habit of growth, white leaves, and heads of purple flowers. French, *Chardon commun*; German, *Zellwurm*. [C. A. J.]

ONOSMA. A genus of *Boraginaceæ*, consisting of scabrous undershrubs, covered with stiff white hairs, and having numerous linear or lanceolate leaves, and terminal scorpioid racemes of large yellow or purplish flowers, with a five-parted calyx, a tubular bell-shaped corolla without scales at the throat, exerted stamens, and ovate stony nuts, affixed to the receptacle by a flat base. The species are found in Middle Asia, and a few in Europe. [J. T. S.]

ONOSMODIUM. A genus of *Boraginaceæ*, differing from *Onosma* in having a corolla with a ventricose five-parted limb of somewhat converging segments. They are North American hispid herbs, with oblong ribbed leaves, and white greenish or yellowish flowers, with included anthers. The nuts are ovoid, swollen, and affixed by the flat base to the receptacle. [J. T. S.]

ONYCHACANTHUS (including *Bravaisia*.) A genus of *Acanthaceæ*, confined to Mexico and the northern parts of South America, and consisting of two species, *O. Cumingii* alias *Bravaisia floribunda*, and *O. Berlandierianus*, both large shrubs or small trees of considerable beauty. The leaves are ovate or oblong, glabrous, and petiolated. The panicle is axillary or terminal, and bears whitish or yellowish flowers, the calyx of which is five-cleft, and the corolla nearly funnel-shaped, and enclosing four stamens. The capsule is oblong, smooth, two-celled, and contains from four to eight seeds. [B. S.]

ONYCHIUM. A genus of pteridaceous ferns with decomposably divided fronds, often of a somewhat membranous texture, and with small narrow alternate segments. They are very elegant plants, and in some cases, such as *O. auratum*, have the fronds of a somewhat dimorphic character. The fertile segments are sciriferous along their margins. The sori are linear or oblong, with continuous receptacles, and membra-

nous *Indusia*; and being usually opposite, the *Indusia* in the early stages of growth nearly meet across the back of the little segments into which the frond is divided. It belongs to the free-veined *Pteridea*, and contains but three or four species, found chiefly in subtropical and temperate India and Japan. One, however, is Abyssinian, and one West Indian. [T. M.]

ONYGENA. A curious genus of ascomycetous *Fungi* growing for the most part on animal substances, as hoofs, horns, feathers, wool, bones, &c., one of which is intimated by the generic name. They look like minute mostly stipitate puffballs, but they differ materially in their fruit. The *Tulasius* were the first to indicate the true structure in this genus. Whether the species which grow on wood are really closely allied must be determined by future observation; at present it would seem that they are more nearly allied to *Pilacre* than *Onygena*, unless the latter genus should prove to have species with both sporiferous and sporidiferous fruit. Three species at present have occurred in England, one of which, occurring on bones, is distinguished from all the others by the absence of a stem. No species has at present occurred out of the northern hemisphere. [M. J. B.]

OGD-BEG. An Indian name for *Areca Catechu*.

OOKII. An Indian name for the Sugar Cane.

OOLUNDOO. An Indian name for the seed of *Phaseolus radiatus*.

OOLYSIS. Monstrous ovular development in plants.

OOMUGGI. The Japanese name for Barley.

OOPHORIDIUM. The larger form of spore-case in *Selaginella*.

OORD. An Indian name for a species of *Dulichos*.

OOSPORANGIA. In some of the dark-spored *Algae*, as *Leathesia* and *Mesoglaea*, two kinds of zoospores of different sizes are produced in separate organs. The organs which produce the larger are by Thuret called trichosporangia, and the others oosporangia. It is not to be imagined that either of these have the power of impregnation, as both are reproductive. In *Cutleria* there are organs answering to antheridia, which produce active bodies, which have neither male functions nor do they germinate. They seem, in fact, to form a transition between spermatozooids and minute zoospores. [M. J. B.]

OOTRUM. The Indian name for the fibre of *Damia extensa*.

OOWA. A species of Barley grown on the banks of the Sutlej.

OPAQUE. The reverse of shining; dull. Not the reverse of transparent.

OPEGRAPHIA. A genus of lichens belonging to the order *Graphidei*, distinguished by a linear or elliptic simple or forked disk, surrounded by a distinct perithecium. Taken in its wider sense, it includes the great mass of those lichens found growing on trees or on rocks, resembling *Hysterium* in their fruit. They are known at once by the strong resemblance they bear to the characters of some Oriental languages. These lichens are of little practical importance, except in so far as, in company with some other cortical species, they help to enable persons to distinguish different kinds of medicinal bark. [M. J. B.]

OPERA-GIRLS. *Mantisia saltatoria*.

OPERCULUM (adj. **OPERCULATE**). The lid of anything, as in the pitcher of *Nepenthes* or the fruit of *Lecythis*; more especially the lid of the spore-case of urinoses.

OPHELIA. A genus of Indian herbs of the gentian family, distinguished from *Agathotes* by the glandular pits at the base of the segments of the corolla being unprovided with any scale, and by the stamens, which are slightly dilated at the base and even adherent one to the other. *O. elegans* is described as a very elegant species, with light-blue flowers streaked with veins of a darker hue. The stems are used as a bitter tonic, like those of its ally, the *Chiretta*: see **AGATHOTES**. [M. T. M.]

OPHIOCARTON. The only species of this remarkable genus is *O. paradoxum*, a large tree peculiar to British Guiana, and chiefly found on the banks of the River Essequibo and its tributaries. The generic name signifies Snake-nut, and alludes to the curious form of the embryo of the seed, which is spirally twisted so as to closely resemble a coiled-up snake, the radicle or rudimentary root being long and gradually thickening towards its lower extremity, and the cotyledons thin and leafy. The tree has pinnate leaves, and panicles of minute flowers, producing roundish fruits rather larger than walnuts. Some of the flowers are perfect and others of one sex only; they have five sepals, five petals, ten stamens, two of them fertile and opposite the inner petals, and a two-celled ovary. The fruits are often sent to this country as curiosities, under the name of Snake-nuts or Snake-seeds. They are not known to possess any medicinal properties, but the singular snake-like form of the embryo has induced the Indians to employ them as an antidote to the poison of venomous snakes. The genus belongs to the order *Sabiaceae*. [A. S.]

OPHIODERMA. A name sometimes given to the *Ophioglossum pendulum*, which differs from typical *Ophioglossum* in having the sterile branches fasciform and dichotomously forked. [T. M.]

OPHIOGLOSSACEÆ. A natural order of ferns, separated from the *Polypodiaceæ* by wanting the elastic ring which girds

the spore-cases of the latter; and from *Marattiaceae*, the only other order of *Filices*, by having a straight instead of circinate vernation. They have, moreover, the fructifications marginal, on narrow rachiform fronds or branches of the frond. The order contains the three genera, *Botrychium*, *Helminthostachys*, and *Ophioglossum*, two of which are represented in our own country. [T. M.]

OPHIOGLOSSUM. The typical genus of *Ophioglossaceae*, distinguished from all



Ophioglossum pendulum.

others of that order by having its fructification borne in the form of spikes, the spore-cases, which are merely globose recesses placed in a single line side by side along the two margins of the spike, being connate with the latter, and bursting horizontally into two equal hemispherical valves; hence the spike, after bursting, has the appearance of being notched at regular short intervals along its two edges. These spikes terminate either a separate frond, as in *O. Bergerianum*, or else a separate branch of the frond, as in *O. vulgatum*; or sometimes, as in *O. palmatum*, several fertile spikes branch out from the same frond. The leafy sterile fronds are everywhere reticulated. The species are spread over the whole world, from the torrid to the arctic zones, and being of simple structure are not readily discriminated. Indeed, some botanists go so far as to regard the greater part of them as forms of a single species, our common Adder's-tongue, *O. vulgatum*. [T. M.]

OPHIOMERIS. A small leafless plant found on decayed trunks of trees in the deep shady forests of Brazil, forming a genus of *Burmanniaceae*. It appears to be seldom above two inches high, and is remarkable for its obliquely pear-shaped perianth tube with the three inner lobes long subulate and incurved, as in the allied Asiatic genus *Thysania*, from which it differs in its free stamens and the almost lateral orifice of the perianth.

OPHIPOGON. A genus of *Liliaceae* from India, China, and Japan, consisting of herbs, with linear ensiform leaves, and erect spikes or racemes of flowers on radical scapes. The perianth is adherent to the ovary at the base, with a six-parted rotate limb; stamens six with dilated filaments; fruit a one-celled one-seeded berry, or with several seeds, at length exposed by the rupture of the ovary. [J. T. S.]

OPHIORHIZA. A genus of *Cinchonaceae* deriving its name from the Greek words *ophis*, a snake, and *rhiza*, root: the roots of some species being reputed cures for snake-bites. It contains a considerable number of species, usually dwarf perennial herbaceous or shrubby plants, all of them limited to tropical and eastern subtropical Asia. The leaves are opposite and often unequal, and the flowers sessile in a single row along one side of the branches of terminal (rarely axillary) flower-stalks. The short top-shaped calyx has five persistent teeth, and the corolla a slender tube, five-lobed at the top, with the edges valvate in the bud. The capsules are broad, flat, and two-celled.

In most countries where venomous snakes abound, the natives highly extol the roots of some plant as a certain remedy for their bites; but these seldom prove efficacious in the hands of European practitioners, and are often found to have acquired their reputation from their snake-like form rather than from their physical properties. Amongst others the roots of *O. Mongos* are thus used by the Chinese and the natives of India; they are most intensely bitter, and may possess some medicinal virtues. The plant is also a native of Java, Sumatra, Penang, &c., and is called Earth-gall by the Malays from its bitterness. [A. S.]

OPHIOXYLON. A genus of dogbanes,



Ophioxylon serpentinum.

distinguished by having a funnel-shaped corolla the border of which is five-lobed

and oblique, short stamens inserted in the middle of the tube, and a short slender style ending in a round head. The only species is *O. serpentinum*, a native of the East Indies, a climbing shrub with leaves in whorls. The name is from the Greek words for 'serpent' and 'wood,' in allusion to the twisted root and stems. [G. D.]

OPHIRA, or **OPHIRIA**. A synonym of *Grubba*, applied by recent authors to one of the sections of that genus.

OPHIURIS. A genus of grasses belonging to the tribe *Roitboellæ*. The inflorescence is in solitary or compound spikes; sterile, the superior fertile; glumes two, the lowest thick and leathery; five to seven-nerved, the nerves often obsolete; the upper thin and paper-like, two to three-nerved; stamens three; styles two. Steudel describes nine species, which are either tropical or subtropical. [D. M.]

OPHRYS. A genus of terrestrial orchids, with the habit of *Orchis*, but the flowers have no spur, and the lip is usually very convex resembling more or less the body of a bee or other insect. Hence the names of Bee-orchis, Spider-orchis, &c., under which they are popularly known. There are a considerable number of species in the countries bordering on the Mediterranean, and they are often found there in great abundance in spring and the early part of summer. In Britain we have but few, of which the principal are the *O. apifera*, or Common Bee-orchis with a broad very convex lip of a rich velvety brown, and *O. muscifera* or Fly-orchis with an oblong purplish brown lip with pale marks in the centre. Both grow in dry pastures chiefly in the south-eastern counties.

OPIUM. The inspissated juice of *Papaver somniferum*. — **LETTUCE**. *Lactucarium*, the juice of *Lactuca sativa* and *L. virosa*.

OPLISMENUS. A genus of grasses belonging to the tribe *Panicæe*, now included in *Panicum*. Only one of the species is British, namely, *O. Cris-galli*, better known as *Panicum* or *Echinochloa Cris-galli*, which occurs sparingly on the southern coast of England. [D. M.]

OPOBALSAMUM. An oil-resin obtained from *Balsamodendron gileadensis*, and *B. Opobalsamum*.

OPOCHALA. *Pentaclethra macrophylla*, an oil-yielding plant of W. Tropical Africa.

OPODIA. Dr. Lindley has described a Persian herbaceous plant under this name, and considers it to form a genus of *Umbelliferae*. It has a tall stout erect stem, with decurrent pinnate leaves; the general umbels unsurrounded by bracts, the partial ones having an involucre of many bracts; the calyx obscurely five-toothed, and the petals yellowish. Fruit cylindrical or oval, with three ridges, and having a large oil-channel beneath each furrow, and a smaller

one beneath each ridge. *O. galbanifera* was so named under the idea that it produced the fetid gum resin galbanum, which is now referred to *Ferula galbaniflua*. [M. T. M.]

OPOPANAX. Dioscorides and other Greek writers mention a medicinal plant under this name, which is used by botanists to designate a genus of *Umbelliferae*, containing two or three species. *O. thironium* is a plant six or seven feet in height, resembling the parsnip, and a native of the South of Europe. Its leaves are bipinnate, with unequal heart-shaped segments and crenate margins; and the flowers are yellow, in compound umbels, with both partial and general involucre, an undeveloped calyx-limb, and roundish petals, with the point bent inwards. The fruit is thin, flattened from back to front, each half with three thread-like ridges, and three oil-channels in each furrow, with six others on the surface that adjoin the other half-fruit. The plant yields a milky juice, which dries into a gum-resin, having similar properties to those possessed by ammoniacum, but is now scarcely used. The plant is to be met with here and there in botanic gardens, but is of no ornamental value. [M. T. M.]

OPORANTHUS. A genus of *Amaryllidaceæ*, founded on the *Amaryllis lutea*, a very pretty dwarf autumn-flowering bulbous plant of the South of Europe. It has roundish bulbs, linear-lanceolate leaves, and one-flowered scapes, supporting the pure yellow flowers, which are crocus-like in shape but larger. It is distinguished by its solid scape, by the short funnel-shaped tube of its cupless regular perianth, and by its filaments being inserted equally within the mouth of the perianth tube. [T. M.]

OPORINIA. *Leontodon*; *Asperula*.

OPPOSITE. Placed on opposite sides of some other body or thing and on the same plane. Thus, when leaves are opposite, they are on opposite sides of the stem; when petals are opposite, they are on opposite sides of the flower; and so on.

OPPOSITIFOLIUS. Opposite a leaf, that is to say, growing on the side of a stem opposite to that on which a leaf grows; also applied to leaves opposite each other.

OPUNTIACEÆ. The same as *Cactaceæ* (which see). One of the divisions of this order receives the name of *Opuntidæ*.

OPUNTIA. The Prickly Pears form a most extensive genus, consisting of upwards of a hundred and fifty species, confined to the American continent, and, like the rest of the order, inhabiting hot dry places. They abound chiefly in Mexico and California in the northern, and in Brazil, Chili, and Peru in the southern hemisphere. All the species are more or less fleshy, especially while young; but as they get old most of them form a short round woody trunk, and the older branches also become hardened. They are erect or decumbent, and seldom grow higher than eight or ten

lum turns round within the column, and falls back, so that, the flower being inverted, it stands fairly over the latter. The moment a small insect touches its point, the labellum makes a sudden revolution, brings the point to the bottom of the column, passing the anther in its way, and thus makes prisoner any insect which the box will hold. When it catches an insect it remains shut while its prey continues to move about, but if no capture is made the lid soon recovers its position. *Drakæa elastica* and *Spicidrea cilata* are other species with remarkable moveable appendages.

Orchids are found in almost all parts of the world, except upon the verge of the frozen zone, and in climates of excessive dryness. In Europe, Asia, and North America they grow everywhere, in groves, marshes, and meadows; at the Cape of Good Hope they abound in similar situations; but in the hot damp parts of the West and East Indies, in Madagascar and the neighbouring islands, in the damp and humid forests of Brazil, in the warm mild parts of Central America and Western Mexico, in the damp tropical parts of India, and on the lower mountains of Nepal, they flourish in the greatest variety and profusion, no longer seeking their nutriment from the soil, but clinging to the trunks and limbs of trees, to stones and bare rocks, where they vegetate among ferns and other shade-loving plants in countless thousands.

The *Orchidaceæ* are divided into seven tribes, upon characters derived from the staminal apparatus, thus:—

- * Anther one only; pollen masses waxy—*Mulacæ*: no caudicle or separable stigmatic gland.
- Epidendræ*: a distinct caudicle, but no separable stigmatic gland.
- Vandæ*: a distinct caudicle, united to a stigmatic gland.
- ** Anther one only; pollen powdery, granular, or scutell—*Ophreæ*: anther terminal, erect.
- Archuseæ*: anther terminal, opercular.
- Noctææ*: anther dorsal.
- *** Anthers two—*Cypripedææ*.

The nutritive substance called salep has been prepared from the subterraneous succulent roots of *Orchis mascula* and various species of the opheurous division, and in India from the tubers of a species of *Eulophia*; it is said to consist almost entirely of a chemical principle called *bassorin*. The viscosity of the tuber of *Aplectrum hyemale* is such that it is called putty-root in the United States, and it is used for cementing earthenware. The substance called vanilla in the shops, which is the dried fruit of *Vanilla planifolia* and other species, contains a great quantity of essential oil, and a good deal of benzoic acid, and is one of the most delightful aromatics known; it is used in the manufacture of chocolate, of liqueurs, and of various articles of confectionery.

For various interesting particulars respecting the structure of the flowers of these plants, the reader is referred to Mr.

Darwin's book, *On the Fertilisation of Orchids*.

ORCHIDS. The popular name of the *Orchidaceæ*, or *Orchis* family.

ORCHIL, ARCHIL, ORCHAL, or ORCHILL. Various names for the dye prepared from *Orchella*-weed. Two varieties occur: the one blue, formed by steeping the weed in some ammoniacal liquor, as urine, in a covered wooden vessel; the other red, made in earthen jars in a room heated by steam. Both are sold in the liquid form, and, notwithstanding their name, are of a more or less decided red. — BURMESE. A dye-stuff prepared in Burmah, from *Rocella phycoopsis*. [M. J. B.]

ORCHIS. A genus of terrestrial orchids, which comprises the largest number and the commonest of the European species, and which has thus given its name to the whole order. The species are all perennials, although the whole plant dies down and is renewed in the course of each year, for the root-stock produces each year a fleshy tubercle by the side of the decaying one of the preceding year, the following year's stem shooting from the top of the new tubercle. The herbaceous erect stem is leafy at the base, with a terminal spike of flowers, usually red or purple, but occasionally white or greenish. The five sepals and petals are nearly equal, the upper sepal or all three often arching over the petals; the lip, either dilated at the top or three-lobed, is always produced at the base underneath into a spur or pouch. The anther is on the face of the column, the two cells converging at the base, each cell containing one pollen-mass, contracted below into a short stalk, terminating in a gland. The species are most numerous in Europe and temperate Asia, with only a very few in North America: the British ones are variously estimated at from ten to fifteen species, according to the extent attributed by different botanists to the genus itself, or to the individual species.

O. maculata and *O. latifolia*, two species very closely allied to each other, are amongst the commonest in our meadows, pastures, and open woods. The tubers are rather flat and divided into two or three finger-like lobes, the leaves often marked with dark spots or blotches, the flowers more or less pink, in a dense spike, with the lower bracts almost always longer than the ovary, and in *O. latifolia* exceeding the flowers; the lip is broad and spotted or variegated, and the spur nearly as long as the ovary. *O. mascula*, found in rich moist meadows and shady places, is a much handsomer plant, with entire tubers, and showy flowers in a loose spike, varying from a bright pinkish-purple to flesh-colour. *O. luteiflora*, more common on the Continent, but not found nearer to us than the Channel Islands, is like it but still handsomer, with richly coloured flowers. *O. militaris*, with its two allied species or varieties, *O. fusca* and *O. tephrosanthos*, is another very handsome species, with a dense oblong spike of

variegated flowers, and a rather short spur. It is scarce in Britain, being limited to the counties bordering on the Thames from Berkshire downwards; and on the continent is seldom found in large numbers, usually scattered over hilly pastures or the borders of woods. *O. ustulata* is a small species remarkable for the dense spike of small flowers, the deep purple of the unexpanded ones giving it a burnt or scorched appearance. *O. Morio*, one of the commonest continental ones in meadows and pastures, is only to be met with in some of the southern counties of England. *O. coriophora*, a continental species with green-and-brown variegated flowers, is remarkable for having three varieties, the common one with a strong smell of bugs, another quite inodorous, and the third sweet-scented. *O. hircina*, on account of the shortness of its spur, is often placed in the genus *Aceras*; it has a curious strap-like linear greenish labellum, spirally rolled inwards in the bud, and in the expanded flower hanging down to the length of above an inch. It grows usually in almost isolated specimens, and is scarce in Britain. *O. pyramidalis* and *O. conopseus*, with dense spikes of small pink flowers, have a very long slender spur; although in many respects very nearly allied to each other, they are now usually placed in distinct genera, the one in *Anacamptis*, the other in *Gymnadenia*. Both are natives of Britain as well as of the greater part of Europe. The tubers of Orchises abound in a nutritive starch, which is extensively prepared in some parts of Turkey, from some of our common species, and sent to Western Europe under the name of Salep.

- || ORCHIS, BEE. *Ophrys apifera*. —, BELL. *Codonorchis*. —, BOG. *Malaxis*. —, BUTTERFLY. *Habenaria*. —, CRANE-FLY. *Tipularia*. —, DOG. *Cynorchis*. —, DRONE. *Ophrys fucifera*. —, EARLY. *Orchis mascula*. —, FALSE. *Platanthera*. —, FLY. *Ophrys muscifera*. —, FROG. *Peristylus viridis*. —, GREEN-MAN. *Aceras anthropophora*. —, HAIR. *Trichosma*. —, HAND. *Orchis maculata*. —, LIZARD. *Orchis hircina*. —, MAN. *Aceras anthropophora*. —, MEADOW. *Orchis Morio*. —, MEDUSA'S-HEAD. *Cirrhopetalum Medusa*. —, MONKEY. *Orchis tephrosanthos*. —, MUSK. *Hermannium Monorchis*. —, SPIDER. *Ophrys aranifera* and *arachnites*.

ORCHIS BARBE-DE-BOUC. (Fr.) *Orchis hircina*. — BOUFFON. *Orchis Morio*. — BOURDON. *Ophrys arachnites*. — MILITAIRE GRANDE. *Orchis fucifera*. — MILITAIRE PETITE. *Orchis ustulata*. — PALMÉ. *Orchis latifolia*.

ORDEAL ROOT. The root of a species of *Strychnos*, used in Western Africa by the natives.

ORDEAL TREE. *Erythrophloeum guineense*. — of Madagascar. *Tenghinia venosifera*.

OREILLE D'ÂNE. (Fr.) *Symphytum*

officinale. — D'HOMME. *Asarum europæum*. — DE JUDAS. *Hirneola Auriculica Juda*. — DE LIÈVRE. *Bupleurum falcatum*. — D'OURS. *Primula Auriculica*. — DE RAT. *Heracium Pileosella*. — DE SOURIS. *Cerastium tomentosum*, and *Myosotis arvensis*.

ORÉLIE. (Fr.) *Allamanda*.

OREODAPHNE. A considerable genus of *Lauraceæ*, principally inhabiting tropical America. Most of the species form large trees, occasionally upwards of a hundred feet in height, with alternate leaves, and panicles or racemes or sometimes small umbel-like heads of unisexual or perfect flowers, the sexes generally on different trees. The flowers have a calyx with a top-shaped tube and a six-parted limb, which falls away after flowering, and the tube then increases in size and ultimately surrounds the lower part of the fruit; they contain nine fertile stamens with short narrow filaments in three series, and sometimes three sterile ones forming a fourth inner series, and their short style bears a disk-like stigma. *O. californica* is a common tree in the mountainous parts of California, where it goes by a variety of names, such as Mountain Laurel, Spice-hush, Balin of Heaven, Sassafras Laurel, Cajeput-tree, Californian Olive, &c. In some parts it attains a height of fifty or seventy or even a hundred feet, but in the southern districts it is seldom more than fifteen or twenty feet high. When bruised it emits a strong spicy odour which is apt to excite sneezing, and the Spanish-Americans use the leaves as a condiment. *O. opifera*, a large tree found on the Orinoco, yields an abundance of volatile oil from incisions made into its trunk, and another kind is obtained from its fruits by distillation. The first is used as an application to tumours, and the other in contractions of the joints, pains in the limbs, &c. [A. S.]

OREODOXA. Some of the species of this genus are among the most graceful of palms, their slender ringed stems frequently attaining upwards of a hundred feet in height, and bearing large terminal pinnate leaves with long sheathing stalks forming a cylinder around the summit. Six species are described, all natives of the West Indies and tropical America. The flower-spikes are enclosed in double somewhat woody spathes, the flowers being of separate sexes, and surrounded by small bracts.

O. oleracea, the West Indian Cabbage Palm, a plant formerly included in the genus *Arecæ*, sometimes attains a hundred and seventy feet high, with a trunk perfectly straight and almost cylindrical; but like other palms it is quite useless as timber, having but a thin outside layer of hard wood, fit only for making ramrods or the walking-sticks called cabbage-sticks, or, when the soft inside is scooped out, for gutters. The semicylindrical portion of the leafstalks are formed into cradles for negro children, or made into splints for fractures; their inside skin, peeled off while

green and dried, looks like vellum, and bears ink on one side. The heart of young leaves, or cabbage, is boiled as a vegetable, or pickled, and the pith affords sago. Oil is obtained from the fruit. [A. S.]

OREORCHIS. A genus of terrestrial orchids founded on the *Corallorhiza foltosa* of Lindley, a plant inhabiting mountain meadows in the north of India. The species are tuberous plants with grass-like leaves, small red or red-and-white flowers, and with the appearance of small *Eulophias*, from which the genus differs especially in having four distinct globular pollen-masses. Four species are known: *O. foliosa* and *micrantha* from the Himalayan mountains, *O. patens* from Siberia, and *O. lancifolia* from Japan.

OREOSERIS. A name given by De Candolle to three Himalayan species of *Gerbera*, which have since been reunited with that genus.

ORGANOGENESIS. The gradual formation of an organ from its earliest appearance.

ORGANOGRAPHY. The study of the structure of the organs of plants.

ORGANY. *Organum vulgare*.

ORGE. (Fr.) *Hordeum*. -- **CARRÉE**, or **D'HIVER.** *Hordeum hexastichon*. -- **ÉLYME.** *Hordeum sylvaticum*. -- **EN ÉVENTAIL**, or **PYRAMIDALE.** *Hordeum Zeocriton*.

ORGBAO. An American name for *Stachytarphu jamaicensis*.

ORGYA (adj. **ORGYALIS**). Six feet, or the ordinary height of a man.

ORIGAN. (Fr.) *Origanum vulgare*.

ORGANUM. This name is derived from two Greek words, *oros* mountain, and *ganos* joy, in allusion to the gay appearance they give to the hillsides on which they grow. Botanically it is applied to a genus of *Labiata*, consisting of herbs or low shrubs, with their flowers aggregated into cylindrical or oblong spikes, and protected by coloured bracts as long as or longer than the calyx, which latter is tubular with ten to thirteen ribs, and has a nearly regularly five-toothed or sometimes two-lipped limb and hairy throat; the corolla is slightly irregular; and the stamens four, at a distance from each other. The species are natives of the Mediterranean region, also of Northern India, &c. *O. vulgare*, the Wild Marjoram, is a common plant in this country, especially in limestone or chalky districts. Its stem is one to two feet in height, with stalked ovate acute leaves, and purplish or white flowers, arranged in compact round heads at the ends of the branches. The corolla is longer than the calyx, and the stamens than the corolla. This plant yields an acrid stimulant oil, sold in the shops as Oil of Thyme. It is used as a caustic by farriers, and on similar grounds as an application to decayed teeth. The plant has

also been used for dyeing purposes. The writer has on several occasions met with a variety of this plant, with elongated cylindrical spikes of flowers in place of the usual globular heads.

O. Onites and *O. Majorana* are included among seasoning herbs, under the name of Marjoram: one or the other is supposed to be the plant called *Anaracus* by Greek writers. In addition to the species just mentioned, others are cultivated in this country as ornamental plants, such as *O. Dictamnus*, the Dittany of Crete, which has roundish leaves thickly invested with white down, and flowers in drooping spikes; and *O. stipuleum*, which is similar but taller and less woolly. These last are popularly called Hop plants, and are often seen in cottage-windows. [M. T. M.]

ORITHYA. A genus of *Liliaceæ*, found in Eastern Europe and Middle Asia, closely allied to *Tulipa*, of which it has the habit, but differing in having the three inner perianth leaves narrowed into a claw at the base, and in possessing a distinct style. From *Ornithogalum*, in which it was included by Linnaeus, it differs not only in habit, but by having the perianth deciduous. [J. T. S.]

ORME. (Fr.) *Ulmus*. -- **À TROIS FEUILLES.** *Ptelea trifoliata*. -- **BLANC.** *Ulmus effusa*. -- **A LIÈGE.** *Ulmus suberosa*. -- **D'AMÉRIQUE.** *Quercus tomentosa*. -- **DE SAMARIE.** *Ptelea trifoliata*. -- **DE SIBÉRIE.** *Planera Richardi*.

ORMENIS mixta, or *Anthemis mixta*, a plant of South Europe, having a great resemblance to the chamomile, has along with the latter been placed by Grenier and Godron in *Chamomilla*, which they distinguish from *Anthemis* by the cylindrical (not compressed) corolla tube enlarged below, and the slightly compressed achenes rounded at the summit and having three slender ribs on their inner face. From the common chamomile this plant is chiefly distinguished by the remarkably oblique base of the corolla tube. [A. A. B.]

ORMOCARPUM. A genus of *Leguminosæ*, of the suborder *Papilionaceæ*, consisting of three or four shrubs from tropical Africa or the Indian Archipelago, very nearly allied to *Æchynomene*, and chiefly differing in the pod, of which the joints or articles are marked by deep longitudinal furrows, and usually covered with glandular warts. In two species the leaves are reduced to a single rather large terminal leaflet; in the remaining one or two they are pinnate with numerous small leaflets, as in *Æchynomene*.

ORMOSIA. A genus of papilionaceous *Leguminosæ*, chiefly tropical American, with one or two species from Hong Kong and India. It consists of timber trees, with pinnate leaves, and terminal panicles of flowers, which have a bell-shaped calyx, a pea-like corolla, ten distinct often unequal stamens, and a style curved inwards at top and bearing the stigma on one side. The

pod, which are flat and woody, split into two valves when ripe, and contain from two to four shining scarlet and black or brownish-red seeds.

O. dasycarpa is the West Indian Bead-tree or Necklace-tree, the seeds of which, and of other species, such as *O. coccinea*, a native of Guiana and Brazil, are roundish, beautifully polished, and of a bright scarlet colour with a black spot at one end resembling beads, for which they are substituted, being made into necklaces, bracelets, &c., or mounted in silver for studs and buttons. The name is derived from the Greek *ormos*, signifying a necklace, in allusion to this use of the seeds. The timber of *O. panamense*, a tree of fifty feet high or upwards, native of Veraguas, is durable and used for building. [A. S.]

ORNE. (Fr.) *Fraxinus*.

ORNITHIDIUM. A small genus of West Indian and tropical American orchids. Some species have ascending and others root-like branching stems, sheathed with imbricate scales, and bearing one-leaved pseudobulbs. Their flowers are axillary, and have erect slightly spreading free sepals and petals, and an ascending cucullate lip, which is almost always connate with the base of the column and parallel with it. The anther is two-celled, with four pollen-masses, oblong or linear caudicles, and a minute gland. [A. S.]

ORNITHOGALUM. A rather large genus of lilyworts, the species of which are for the most part confined to the South European and West Asiatic regions and the Cape of Good Hope. Three are admitted into the British Flora, but it is questionable whether any of them be truly indigenous, though *O. pyrenaicum* is so abundant in the neighbourhood of Bath, that its young shoots are collected in the spring, and brought to the market for sale as a substitute for asparagus; and *O. umbellatum* is a common weed in many parts of England and Scotland. The last-named species is commonly known as the Star of Bethlehem, from its being abundant in Palestine, and having star-like flowers. It is also supposed to be the Dove's Dung of Scripture (2 Kings, ch. vi.): and its bulbs, which are wholesome and nutritious when cooked, are eaten to this day in Palestine. The genus is closely allied to *Scilla*, from which it is distinguished only by its flowers being persistent instead of deciduous, and white greenish or yellowish instead of blue. All the species are bulbous plants, with radical not stem-sheathing leaves, and terminal racemes of flowers, each flower with a withered bract beneath it. Their perianth has six distinct segments, spread out star-fashion; and their six stamens have flattened filaments, and are almost free from the perianth. [A. S.]

ORNITHOGLOSSUM. A genus of *Melanthaceae*, the four species of which belong to the Cape Flora. They are bulbous plants, with simple or slightly branched leafy stems, and long-stalked somewhat race-

mose green and purple or white flowers, which have a perianth of six short-clawed spreading pieces, with the stamens inserted at their base, and a fleshy gland in the centre, and three styles somewhat united below. [A. S.]

ORNITHOPUS. A genus of leguminous plants of which one species, *O. perpusillus* is a small prostrate herb well marked by its umbellate heads of minute cream-coloured flowers veined with crimson, which have a bract at the base; and its jointed curved pods, which bear a singular resemblance to the claws of a bird, whence the name *Ornithopus*, or Bird's-foot. It is not uncommon on gravelly commons in Great Britain, but owing to its small size is perhaps often overlooked. *O. sativus*, the Serradilla, by some considered a variety of *O. perpusillus*, a native of Portugal, is a valuable agricultural plant, introduced in 1818, and particularly worthy of attention from the fact of its producing an abundant crop of excellent fodder where nothing else will grow to perfection. All the species are annuals. Freuch, *Pied de seau*; German, *Vogel'suse*. [C. A. J.]

ORNUS. The species of *Ornus* are by some regarded as forming merely a section of *Fraxinus*, but others recognise them as a distinct genus, and they are readily distinguished by their flowers having petals, for which reason they gain the name of Flowering Ash. About a dozen species are known, all belonging to the temperate regions of the northern hemisphere. They are middle-sized trees with pinnate leaves and terminal or axillary panicles of small flowers, which are either perfect or of distinct sexes, and have a small four-parted or four-toothed calyx, and four long narrow petals usually cohering in pairs, the perfect ones containing two long stamens and a pistil with a notched stigma. The fruit is flat and two-celled, with a thin wing at top.

O. europæa and *O. rotundifolia*, both natives of the South of Europe and Asia Minor, are known by the name of Manna Ash, from their yielding the saccharine substance commercially known as Manna. They form trees about twenty five feet in height, and chiefly differ in the leaflets of the former being lance-shaped on short stalks and tapering to both ends, while those of the latter are egg-shaped or roundish, narrow at the base, and without stalks. Manna is chiefly collected in Calabria and Sicily, where the trees are cultivated in square plantations for the purpose, and is principally imported from Palermo, Messina, and Naples. It is obtained by making incisions about two inches long in the stem, with a hooked knife. The finest kind, called 'flake manna,' or 'manna canellata,' is obtained from incisions in the upper part of the stem, and the inferior, or 'manna in sorts,' from cuts near the ground. For collecting the latter kind, leaves of the ash are inserted into the incision so as to conduct the juice into receptacles formed of the flat joints of the *Opuntia*, or prickly-pear cactus. [A. S.]

OROBANCHACEÆ. (Broomrapæ.) A natural order of corollifloral dicotyledons belonging to Lindley's gentianial alliance of perigynous Exogens. They are herbaceous parasitical plants, having scales in place of leaves; and their didynamous flowers have a persistent inferior calyx, a monopetalous irregular usually bilabiate persistent corolla, four stamens, a fleshy disk, and a free one-celled ovary of two carpels, with two or more parietal placentas, the style manifest, with a two-lobed stigma. Fruit capsular, enclosed within the withered corolla, two-valved; seeds indefinite, minute. They are natives of Europe, more especially the southern parts, and of Asia, North America, and the Cape of Good Hope. Their general properties are astringency and bitterness; and some have been used as tonics, and as applications to indolent ulcers. They attach themselves to the roots of various plants, and are hence called root-parasites. The order contains about a dozen genera and upwards of a hundred species, of which those of *Orobanchæ* and *Lathræa* are the most familiar. [J. H. B.]

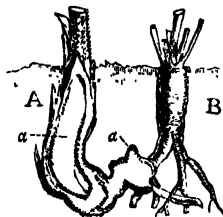
OROBANCHE. A genus of singular-looking parasitic plants typical of the *Orobanchaceæ*, and represented in England by a variety of species which grow severally on the roots of turfs, clover, flax, ivy, wild carrot, &c. All the species agree in having a dingy brownish-yellow stem, which is leafless throughout but furnished with numerous pointed scales, which take the place of leaves. The upper portion of the stem bears a spike of rather large flowers, of which the calyx is of the same russet hue as the stem; the corolla is two-lipped, of a yellowish colour tinged with pink or purple-blue and veined; there are four stamens in pairs of unequal length; and the capsule is one-celled, two-valved, many-seeded.

O. major, the largest British species, is parasitical on the roots of turfs and other leguminous plants, and grows to the height of two feet or more. The others attain usually a height of from six to eighteen inches, varying little in habit and general characters, yet so far differing in minute points that botanists reckon up to ten or a dozen species. It may be a question, however, whether the dissimilarity ought not to be referred to the variety in the structure and habit of the plants on which they are parasitic, so that the number of distinct species may be much less than is commonly supposed. [C. A. J.]

That *O. minor*, called the Lesser Broomrape, which we have occasionally observed nearly two feet high, may, after all, include some two or three other forms, is an opinion deriving some weight from Dr. Arnott's remark, that in all parasitical plants the appearance may be so altered by the structure of the tribe they prey upon, that many reputed species are probably different states of the same. Thus *O. minor* occurs on different clovers, whilst a great number of plants are affected by so-called

different species. It remains, however, to be determined what amount of difference may be brought about by the same seed electing to grow on different plants. The annexed woodcut shows the mode of attachment of the parasite to its foster-parent; and as this is yearly becoming a more formidable enemy to our crops, we recommend its further study to the farmer.

As regards the manner in which this parasitism takes place, we are as yet in the dark. It may be mentioned that perhaps few plants produce more seeds than the



Orobanchæ minor.

A, the parasite attached to B, an old plant of Aisike Clover; a, a section showing the mode of attachment.

Broomrapæ, but they are very minute. It seems certain that seeding affected crops only ensures the spread of the plants where this seed is sown, so that farmers should if possible avoid seed grown where the Broomrape prevails. [J. B.]

OROBÆ. (Fr.) *Orobæ tuberosus*, now called *Lathyrus macrorrhizus*.

OROBUS. A genus of papilionaceous Leguminosæ, now generally united with *Lathyrus*, from which it cannot be distinguished by any marked character. There are a considerable number of species, chiefly found in mountainous or woody districts, and dispersed over Europe and Northern Asia.

ORONCE. (Fr.) *Orontium*.

ORONGE. The French name of *Agaricus caesareus*, which is at the same time one of the best and handsomest of *Fungi*. The scarlet pileus, yellow gills, and white volva must make it at all times easy of recognition, and it is to be hoped that it will some day reward our researches in the south of England or Ireland. A form of it was found in the Sikkim Himalayas by Dr. Hooker. This is the species which was so celebrated among the Romans under the name of *Boletus*, and it was a favourite vehicle for poison in both imperial and papal Rome. It was with this fungus that Agrippina poisoned her husband Claudius, to which Juvenal and Martial allude. Martial, moreover, speaks of it as some fifteen times, and places it as an object of luxury above the truffle. [M. J. B.]

ORONTIACEÆ. (*Callacææ*, *Acornacææ*, *Acorniferæ*, *Orontidea*.) A natural order of monophyletic plants, belonging to Lindley's junctal alliance of Endogens. They are herbs with broad occasionally ensiform leaves, and spadiceous flowers enclosed by a spathe. They are usually associated with *Araceæ*, from which they differ in their hermaphrodite flowers, or in having frequently a perianth consisting of four to eight scales. Natives both of tropical and cold regions. Acridity is met with in the order. *Acorus Calamus*, the common sweet sedge or flag, has an agreeable odour, and has been used as a stimulant and antispasmodic. There are nearly a score of genera, and about eighty species: *Calla*, *Acorus*, and *Pothos* are examples. [J. H. B.]

ORONTIUM. A name adapted from the Greek appellation of some unascertained plant, and applied to a genus of *Orontiacææ* consisting of North American water-plants with elliptic leaves on long stalks, and a spathe reduced to a tubular sheath surrounding the middle of the very long stalk which supports the spadix, the latter being conical and covered with perfect flowers, the lowest of which have six, the uppermost four sepals; the anthers open transversely, and the ovary is one-celled with one inverted ovule. *O. aquaticum*, a native of North American marshes, is cultivated in this country. The seeds and rootstock are stated to be edible after the acridity has been removed by boiling or drying. [M. T. M.]

OROTHAMNUS. A genus of *Protacacææ* proposed by Dr. Pappe, but now regarded as a section of *Mimetes*, characterised by the spheroidal sessile flower-heads being terminal, few together, and having a many-leaved coloured and persistent involucre. There is only one species, *O. Zeyheri*, a Cape shrub, with imbricate concave quite entire leaves rather more than an inch in length, and margined with purple, and large drooping flower-heads with beautiful rose-red villous involucreal leaves. [A. S.]

ORPIN. (Fr.) *Sedum*, especially *S. Telephium*.

ORPINE *Telephium Imperati*; also *Sedum Telephium*. — **BASTARD.** *Andrachne telephoides*.

ORRIS-ROOT. The fragrant violet-scented rhizome of *Iris florentina* and *I. germanica*. It is also called *Orrice-root*.

ORSEILLE DES CANARIES. (Fr.) *Roccella tinctoria* and *R. fuciformis*. — **DE TERRE.** *Lecanora perella*.

ORTEGIA. A small genus of *Illecebracææ* inhabiting the Mediterranean region, and consisting of erect branched annuals or perennials, with four-aided branches, opposite linear leaves, setaceous stipules enlarged into black glands at the base, and very small flowers in compact cymes, combined into panicles. [J. T. S.]

ORTHOERAS. Two species of this genus of orchids are known, one a native of

Australia, and the other of New Zealand. It belongs to the suborder *Neoticeæ*, and is distinguished by its side sepals being very long and narrow, almost filiform, and quite erect, while the upper one is hooded, fleshy, and obtuse; and by its minute sessile petals, which are two-toothed at the tips. They are erect glabrous terrestrial herbs, with narrow filiform leaves, and rather large flowers in racemes. [A. S.]

ORTHOS. In Greek compounds = straight.

ORTHOSTEMON. A genus of *Gentianacææ*, consisting of tropical Asiatic and Australian species of slender herbaceous habit, having broad leaves, and terminal flowers, with a tubular four-toothed calyx, a somewhat funnel-shaped corolla, which remains on the plant in a withered condition, four stamens projecting from the tube and having straight anthers: from which circumstance the name of the genus, signifying straight-stamen, is derived. [M. T. M.]

ORTHOTRICHUM. A large and important genus of acrocarpous mosses, the type of the order *Orthotrichetæ*. The capsule is erect and mostly striate; the peristome double, the outer composed of thirty-two teeth, combined into sixteen or eight, rarely naked; and the veil campanulate plaited and generally hairy. The species form tufts on the trunks of trees and stones, and are at once known by their peculiar habit and veil. The genus obtains its maximum in the northern hemisphere, numbering twenty-three species in our own islands. It is not, however, confined to cold latitudes, though in warm or equable climates it is replaced in great measure by *Macromitrium*, which has a narrow awl-shaped veil, a rostrate lid, and no apophysis. *Leucophanes*, a tropical genus, which has the pale leaves of *Leucobryum* and *Sphagnum*, belongs to the same natural order. [M. J. B.]

ORTHOTROPAL. A straight nucleus, having the same direction as the seed to which it belongs, the foramen being at the end most remote from the hilum.

ORTHOTROPIS. A genus of *Leguminosææ* proposed by Bentham for the *Chorozema Henckmanni* and other species, which differ from others of that genus in their narrow pungent leaves and straight keel. Melsner has, however, shown that these characters are not sufficiently marked to maintain the group otherwise than as a section of *Chorozema*. The species are all from South-western Australia.

ORTIE. (Fr.) *Urtica*. — **BLANCHE.** *Lamium album*. — **GIANDE.** *Urtica dioica*. — **GRIÈCHE.** *Urtica urens*. — **JAUNE.** *Lamium Galeobdolon*. — **MORTE DES MARAIS.** *Stachys palustris*. — **PURPURE.** *Stachys sylvatica*. — **PETITE.** *Urtica urens*. — **ROMAINE.** *Urtica pilulifera*. — **ROUGE.** *Galeopsis Ladanum*, or *Lamium purpureum*. — **ROYALE.** *Galeopsis Tetrahit*.

ORVALE. (Fr.) *Salvia Sclarea*.

ORYZIA decumbens, the only species of this genus of *Mesembryaceae*, is a small decumbent much-branched spreading shrubby plant found in Arabia Felix, India, and the Cape of Good Hope. It has roundish and elliptical fleshy bluish leaves, and purplish flowers. These have a five-parted calyx, about twenty narrow entire petals, numerous stamens partly cohering in bundles, a five-celled ovary with numerous ovules, and five narrow at length recurved stigmas. The fruit is roundish, with five angles and corresponding furrows. [A.S.]

ORYZA. A genus of grasses belonging to the tribe *OrYZEÆ*. The inflorescence is in panicles; glumes two, not exactly opposite; outer pale ribbed. The seeds grow on separate pedicels, which spring from the main stalk, and each grain is usually terminated by an awn or beard resembling that of some kinds of wheat. Steudel describes fourteen species, including *O. sativa*, the well-known Rice of commerce. This important grain, which supplies food for a greater number of human beings than are fed on the produce of any other known plant, is supposed to be of Asiatic origin, though recent travellers in South America mention finding the rice-plant apparently in a wild state on the banks of some rivers there. Throughout the Chinese Empire and the

years how to clean it. It was soon dispersed over the province, and by frequent experiments and observations, they found out ways of producing and manufacturing it to so great perfection, that it is thought to exceed any other in value.' (*Library of Entertaining Knowledge*.)

The Common Rice is a marsh-plant, and can only be cultivated successfully when the ground can be inundated during a certain period of its growth; besides, it requires a temperature of 60° to 80° Fahrenheit to ripen it; consequently, its cultivation in Europe is limited, being chiefly confined to Lombardy. [D.M.]

ORYZOPSIS. A genus of grasses belonging to the tribe *Stipeæ*, sometimes regarded as a section of *Cruckææ*. [D.M.]

OSBECKIA. A rather extensive genus of melastomaceous plants, confined to tropical Asia and Africa and the adjoining islands. The species are mostly herbs, rarely shrubs, and bear clusters or short racemes of usually small rose purple or violet flowers upon the ends of the branchlets. Generally they may be known by the four or five lobes or teeth of the calyx having bristle-like appendages between them ending in a tuft of hairs. The petals are obovate and equal in number with the calyx-lobes, while the stamens are twice as numerous, and have anthers opening by a single pore, without any or scarcely any appendage to the base of the connective and the four or five-celled ovary is crowned with bristles, and opens into a capsular fruit containing cochleate seeds. [A.S.]

OSCHNAH. *Alectoria arabum*.

OSCILLATING. Adhering slightly by the middle, so that the two halves are nearly equally balanced, and swing freely back wards and forwards.

OSCILLATORIE. A natural order of green-spored *Algae*, with simple articulated threads, or branched by a peculiar change in one of the cells, which is diverted from its course, or more rarely by the protrusion on one side of the central cord, in consequence of the rupture of the outer coat. Articulations very narrow. Propagation by zoospores where the mode of fructification is known. The order contains a large mass of the confervoid *Algae*. Some of them are mere strata of threads held together by a little jelly; others form dense gelatinous masses after the fashion of *Tremella*. In very many of the species the outer coat separates from the thread which it encloses; the end of it becoming lacerated, and the divisions reflected and curled; and as this process takes place repeatedly, we have occasionally very beautiful forms, either from the curious condition of the torn end, or from the complication of the several coats. In some species the outer coat is extremely thick; and if the articulation is continued through it from the central thread, we have the most elegantly striated frond as in *Petalonema*. Sometimes it is extremely gelatinous, and



Oryza sativa.

continent of India, as well as in all the great islands in the Indian Archipelago, Rice is the principal, and frequently the only, food of the great mass of the population. In the Southern States of America, whence it has formed a valuable article of exportation, its culture did not begin sooner than A.D. 1700, when it is said to have been accidental: 'A brigantine from the island of Madagascar happened to put in at Carolina, having a little seed-rice left, which the captain gave to a gentleman of the name of Woodward. From part of this he had a very good crop, but was ignorant for some

bears a very high proportion to the central thread, as in *Dasypleura*.

In some of the species, especially of the typical genus *Oncitilaria*, a regular motion has been observed backwards and forwards like that of a pendulum, from whence the name. Such motion has in some cases undoubtedly not been independent, but in some species cilia have been observed in the terminal joints, by which it is in all probability effected.

In most of the genera multiplication takes place by the division of the central thread, which often protrudes and breaks up, each fragment forming a new plant. When the central thread protrudes at the sides, we have a peculiar mode of branching, the two branches growing in different directions, one directed downwards and the other upwards, as in *Scytonema*. Occasionally the outer coat is so tough, and at the same time so yielding, that a fascicle of parallel threads is formed within it, there being no room for the branches to expand. In this case we have such genera as *Cænocolus*, one of whose species is amongst the commonest *Algae* on the tops of mud walls and on the naked ground. Under the microscope it looks like little sausages stuffed with threads. The curious genus *Trichodesmium*, to which we shall advert hereafter, owes its origin to a similar structure. In one genus, *Rhizonema*, the outer coat itself is cellular.

Oscillatoria grow in various situations—in salt and fresh water, on damp ground, amongst grass on close-shaved lawns, like lichens on the trunks of trees, floating on the surface of lakes and seas, or suspended like a cloud, giving rise to variously coloured waters. One or two fine purple species form thick woolly fleeces in the hotter parts of India, while many inhabit hot springs. [M. J. B.]

OSEILLE COMMUNE. (Fr.) *Rumex Acetosa*. — DE BREBIS. *Rumex Acetosella*. — DE GUINÉE. *Hibiscus Sabdariffa*. — ÉPINARD. *Rumex Patens*. — GRANDE. *Rumex Acetosa*. — PETITE. *Rumex Acetosella*. — SAUVAGE. *Rumex Acetosa*.

OSHAC, or OOSHAK. The Persian name for *Dorema ammoniacum*.

OSIER. *Salix viminalis*. —, BASKET. *Salix Forbyana*. —, GOLDEN. *Salix vitellina*. —, GREEN. *Salix rubra*. —, RED. *Salix rubra*. —, VELVET. *Salix viminalis*.

OSIER DES ÎLES, O. DE RIVIÈRE, or O. BLANC. (Fr.) *Salix viminalis*. — BRUN. *Salix triandra*. — FLEURI. *Epiobolus angustifolium*. — JAUNE. *Salix vitellina*. — ROUGE. *Salix purpurea*. — VERT. *Salix viminalis*.

OSMANTHUS. A genus of *Oleaceæ*, closely allied to *Olea* and *Phillyrea*. The corolla is four-parted, the anthers adnate, and the style two-cleft, its lobes thick and conical. Fruit unknown. The flowers of *O. fragrans*, better known as *Olea fragrans*, are used by the Chinese to perfume

tea. The plant is in cultivation in this country. *O. ilicifolius* is a very elegant evergreen hardy Japanese shrub, with holly-like leaves. [M. T. M.]

OSMONDE. (Fr.) *Osmunda regalis*.

OSMUNDACEÆ, OSMUNDINÆÆ. One of the principal subdivisions of the *Polypodiaceæ*, well distinguished by bearing spore-cases which are two-valved and burst vertically at the apex. In the other subdivisions of the order the spore-cases are not valvate. The *Osmundinææ* differ further in having on the spore-cases only a rudimentary ring. The group comprises *Osmunda* with paniculate, and *Todea* with dorsal fructification. [T. M.]

OSMUNDA. The principal genus of the *Osmundinææ*, and that of which our native Flowering Fern or Royal Fern, *O. regalis*, is the type. It comprises a few species of somewhat various aspect: some, like our own *O. regalis*, having the upper pinnae of the fronds transformed into a sporangiferous panicle; others, like *O. Claytoniana*, having a few of the lateral pinnae transformed and sporangiferous; the base and apex being leafy and sterile; and others again, like *O. cinnamomea*, having distinct sterile and fertile fronds. In all cases, however, the fertile parts are contracted, and generally rachiform. They have caudiform or tufted stems, and pinnate or bipinnate fronds, the segments of which are often articulated, and are always traversed by free forking veins. The spore-cases are crowded on the margins or over the surface of the segments, and have an incomplete ring represented by a few parallel striae near their apex. Our native species or forms, closely allied, are found widely distributed over the temperate regions of both hemispheres. One species, *O. javanica*, with pinnate coriaceous fronds, rather distinct in character, is found in the tropical Eastern Islands. [T. M.]

OSMUND ROYAL. *Osmunda regalis*.

OSSEOUS. Bony, hard, brittle, and very close in texture, not to be cut without difficulty; as the stone of a peach.

OSTÉOSPERME PORTE-COLLIER. (Fr.) *Osteospermum moniliferum*.

OSTEOSPERMUM. A genus of *Compositæ*, of the subtribe *Cutanduleæ*, consisting of South African shrubs and undershrubs or sometimes herbs, with entire or pinnatifid leaves, and yellow radiating flower-heads, remarkable for the achenes of the ray becoming hard nuts or drupes without any pappus, whilst those of the disk are constantly abortive. There are nearly fifty species known, among which *O. spinosum* and *O. moniliferum* used to be occasionally cultivated in continental flower-gardens.

OSTERICK. *Polygonum Bistorta*.

OSTIOLUM. The orifice through which spores are discharged, as in the perithecium of such fungi as *Sphaeria*; also an

opening over the disk of the shield of certain lichens.

OSTODES. A genus of *Euphorbiaceæ*, consisting of two Javanese trees very nearly allied to *Alchornea*; but the stamens of the male flowers are free, not monadelphous, and the ovary of the females has three instead of two cells.

OSTRYA. The Hop Hornbeam genus, composed of two species, one a native of the south of Europe, and the other of North America. It belongs to the *Cornaceæ*, and is closely allied to the Common Hornbeam. Both species form trees thirty or forty feet high, with deciduous feather-veined serrated leaves, and unisexual flowers borne in distinct catkins upon the same plant. The male catkins are long, cylindrical, and drooping, composed of a number of simple scale-like bracts, each with twelve or more irregularly united stamens inserted into its base; and the female ones short, with small deciduous bracts, each flower enclosed in a pair of thin involucreal scales which become enlarged and grow together so as to form an inflated covering to the fruit, and these being lubricated give the ripe catkin a hop-like appearance. The fruit is a small one-seeded nut bearded at the top.

O. vulgaris, the Common Hop Hornbeam, is a native of the south of Europe, but is quite hardy in the climate of England. It forms a large spreading tree, and has a very apt

nutumn, when the pendent hop-like catkins are in perfection. *O. virginica* is extensively spread over North America, and is sometimes regarded as a variety of the last species, the chief difference being that the fruit catkins are upright instead of pendulous as in *O. vulgaris*. The wood of the Virginian kind is excessively hard and heavy, and is called Ironwood; levers are sometimes made of it, whence it is frequently called Lever-wood. [A. S.]

OSTRYOCARPUS. Two climbing shrubs restricted to West tropical Africa, constituting a genus of *Leguminosæ*, closely allied to *Lonicocarpus* in foliage, in habit, and in most of the floral characters; but the tenth stamen is free, the wing-petals do not adhere to the keel, and the fruit is a broad round flat indehiscent pod, something of the shape of an oyster-shell, whence the generic name.

OSTES. A termination indicating augmentation, as *radiceus*, having a large root.

OSTRIS. A small genus of *Sintalaceæ* belonging to Lindley's Acaul alliance, and inhabiting widely separate regions of the eastern hemisphere; two being found in the Mediterranean region, one in Abyssinia, two in India, and one at the Cape of Good Hope. They are shrubs or small trees, with angular leaves, and usually unisexual flowers on different trees; one, however, always has perfect flowers. The flowers are deeply three or four-parted, with three or four

stamens, and a one-celled ovary containing usually three ovules. The fruit contains a single seed. In Kumaon the leaves of *O. arborea*, which is sometimes called *O. nepalensis*, are employed as a substitute for tea. This is a small tree, with somewhat elliptical leaves an inch and a half to two inches long, and is found all along the foot of Himalayas. [A. S.]

OTACHYRUM. A genus of grasses belonging to the tribe *Panicææ*. There are only two species, both Brazilian, and included by Steudel in *Panicum*. [D. M.]

OTHONNA. A genus of *Compositæ* of the subtribe *Calendulææ*, distinguished by the scales of the involucre being united in a single row and valvate at the top, by their female ligulate ray-florets with achenes bearing a dense pappus of simple bristles, and by their disk florets being all male with abortive achenes. There are above sixty species known, herbs or shrubs, with entire or divided leaves, often somewhat succulent, and solitary pedunculate flower-heads, usually yellow, rarely blue. The *O. cheirifolia* inhabits the African shores of the Mediterranean, and has been frequently grown in flower-gardens. All the other species are natives of the Cape Colony.

OTIDIA. Six species of *Polygonum* with succulent knobby stems, fleshy pinnately or bipinnately compound leaves, the base, and five stamens, have been epa-
Otidia, but they are retained as a section of *Polygonum* by Dr Harvey in the *Flora Capensis*. They are all South African. The flowers are small, usually white, and disposed in few or many-flowered umbels. [A. A. B.]

OTOCHILIS. A small genus of orchids, natives of the Himalaya mountains, where they are found creeping on trees. They have no rhizomes, but creep by means of their proliferous pseudobulbs, which are continuously produced one above the other, each successive one coming out just below the apex of the old one and there emitting a few fibrous roots. Each pseudobulb bears a couple of leaves, and from the base of some of the upper ones many-flowered racemes of smallish blossoms are produced. The genus belongs to the tribe *Caleogynandriæ*, and its flowers have equal free sepals and petals, a three-lobed lip with the side-lobes very small and embracing the column, and the middle one long and petal-like, and a very long club-shaped column, bearing a terminal anther, which contains four pollen-masses held together in twos by a granular substance. [A. S.]

OTTELLIA. A genus of *Hydrocharidaceæ*, consisting of perennial herbs inhabiting the mouth of the Nile, Ganges, and Australian rivers, and eaten as potherbs in India. They are quite stemless, have cordate leaves, and hermaphrodite flowers placed on a scape, and surrounded by a spathe. The perigone is divided into six parts, the

outer three of which resemble a calyx, the inner a corolla; there are from six to twelve stamens, six stigmas, and a six to eight-celled berry, with numerous seeds. The generic name is derived from the Malabar *Ottel-ambel*. [B. S.]

OTTOA. A genus of umbellifers, distinguished by its calyx being destitute of border, by its entire petals, its spreading styles, and by each half of the fruit having five membranous ribs. The only species is *O. arnuthoides*, a native of Quito, which has a simple stem with fine leaves, which are round and hollow within, with transverse partitions; the flowers white, in dense umbels, a few with stamens and pistils and therefore perfect, the others with stamens only. The genus was named in honour of F. Otto, of Berlin. [G. D.]

OTTO or OTTAR OF ROSES. A fragrant oil obtained from *Rosa centifolia* and *R. damascena*.

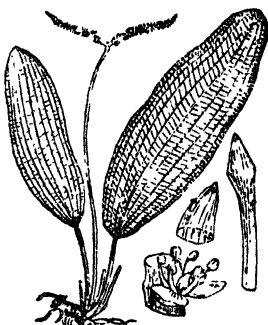
OURARI. The Wourall or Urarl poison, the basis of which is the juice of *Strychnos toxifera*.

OUTLINE. The figure formed by the margin of a body.

OVIRANDRA. The genus of *Juncaginacea*, to which belong the singular aquatic lace-leaf or lattice-leaf plants of Madagascar. It is closely allied to *Aponogeton*, from which it principally differs in its seeds having a thick leafy cotyledon embracing a two-leaved plumule, and in its sepals being deciduous. The habit of the two genera also is different. Only three species were originally referred to *Ovirandra*, two from Madagascar and one from Senegambia; but four other Indian species possessing the technical characters of the genus, though previously referred to *Aponogeton*, are now included in it. All these plants are aquatic herbs, with tuberculate roots, radical submerged leaves, and a scape or flower-stalk long enough to reach the surface of the water, where it either bears a single spike or divides into from two to five little spikes of small flowers. These have two or three coloured deciduous sepals, six persistent stamens with wide-braced filaments, and three or four one-celled ovaries ending in short styles.

The two most remarkable species are those of Madagascar, *O. fenestralis* and *O. Bernieriana*, both of which have within the last ten years been introduced into our hot-houses by the late Rev. W. Ellis, well known through his missionary labours in that island. The former is best known as the lattice-leaf plant, from its singular leaves resembling open lattice-work, or apparently consisting of only a skeleton of nerves. These leaves grow in radiating clusters from the rhizome, and float just beneath the surface of the water, presenting a flat side to the light. They have rather long stalks, and are of an oblong form, rounded at both extremities, very variable in size, but usually nine inches to a foot long by two or three inches broad. When super-

nally inspected they seem to be composed simply of a stout midrib and several slender longitudinal nerves parallel with it all connected by numerous short cross-nerves,



Ovirandra fenestralis.

and to be wholly destitute of the parenchyma or cellular tissue with which the spaces between the nerves in ordinary leaves are closed up; but the microscope shows that this cellular tissue is really present, surrounding the nerves, and in the very young state of the leaf the spaces are nearly, if not quite, filled up by it. The flower-stalks rise from the centre of the tuft of leaves, and fork into a couple of spikes at the top. The plant, however, is not only curious, but is a valuable one to the natives of Madagascar, who collect its fleshy farinaceous roots as an article of food, calling the plant, on this account, *Ovirandran*, which means literally Water-Yam, and this is the source of the generic name. It grows on the margins of running streams in shallow water. [A. S.]

OVAL. The same as Elliptic.

OVARY. That part of the pistil which contains the ovules.

OVATE. Oblong or elliptical, broadest at the lower end, so as to resemble the longitudinal section of an egg.

OVENCHYMA. Oval cellular tissue.

OVERLOOK. A name given by the West Indian negroes to *Cucurbita glauca*.

OVIEDA. *Lapeyrousia*.

OVOIDAL. A solid with an ovate figure, or resembling an egg.

OVULE, OVUM. The young seed.

OVULE-TUBE. A thread-like extension of the apex of the nucleus, or of the sac of the annulus, rising up beyond the foramen.

OWALA. *Pentactethra macrophylla*, the seeds of which furnish a useful oil, and

are also eaten by the natives of West Tropical Africa.

OWLER. The Alder, *Alnus glutinosa*.

OXALIDACEÆ (*Ledocarpeæ*, *Rhynchothecæ*, *Hugoniaceæ*, *Oxalidæ*). A natural order of thalamifloral dicotyledons, belonging to Lindley's geraniai alliance of hypogynous Exogens. They are herbs, undershrubs, or trees, with alternate, rarely opposite, compound (occasionally simple) leaves, generally without stipules, and are found in hot as well as temperate climates, abundantly in North America, and at the Cape of Good Hope, the shrubby species being confined to the hotter parts of the world. Their symmetrical flowers consist of five persistent imbricate sepals; five unguiculate petals, with a twisted aestivation; ten stamens, more or less monadelphous, in two rows; and a five-celled ovary, with filiform distinct styles. Fruit capsular, membranous or fleshy, usually five-celled; seeds few, albuminous, attached to a central placenta, sometimes with a peculiar elastic integument. In some cases phyllodia or winged petioles occupy the place of leaves. They are often acid in their properties, and some of them yield esculent roots. There are upwards of 300 species, distributed in about ten genera, of which *Oxalis*, *Averrhoa*, and *Hugonia* are examples. [J. H. B.]

OXALIDE OSEILLE. (Fr.) *Oxalis Acetosella*.

OXALIS. A very large genus of *Oxalidaceæ*, of which the greater number of species occur in tropical America and at the Cape of Good Hope. They are herbs or more rarely shrubs, and one, *O. scandens*, from Mount Quindiu in South America, is a climber; but by far the greater number have the stem reduced to a rhizome, sometimes subterranean, sometimes above ground, often taking the shape of a bulb or forming a tuber. In these the leaves are all produced in a tuft. In some of the bulbous species, as *O. cernua*, bulbs are also produced in the axils of the leaves. The leaves of most of the species consist of three entire leaflets which are usually inversely heart-shaped, and occasionally slightly sensitive, as in *O. stricta*. Sometimes the leaflets are reduced to two, or even to one, when the leaf appears to be simple; and finally a few have even this solitary portion deficient, which occurs in such species as *O. fruticosa* and *O. leptopoda*, which have flat dilated leaf-like petioles. The leaves contain an acid juice. One section of the genus (*Biophytum*) has pinnate leaves, with many pairs of pinne, but no terminal leaflet. In one of these, from India, *O. senstricta*, these compound leaves are nearly as sensitive as in the sensitive plant, for they contract on the slightest touch. The peduncles (scapes in the aculeoscent species) are generally terminated by an umbel of brightly coloured flowers, the pedicels of which are bracteated. The flowers consist of five sepals, free or combined at the base; five petals; ten stamens, the five outer ones

smaller, the filaments combined at the base (except in *Biophytum*); five styles; the capsule ovoid or oblong, often five-sided; the seeds covered by an elastic coat, which ruptures when they are ripe, and by its contraction expels them with considerable force.

Three species occur in Britain. One of these, the common Wood Sorel, *O. Acetosella*, has a scaly rhizome with a tuft of leaves at the top, and solitary white flowers more or less veined with purple. This plant has a pleasant acid taste from containing bitartrate of potash; and hence it was once used in medical practice as a refrigerant in fever, and an antiscorbutic in scurvy, and still remains in the London Pharmacopœia, though fallen into disuse. The other British species, *O. corniculata* and *O. stricta*, are caulescent. *O. Acetosella* is said to be the Shamrock of Ireland, though some prefer *Trifolium*, and other plants have been suggested.

O. crenata has an erect leafy stem and umbellate flowers, which are yellow streaked with purple. It is a native of Peru, and is largely cultivated about Lima for its very acid leafstalks; it also produces yellowish tubers of the size and shape of small potatoes, and having a slightly acid flavour, which disappears on boiling. When introduced into this country it was expected that it would have proved a valuable substitute for the potato, but this, however, has not been realised, the tubers being insipid and the produce small, not exceeding half a pound from a plant.

O. Depperi, from Mexico, a stemless species, with four leaflets, red flowers, and a



Oxalis Depperi.

large scaly bulb, produces fleshy edible filiform roots of moderate size. *O. tuberosa*, from Bolivia, where it is called Oca, is cultivated in its native place for its potato-like tubers. [J. T. S.]

OXERA. A genus of *Verbenaceæ*, containing a single species from New Caledonia. It is a branching glabrous shrub, with opposite shortly petiolate leaves, and

large flowers in axillary cymes. The calyx is four-parted, and the corolla funnel-shaped, ventricose, and slightly bent, with a four-cleft limb; of the four didynamous stamens the two posterior are short and fertile, the others are exserted and barren. The ovary, placed on a fleshy disk, is four-celled and four-lobed, with a single ovule in each cell. The genus is nearly related to *Clerodendron* and *Cyclonema*. [W. G.]

OXHOOF. A Brazilian name for *Caulotretus microstachyus*, and various species of *Bauhinia*.

OX-EYE. *Buphthalmum*; also *Chrysanthemum Leucanthemum*, and *Anthemis arvensis*. —, **CREEPING.** *Wedelia carnosu*. —, **SEASIDE.** *Borreria arborescens*.

OXLIP. *Primula elatior*.

OX-HEEL, or OX-HEAL. *Helicoborus fatidius*.

OX-HORN. *Bucida Bucera*.

OX-TONGUE. *Helminthia*; also *Anchusa officinalis*.

OXLEYA. A genus of *Cedrelaceae*, represented by *O. zanthoxyla* (now *Flindersia Odyssea*), a tree fifty feet high, and six feet in circumference, producing the Yellow Wood of Queensland. The foliage is of dark green and sombre aspect, the leaves imparipinnate; while the flowers appear in racemes, and are small, white, and inconspicuous, according to Bennett. The fruit is a woody capsule, with spongy tubercles on the surface, five-celled, each cell enclosing three winged seeds. The first discoverer of the tree was Allan Cunningham, Colonial Botanist in New South Wales. [B. S.]

OXYACANTHA. *Crataegus Oxyacantha*.

OXYANTHUS. A genus of tropical African *Cinchonaceae*, consisting of shrubs, with elliptic pointed leaves and axillary corymbose racemes of large flowers; these have a sharply five-toothed calyx-limb, and a salver-shaped corolla, with a very long slender tube, from which the five anthers project. The ovary is adherent to the tube of the calyx, two-celled, and surmounted by an epigynous disk. The genus is closely allied to *Gardenia*, but is distinguished by its large corolla, its inflorescence, &c. The name, signifying 'sharp-flower,' is applied in allusion to the acute pointed segments of the limb of the corolla. *O. speciosus* and others are highly ornamental stove plants. [M. T. M.]

OXYBAPHUS. One of the genera of *Nyctaginaceae*. The species are herbaceous plants, natives of tropical America, and have opposite leaves and flowers arranged in corymbs at the end of the branches, surrounded by a bell-shaped five-cleft persistent involucre. The perianth is pink-coloured and has a short dilated tube, which is persistent, while the plaited five-lobed limb is deciduous; stamens three, united at the base into a very short tube. Fruit surrounded by the hardened base of the perianth, and by the enlarged mem-

branaceous involucre. *Calymenia* and *Calyzhymenia* are synonyms. [M. T. M.]

OXYCARYUM. A genus of cyperaceous plants belonging to the tribe *Scirpeae*. The inflorescence is in dense heads of crowded spikelets, umbellately disposed; spikelets many-flowered; scales membranaceous at the base; styles cleft, persistent, decurrent at the base; stamens two. *O. Schomburgkianum*, a native of Gualan, is the only species described. [D. M.]

OXYCOCOS. The Cranberry genus, a group of the *Vacciniaceae*, comprising three species—*O. palustris*, *macrocarpus*, and *erectus*. The name is derived from *oxy*, sharp, and *kokkos*, a berry, the fruit having a sharp acid taste; that of Cranberry, according to some, comes from the crooked peduncle together with the unexpanded flower resembling the head and neck of a crane, but according to others, and with greater probability, because the berries are eaten by cranes; just as the fruit of the *Empetrum nigrum* is called the Crowberry, because where this is plentiful the crows, and more especially the rooks, leave the fields and resort to the hills, where they live on the berries till harvest-time.

O. palustris, the Common Cranberry, is a native of Britain; and is indigenous also to the mountainous parts of Europe, Siberia, and North America. It grows in turfy bogs, the stems creeping and slender, with small ovate leaves revolute at the edges, and terminal pink or rose-coloured pedicels bearing each a single flower. The berries are roundish pear-shaped, and of a crimson colour.

In the form of tarts, preserves, &c., the fruit is grateful to most people, and many in this country prefer the flavour of the native species to that of the imported American fruit produced by *O. macrocarpus*. Before the bogs in Lincolnshire were drained, the common Cranberry was sold in Norwich by cartloads. According to Lightfoot, as much as twenty to thirty pounds' worth of the fruit was sold by the poor people each market-day, for five or six weeks, in the town of Longton, on the borders of Cumberland—a considerable sum to be picked up from otherwise barren wastes, hitherto uninhabited district. Large quantities, for use in tarts, are imported from Russia. According to Don's *Miller*, the berries are used in Sweden to boil silver plate in, in order to render it white by the action of the acid which they contain. This plant is the badge of the Grants.

The Large-fruited or American Cranberry, *O. macrocarpus*, which is also of slender creeping habit, and has elliptic obtuse nearly flat leaves, bears spherical berries, larger and of a brighter red than those of the common sort; they ripen in October and successively, often remaining on the plant throughout the winter. It is found from Canada to Virginia, in bogs, principally on a sandy soil. The berries are collected in large quantities, and form an article of export to Britain and other parts of Europe. The American Cran-

berry can be cultivated in England, and was so very successfully by Sir Joseph Banks and others. Downing, in his *Fruits and Fruit Trees of America*, states that 'In some parts of New England, low and coarse meadows of no value have been drained and turned to very profitable account by planting them with this fruit. The average produce is from eighty to one hundred bushels of Cranberries (per acre), worth at least one dollar a bushel.' As a large quantity can be obtained from a small space, and at little expense, the American Cranberry might be advantageously cultivated, for private use at least, in this country, where, by picking the berries only as they became perfectly ripe, and carefully rejecting such as were but partially so, a produce of more uniform and better quality would be insured. [R. T.]

OXYDENDRON. A genus of heathworts, having the corolla ovate and five-toothed, the filaments of the stamens hairy, and the style thick and five-angled. The only species is a native of North America, a shrub with alternate acute and serrate leaves. The name is from the Greek words signifying 'sharp' or 'acid,' and 'tree,' to indicate the taste of the plant. [G. D.]

OXYGONIUM. A genus of polypodiaceous ferns of the tribe *Aspleniceæ*, and belonging to the diplazoid division, with double sori, set back to back. Among these it is known by its reticulated venation, which is of this form: the veins and venules are parallel below, and on this elongated parallel portion bear the sori, exterior to which they become joined so as to form near the margin one or two series of small areoles, from which short free veinlets point outwards. The few species are tropical Eastern ferns, with somewhat coarse simple or pinnate coriaceous fronds. [T. M.]

OXYGONUM. A genus of *Polygonaceæ* from the Cape of Good Hope, comprising an annual plant with lanceolate leaves, and pedunculated spikes of monogamous flowers, the males with a four-cleft coloured perianth, and eight stamens. The fruit is oblong and trigonous, with membranous wings at the angles. [J. T. S.]

OXYLOBIUM. A genus of papilionaceous *Leguminosæ* of the tribe *Podalyrieæ*, characterised chiefly by the calyx, which has the two upper lobes larger and more united than the others, forming a kind of upper lip, by the ovary having always more than two ovules, and by the pod, which is more or less turgid, being usually coriaceous and not divided between the seeds. There are nearly thirty species, including *Callistachya*, which has no sufficient characters to distinguish it. They are all Australian shrubs or undershrubs with opposite whorled or sometimes scattered, simple and entire leaves, usually silky underneath. The flowers are yellow, in axillary clusters heads or short racemes, or in terminal racemes or spikes. Several species have been occasionally introduced into our col-

lections amongst ornamental Australian shrubs, but they are generally less showy than the *Choroasmas*, which some of them much resemble.

OXYPETALUM. A genus of *Asclepiadaceæ* composed of South American twining or erect herbs, with opposite generally pubescent cordate leaves, and interpetiolar rather large and often scented white, yellow, blue, or greenish flowers. The calyx is five-cleft, the tube of the corolla bell-shaped, and the fruit smooth or covered with soft prickles. *O. caruleum* (*Twicedia carulea* of authors) is a favourite in our gardens on account of its fine blue flowers. The genus is a large one, nearly fifty species being enumerated in systematic works, but nothing seems known about their uses. [R. S.]

OXYRAMPHIS. A name given by Wallich to those species of *Lespedeza* which have a very pointed keel-petal, and which now form a section of the latter genus.

OXYRIA. A genus of *Polygonaceæ*, distinguished from *Rumex* by having the perianth with four segments only, the inner pair enlarged over the lens-shaped winged nut. They are small alpine acid plants, found in Europe, Asia, and the Arctic regions, and have stalked cordate-reniform root leaves, and paniculate flowers, which are in half-whorls round the branches of the panicle. One species, *O. reniformis*, is not uncommon in alpine districts in Britain. [J. T. S.]

OXYSTELMA. A genus of *Asclepiadaceæ*, inhabiting tropical Asia, Africa, and Australia, and consisting of climbing glabrous shrubs, with narrow linear or lanceolate seldom ovate leaves, and racemose purplish flowers. The calyx is five-cleft, the corolla rotate and five-lobed, and the fruit oblong and smooth on the surface; whilst the seeds are small and have a feathery appendix. There is some doubt whether *O. esculentum*, termed Gurin Palay by the Malabar people, is really eaten. Both Roxburgh and Wight assert that they never saw the natives eat it; but in decoration it is used as a gargle for aphthous affections of the mouth and fauces. [R. S.]

OXYSTYLIS. A Californian heriaceous plant, constituting a genus of *Cypripediaceæ*, and having small yellow flowers arranged in axillary racemes. Sepals linear, petals oval; ovary two-celled, with two ovules in each cell. Fruit two-lobed, indehiscent, surmounted by the persistent style. [M. T. M.]

OXYTHECA. A genus of *Polygonaceæ*, containing an annual from Western North America and Chili, with the habit of the pedunculate *Eriogonum*, but having a four or five-cleft involucre, with few flowers, which have a four or five-cleft perianth, and twice as many stamens as there are lobes. The segments of the involucre and calyx are spinulose-aristate. [J. T. S.]

OXYTROPIS. An extensive genus of

leguminous plants, closely allied to *Astragalus*, from which it is mainly distinguished by having the lower petals of the corolla or keel obtuse, and the lower suture of the legume inflexed. All the species have pinnate leaves, and bear their flowers, which are purplish cream-coloured or white, in spikes or clusters. The majority being alpine plants are of humble growth, and produce comparatively large flowers. Two species are indigenous to Scotland: *O. uralensis*, a stemless plant, the leaves of which are plentifully clothed with silky hairs, and the flowers bright purple, collected into heads, and which grows in dry pastures chiefly near the sea; and *O. campestris*, which has very short stems, yellowish capitate flowers, and inflated pubescent pods. The latter is a very rare native plant, being found only on the Clova Mountains. The species are principally employed for ornamenting rock-work. [C. A. J.]

OYSTER-GREEN. A name commonly given to *Ulva lactuca* from its bright-green tint, and its being frequently attached to the common oyster. It is also called Green Sloke. Other species, and one or two species of *Enteromorpha*, are probably included under the name. [M. J. B.]

OYSTER PLANT *Steenhammaria maritima*; also *Triglopon porifolius*.

OZOTHAMNUS. A genus of *Compositæ* of the tribe *Gnaphalieæ*, only differing from *Cassinia* in the want of chaffy scales on the receptacle, and in the inner scales or bracts of the involucre being white coloured or scarious, and usually spreading in a ray. There are about thirty species known, of which three inhabit New Zealand, and the rest are Australian. They are all shrubby, with small scattered leaves, usually entire with the edges rolled back, and numerous small flower-heads in terminal corymbs or panicles.

PABS. In Scotland, the refuse of flax.

PACANE, or PACANIER. (Fr.) *Carya oliviformis*.

PACHANI. A bitter tonic infusion prepared in India from *Tinospora cordifolia*.

PACHIRA. A genus of tropical American trees belonging to *Mulaceæ* (*Bombacæ*), and differing from *Adansonia*, the Baobab tree, in the calyx being cup-shaped and entire, not five-toothed. From the other genera of the family the disposition of the stamens is sufficient to distinguish it. The name *Pachira* was given to the plants of this genus in 1775, by Aublet, and about six years later the younger Linnaeus gave them that of *Carolinæa* without knowledge of the one already published. The former name, therefore, has precedence, but the plants are best known under the latter. They are either small or large trees, with disticte leaves somewhat like those of the horse-chestnut, but with the leaflets more leathery in texture. The large handsome flowers arise singly from the axils of the

upper leaves, and are generally white but sometimes deep rose or scarlet. The calyx is cup-shaped entire; the petals five, strap-shaped, varying from three inches to a foot in length, and often covered internally with soft white down; and the stamens very numerous, with their filaments united into a ring at the base, but divided upwards into many branching bundles; these being generally of a bright-red colour, add greatly to the beauty of the flowers, especially when the petals are white. The fruit is an oval woody one-celled capsule, which opens by a number of divisions, and contains numerous seeds.

One of the best-known species is *P. alba*, commonly called *Carolinæa alba*, a native of many parts of South America. This is a tree growing twenty feet high, with flowers about six inches long. The petals are clothed with an olive-coloured down on the back, and covered internally with soft white silky hairs. According to Mr. Purdie, this is one of the most useful trees in New Grenada, the inner bark furnishing the entire country with cordage which is strong and durable.

The wool of the seeds of the Barrigon (*P. Barrigon*), is used in Panama to stuff pillows, cushions, &c., and the bark affords a useful fibre. Among the trees of that country which yield a useful timber, the Cedro Espinoso (*P. Fendleri*) is enumerated by Dr Seemann. The largest-flowered species, *P. macrantha*, is found in Brazil; this tree attains a height of one hundred feet, and has flowers fifteen inches in length, the petals olive-green white within, and the stamens blood-red with yellow anthers. The name commemorates the Princess Sophia Caroline of Baden. [A. C. B.]

PACHIRA DE CAYENNE. (Fr.) *Pachira aquatica*. — DU MARONI. *Pachira insignis*.

PACHYDENDRON. A section of the lilaceous genus *Alse*, distinguished by the tubular slightly incurved perianth with an ascending bent limb, and by the stamens adhering to the base of the perianth. They are arborescent plants from the Cape of Good Hope, with crowded leaves at the top of the caudex, and nodding flowers in a terminal spike. [J. T. S.]

PACHYLOBUS. A genus founded by Don upon a tree with compound leaves, and oval black fruits, which are sold in the island of St. Thomas under the name of Safa, and Pisco. It is now referred to *Conocarpus* (*Uncaria*), under the name of *C. edule*. The tree is cultivated in the Cumarou district, and occurs also at Old Calabar; it has small flowers in axillary panicles. [J. Br.]

PACHYMA. A spurious genus of *Fungi* consisting of one or two doubtful productions. The most important of these will be briefly noticed under its native name, TUCKAHOO. [M. J. B.]

PACHYNEMA. A genus of *Dilleniaceæ*, consisting of three leafless herbs or undershrubs from tropical Australia, with rush-like or flattened stems, and small yellow flowers on short lateral recurved branches.

They are well characterised by their stamens being never more than ten, with thickened ovoid filaments, very much resembling in shape the carpels of the ovary, and accompanied by two inner staminodia or barren stamens, which are still more like the carpels. To these has been added, as a section, the *Hottia* of Harvey, a West Australian species with the same rush-like stems, leafless except two or three small divided leaves at the base, and with larger flowers and the filaments broadly flattened instead of being ovoid.

PACHYNEURUM. A genus of *Cruciferae* from the Altai, containing *Draba grandiflora*, which has the two outer sepals bulging at the base, and the pod linear-compressed, the valves with a thick nerve and prominent veins, and the seeds numerous, in two rows. [J. T. S.]

PACHYNOCARPUS. A lofty Borneo tree, with alternate entire coriaceous leaves, and deliciously fragrant flowers, in axillary and terminal panicles, forming a genus of *Dipterocarpaceae*, closely allied to *Vatica*, but differing in the fruit. When ripe the calyx-lobes wear away, and the adnate tube enlarges and becomes thickened, almost enclosing the fruit, to which it closely adheres; whilst in *Vatica* the tube remains small, and the persistent lobes are reflexed under the fruit.

PACHYPHYLLUM. Epiphytal orchids of the tribe *Vandeae*, allied to and with much of the habit of *Fernandezia*, having thick fleshy leaves arranged in two ranks, and overlapping each other. They bear axillary spikes of inconspicuous bifariously disposed flowers, which have a convolvulic perianth, with free equal sepals and petals, a free undivided sessile lip having a single tubercle at its base and two at its apex, a petaloid column, and two pollen-masses. All the species, about six in number, belong to tropical Western America. [A. S.]

PACHYPLEURUM. A genus of umbellifers, distinguished by having the petals in different flowers of the umbel of different shape; and each half of the fruit with five prominent thick ribs, the two lateral broader than the others. *P. alpinum* is the only species, a native of the Alpine parts of Europe. The name comes from Greek words indicating the thickened form of the ribs on the fruit. [G. D.]

PACHYPODIUM. A genus of dogbanes distinguished by having the calyx in five deep divisions, the corolla salver-shaped with its tube curved and five-angled, and the stamens inserted in the middle of the tube. The species are fleshy and spiny shrubs, with scattered leaves and milky juice. They are natives of the Cape of Good Hope. [G. D.]

The same name has been given to a genus of *Cruciferae*, not sufficiently distinct from *Sisymbrium*, from which it differs only in the very long pods, cylindrical throughout, with a spongy partition destitute of a nerve. The species occur in Central Europe

and in the Mediterranean region. *Sisymbrium Colymbus* and *S. pannonicum* of authors belong to this group. [J. T. S.]

PACHYPTERA. A doubtful genus of *Dignoniaceae*, the flowers of which are unknown. The fruit is an elongated flat capsule, divided into two cells by a partition placed parallel with the valves. The half-dozen species comprised in the genus are all South American shrubs, furnished with conjugate leaves, and climbing by means of tendrils. [B. S.]

PACHYRHIZUS. [A genus of the tribe *Phaseolae* of *Leguminosae*, containing two species, one a native of Mexico, the other widely spread throughout the warmer parts of Asia and America, and occurring also in tropical Africa.] They are climbing herbs, with twining stems rising from large tuberous roots, and having leaves formed of three usually angular stalked leaflets, and racemes composed of clusters of violet-blue flowers on large glandular knobs. Each flower has two small bracts which soon fall off, a pitcher-shaped four-lobed calyx, a pea-like corolla, ten stamens (one of which is free) alternately shorter, and straight narrow flattened pods containing from seven to twelve roundish seeds.

P. angulatus is found in many parts of the tropics, such as tropical America, both the East and West Indies, Mauritius, Feejee Islands, &c. It has angular sharp-toothed leaflets, and long racemes of flowers. The roots generally run in a horizontal direction underground, and frequently attain six or eight feet in length and the thickness of a man's thigh. They are used for food in times of scarcity, and when cooked are of a dirty-white hue, and rather insipid. The Feejeans, who call the plant Yaka or Wayaka, obtain a tough fibre from the twining stems, with which they make their fishing-nets. [A. S.]

PACHYSTEMON. A genus of *Euphorbiaceae*, consisting of one or two Javanese trees, with the large peltate three-lobed leaves as well as most of the characters of a *Mappa*; but the male flowers have only a single stamen consisting of a three-celled anther, sessile on a thick column; and in the females the ovary is five-celled, with a hollow cylindrical five-lobed style.

PACHYSTICHOUS. Thick-sided; applied to cells only.

PACHYSTIGMA. The name of a small Natal shrub, constituting a genus of *Conchocarpeae*. It is described as having a reddish bark, and axillary cymes of reddish flowers; a calyx-lobes divided into four or five linear segments; a bell-shaped corolla with a somewhat globular tube, hairy in the interior, the limb divided into four or five lance-shaped segments; five stamens protruding from the corolla; and a five-celled ovary surmounted by a fleshy disk, the style terminated by a thick fleshy stigma—whence the name. [M. T. M.]

PACKMAN-RICH. A Scottish name for six-rowed barley.

PAOOVA. A Brazilian name for the Banana.

PACUL. A wild variety of Plantain, from which some of the so-called Manila hemp is obtained.

PADDLE-WOOD. A strong light elastic wood obtained in Guiana from *Aspidosperma excelsum*.

PADDOCK-PIPES. *Equisetum*, especially *E. limosum*.

PADDOCK-STOOLS. *Boletus*; also *Agaricus*.

PADELION. *Alchemilla vulgaris*.

PADDY. Unhusked rice.

PADINA. A beautiful genus of dark-spored *Algae*, of which *P. pavonia*, our Turkey-leather Laver or Peacock's Tail, is one of the most remarkable species, if indeed all are not reducible to that. The broadly fan-shaped frond, often proliferous, and circled round into a cup marked with concentric lines fringed at their upper margin, with heaps of spores between them, and partially covered beneath with chalky powder, at once indicate the species. It is common in tropical countries, extending



Padina pavonia.

to our southern coasts without any change of size or colour. [M. J. B.]

PADOUK. A kind of Rosewood obtained in Borneo from *Pterocarpus indicus*.

PADERIA. A genus of *Cinchonaceae*, consisting of four or five species, all Asiatic and mostly tropical, except one species which extends as far north as Japan. They are climbing shrubs with twining stems, opposite leaves with solitary stipules on each side, and small flowers disposed in loose two or three-forked cymes produced either from the angles of the leaves or at the ends of the branches. The flowers have a calyx with five small persistent teeth, a funnel-shaped corolla with short valvate lobes folded in the bud, five stamens included within the tube of the corolla, and a style with two short stigmas. The fruits are small berries covered with a thin brittle rind, and contain two one-seeded cells.

P. fastida is a widely spread plant, common in most parts of India and all through the Malayan Archipelago, extending from the Mauritius northward to China and Japan. All parts of the plant give off a most offensive odour when bruised. Its leaves are usually heart-shaped at the base, but of variable width and outline; and its flowers white or pale-pink marked with a pink star-like spot on the spreading limb. In Assam the plant is called Bedolee Sutta, and has lately been brought into notice as a fibre-yielding plant, its flexible stems yielding a tough fine fibre fit for spinning purposes. The Hindoos use the roots as an emetic. [A. S.]

The chopped branches are known in China under the name of Jung-ank, and are used to destroy aphides on cabbages.

PÆDEROTA. A genus of *Scrophulariaceae*, scarcely differing from *Veronica* in their more irregular almost two-lipped corolla. The habit is also that of the mountain species of *Veronica*, with terminal spikes. There are two species, both inhabiting the mountains of Carinthia, Carinola, and Upper Italy: *P. Ageria*, an erect perennial of about six inches to a foot in height, with pale-yellow or straw-coloured flowers; and *P. Bonarota*, a much lower but very ornamental plant, with blue or pink-coloured flowers.

PÆONIA. An extensive genus of handsome herbaceous plants, occasionally somewhat shrubby, belonging to the *Ranunculaceae*, among which they are distinguished by producing their seeds in many-seeded follicles, and by bearing their stamens on a glandular disk. One species, *P. corallina*, has long been known to grow on an island called the Steep Holmes in the mouth of the Severn, but it is scarcely considered indigenous. *P. festiva*, or *officinalis*, is the Common Peony, with large single or double red or bluish flowers, which decorates every cottage garden. *P. albiflora*, distinguished by its smooth recurved follicles, is a native of Siberia and the whole of Northern Asia; the roots of this are sometimes boiled by the natives, and eaten in broth; they also grind the seeds and put them into their tea. French, *Pivoine*; German, *Päonia*. See MOUTAN. [C. A. J.]

PÆONY, or PEONY. *Pæonia*.

PENIA. A genus of Brazilian ferns, probably confined to one species, *P. viscosa*, a plant with large tripinnate glandular-pubescent fronds, and the general aspect of *Pteris aquilina*; with which, moreover, it agrees so closely in its fructification as to have been named *Pteris scalaris*. The sorus of this plant, which was for a long time a pteridological puzzle, is either linear or roundish, with a double or two-valved indusium such as occurs in the bracken, which latter and its allies will probably have to be dissociated from *Pteris*, and combined with *Paria*. The latter has been generally referred to the *Dicksonia*, but it seems to fall rather in the vicinity of

the *Lindaca*, where it may form a distinct section, *Prestea*. [T. M.]

PAGADOO. *Mimusops Elengi*.

PAGEA. A genus of *Gentianaceae*, represented by a South American herbaceous plant, with lance-shaped leaves, and purple funnel-shaped flowers, borne on nodding flower-stalks, that originate in the forks of the branches. It is closely allied to *Lianthus*, but is distinguished by the stamens, which are attached to the tube of the corolla, and by the erect projecting anthers, which do not become twisted. The inflorescence also is peculiar in this family. The name refers to the membranous texture of the calyx. [M. T. M.]

PAGARILLE. (Fr.) *Tropaeolum aduncum*.

PAGINA. The surface of anything.

PAGODA TREE. *Plumeria acuminata*.

PAIGLE, PAGLE, or PEAGLE. *Prunella varia*.

PAIN BLANC. (Fr.) *Viburnum sterile*. — DE YOCOU. *Oxalis Acetosella*. — DE CHATAUD. *Allium Plantago*. — DE GRENOUILLE. *Allium natans*. — D'OLIBEAU. *Sedum reflexum*. — DE POULET. *Lamium purpureum*. — DE POURCEAU. *Cyclamen europaeum*. — DE SAINT JEAN. *Ceratonia Siliqua*. — DE SINGE. *Adansonia digitata*. — VIN. Bread made from the seeds of *Lolium perenne*.

PAINTED. When colours are disposed in streaks of unequal intensity.

PAINTED-CUP. An American name for *Castilleja*.

PAIRED. The same as Conjugate.

PAJANELIA. A genus of *Bignoniaceae*, confined to the East Indies, and consisting of two species, *P. multipaga* and *P. Rheedi*, both of which are gigantic trees, with imparipinnate leaves two to three feet long, ovate or cordate leaflets, and large panicles bearing purplish flowers. The calyx is distinctly five-cornered, and terminates in five acute teeth; the corolla is leathery and bell-shaped; the stamens are four in number; and the capsule is flat, and has two broad wings, by which the genus may at once be distinguished from *Caspidaria*, which has four wings, and from all other *Bignoniaceae*, destitute as they are of any wing-like appendices. [B. S.]

PAVA. An Indian name for *Wrightia tinctoria*.

PALANDOO. An Eastern name for Onions.

PALAFOXIA. A genus of *Compositae* of the tribe *Helianthere*, allied to *Gaillardia* in the naked receptacle and long filiform branches of the style, but the pappus scales are awnless, and the habit is very different. There are half a dozen species, natives of Mexico or Texas, herbs or suffrutescent plants with a minute ashy pubescence, linear or lanceolate entire leaves,

and loosely paniculate or corymbose rather small flower-heads, with the florets white flesh-coloured or purple.

PALARIS. A root which is perfectly continuous with the stem. *Palaris-rumosa* is applied to a root which is palar, and produces numerous branches from its sides.

PALASA. An Indian name for *Butea frondosa*.

PALASS-GOOND. Bengal Kino, the produce of *Butea frondosa*.

PALATE. The prominent lower lip of a ringent corolla.

PALAYA, or PALAVIA. A genus of Peruvian herbaceous plants of the family *Malvaceae*. The flowers are small, purple, on long axillary stalks, and unprovided with any outer calyx. This character, combined with the numerous one-seeded indehiscent carpels, suffices to distinguish the genus from its allies. [M. T. M.]

PALAWAH. A beautiful heavy red wood of Burmah.

PALAY. An Indian name for *Cryptostegia grandiflora*.

PALEACEOUS. Covered with palea; as the receptacle of many Composites.

PALEE, or PALES (adj) PALEACEOUS. Membranous scales resembling chaff. The inner scales of the flower in grasses are palea.

PALEIFORM. Resembling palea or chaff, as Ramenta; which see.

PALEOLÆ. The hypogynous scales of grasses.

PALÉTUVIER. A French name for several woods of Guiana. —, MOUNTAIN. *Clusia flava*. —, RED. *Rhizophora Mangie*. —, SOLDIER. *Laguncularia racemosa*. —, WHITE. *Avicennia nitida*.

PALICOUREA. A genus of cinchonaceous shrubs, natives of tropical America, with opposite or whorled leaves, and yellow or white flowers variously arranged. The genus is nearly allied to *Psychotria*, differing mainly in the corolla, whose tube is distended or somewhat curved at the base and hairy within, and the limb with five short erect lobes. Two or three species are grown as stove-plants. [M. T. M.]

PALILLO. A Peruvian name for *Campananthes lineatifolia*.

PALISOTA. A genus of *Commelynaceae*, with the perianth and ovary as in *Commelyna*, and having three stamens, one larger than the others, adherent to the ovary, with a thick filament and broad anther, the other two with filiform filaments and narrow lanceolate anthers. The habit is that of *Anacardium*. [J. T. S.]

PALISSANDER. A name used in Franco for Rosewood; and sometimes applied to Striped Ebony and Violet-wood.

PALIURUS. A genus of *Rhamnaceae*.

P. aculeatus, commonly called Christ's Thorn, is a native of Southern Europe and Western Asia, and is a shrub, as also is *P. virgatus* a native of Nepal; while *P. Aubletii*, a Chinese species, is a moderate-sized tree. They have alternate simple three-nerved leaves, with stipules which ultimately become converted into prickles; and their flowers have a spreading five-cleft calyx, five petals, as many stamens, and a three-celled ovary half immersed in the flat disk, and bearing three oblong stigmas. The genus, however, is best distinguished by its dry hemispherical fruit, which is three-celled at the base and expanded at the top into a broad thin rim; the entire fruit resembling a head with a broad-brimmed hat on, giving rise to the French name, *Porte-chapeau*, given to *P. aculeatus*.

Some difference of opinion exists with regard to the identification of the plant which afforded the thorns used for plaiting the crown placed upon Christ's head before His crucifixion. Two common eastern plants usually bear the name of Christ's Thorn: one the *Zizyphus Spina-Christi*, and the other the present plant. This is a native of the countries bordering on the Mediterranean and of Western Asia to as far east as the Punjab. It has flexible branches, capable of being easily plaited; and each leaf has two stout sharp spines at its base, one of which is straight and erect, and the other curved and bent downwards so as to form a hook. It is commonly used for hedges, and its seeds are considered medicinal by Turkish doctors, and are also used as a dye. [A. 8.]

PALM. The popular name for the plants belonging to the **PALMACEÆ**; also popularly applied to *Salix Caprea* when in flower. — **ASSAI.** *Euterpeodulus*. — **BETEL-NUT.** *Areca Catechu*. — **BOU'RBON.** *Litanea*. — **BROOM.** *Attalea funifera*; also *Thrinax argentea*. — **BUSSU.** *Mancaria sacifera*. — **CABBAGE.** *Oreodoxa* or *Areca pteracea*. — **CARANA.** *Mauritia Carana*. — **CARNA'IBA.** *Copernicia cerifera*. — **CATECHU.** *Areca Catechu*. — **COCOA-NUT.** *Cocos nucifera*. — **COHUNE.** *Attalea Cohune*. — **COQUITO.** *Jubara spectabilis*. — **DATE.** *Phoenix dactylifera*. — **DELER.** *Borassus* (*Diethyrium*). — **DOOM.** or **DOU'N.** *Hyphorhe thebaica*. — **DRAGON'S BLOOD.** *Calamus Draco*. — **FAN.** *Corypha*. — **EUROPEAN.** *Chamaerops humilis*. — **INDIAN.** *Chamaerops excelsa*. — **JAMAICA.** *Sabal Blackburniana*. — **GE-BANG.** *Corypha Gebunga*. — **GOMETTI.** or **GOMETTO.** *Saguernus saccharifer*. — **HEMP.** *Chamaerops excelsa*. — **IVORY.** *Phytelephas macrocarpa*. — **ITA.** *Mauritia flexuosa*. — **IT.** *Astrocaryum acule*. — **JARA.** *Leopoldinia pulchra*. — **JCPATI.** *Raphia tediigera*. — **MACAW.** *Acercomia sceler carpa*. — **MIRITI.** *Mauritia flexuosa*. — **MURUMURU.** *Astrocaryum Murumuru*. — **NIBUNG.** or **NIBONG.** *Oncosperma flumutosa*. — **OIL.** *Elais guineensis*. — **PALMETTO.** *Sabal* or *Chamaerops Palmetto*. — **PALMYRA.** *Borassus flabelliformis*. — **PASHIUBA.** or **PAXIUBA.** *Iriarteia exor-*

rhiza. — **PATAWA.** *Obocarpus Batava*. — **PEACH.** *Guilielma speciosa*. — **PIAS-SABA.** *Attalea funifera*, also *Leopoldinia Pissaba*. — **PINANG.** *Areca Catechu*. — **PINDOVA.** *Attalea compta*. — **RATTAN.** *Calamus Rotang*, *rudantia*, and other species. — **SAGO.** *Sagus Rumphii* and *S. lavis*. — **TALIERA.** *Corypha Tallera*. — **TALIPOT.** *Corypha umbraculifera*. — **THATCH.** *Sabal Blackburniana*. — **TUCUMA.** *Astrocaryum Tucuma*. — **WAX.** *Ceroxylon* or *Iruarten andicola*. — **WINE.** *Copernicia cerifera*. — **WINE.** *Cocos butyracea*, also *Caryota urens*. — **ZANOBIA.** *Iriarteia exorrhiza*.

PALM (adj. **PALMARIS**). Three inches, or the breadth of the four fingers.

PALMACEÆ. (*Palme, Palma*) A natural order of petaloid monocotyledonous plants belonging to Lindley's palmal alliance of hypogynous Eudogens. The flowers are bisexual unisexual or polygamous, on a terminal often-branched spadix, enclosed in a one or many-valved spathe. Perianth six-parted, the three inner segments often larger, and sometimes deeply connate; stamens inserted into the base of the perianth; ovary free, usually composed of three carpels, more or less completely united. Fruit drupaceous or nut-like, or baccate, often with a fibrous covering; seed with cartilaginous or horny albumen; embryo small. They are arborescent plants, with simple rarely branched trunks, marked with the scars of the leaves, which are terminal, pinnate or fan-shaped, with plicate venation and parallel simple veins, and often with spiny petioles. Natives of tropical regions chiefly, they impart to them much of their botanical physiognomy. Most of them have unbranched stems, attaining sometimes a height of 190 feet, and sending out clusters of large leaves, from the axil of which bunches of flowers proceed. Although the flowers are small, still the inflorescence, taken collectively, has often a most imposing aspect. Linnaeus called them the Princes of the Vegetable Kingdom. Martius estimates the species at nearly 600, of which about one-sixth have fan-shaped leaves. They have been divided by him into various tribes, depending chiefly on the nature of the ovary ovules and fruit; and sections are formed according as the leaves are pinnate or flabelliform, and the stems are spiny or not.

The properties of the plants of this order are very various. In the countries in which they grow they are used for supplying food and for forming habitations. The fruit of some is eatable. Many supply oil, wax, starchy matter, and sugar, which latter is fermented so as to form an intoxicating beverage. Their fibres are employed for ropes, and the reticulum surrounding their leaves is sometimes manufactured into brushes.

The Palm of the Bible seems to be *Phoenix dactylifera*, the drupaceous fruit of which supplies food to many of the inhabitants of Arabia and Africa. *Cocos nucifera*, the cocoa-nut palm, is one of the most

useful, supplying food, clothing, materials for houses, and utensils of various kinds, ropes, and oil. The palm-oil imported from the West Coast of Africa is obtained by bruising the fruits of *Elaeis guineensis* and *E. melanococca*. The betel-nut is the produce of *Areca catechu*, and from it an extract is prepared of an astringent nature resembling catechu. Fine sago is said to be procured from *Saguis laevis* and *S. humphii*, found in the eastern islands of the Indian Ocean. Sago, as well as sugar and a kind of palm-wine, are procured from *Caryota urens*. The date-sugar of Bengal is the produce of *Phoenix sylvestris*. *Ceroxylon* or *Iriartea andicola* yields wax, which forms a coating over its trunk. *Copernicia cerifera* is another wax-palm. *Calamus Rotang* is used as cane under the name of rattan. *Calamus radentem*, the cable cane, a native of the East Indies, Cochinchina, and the Moluccas, grows sometimes to the length of 500 feet. The fruit of *Attalea funifera* is known by the name of coquilla-nut, and its hard pericarp is used for making umbrella-handles, &c. The spathe of *Manicaria sacrifera* comes off in the form of a conical cap, and is used as a covering for the head in the West Indies. *Chamerops humilis* is the only European species of palm. The doom-palm of Egypt (*Hyphæne thebaica*) has a trunk which divides in a dichotomous manner; its pericarp is used as food, and has the taste of gingerbread. In the parched districts between the rivers Dande and Zenza, in tropical Africa, Welwitsch came upon a palm forest five leagues in length, which consisted exclusively of the crowded stems of a branched palm belonging probably to *Hyphæne*. Like most African palms, this yields an excellent wine. *Areca*, *Caryota*, *Saguis*, *Borassus*, *Corypha*, *Phoenix*, *Cocos*, and *Elaeis* are examples of the genera. See Plates 7, 11, 12, 13, and 18 for illustrations of this family. [J. H. B.]

PALMA-CHRISTI. *Betulus communis*.

PALMATE. Having five lobes, the mid-ribs of which meet in a common point, so that the whole bears some resemblance to a human hand; as the leaf of the Maple.

PALMATIFID. Cut halfway down in a palmate manner. *Palmatilobed* means cut into shallow divisions in a palmate manner; *palm-iriparted*, or *palmatisected*, cut nearly to the base in a palmate manner—a near approach to digitate.

PALM BUTTER. The same as Palm Oil.

PALMIFORM, PALMATIFORM. When numerous ribs of a leaf are arranged as in the palmate form, radiating from the top of the petiole.

PALMINERVED. The same as Palm-veined.

PAMELLEÆ. A natural order of green-spored *Algae*, characterised by the plants being composed of free or merely conglomerated cells propagated by the organisation of their endochrome, which is mostly

quaternary, and sometimes transformed into zoospores. In some species, as *P. botryoides*, though the propagation takes place by division of the endochrome, a portion of the original hyaline stem always separates at the same time, so that we have a dichotomous structure. The endochromes are not always green; indeed, various colours, as blue, yellow, &c., are assumed by some of the more obscure species. Many productions assigned to this order are doubtless mere transitional states of higher plants. The gonidia of some of the gelatinous lichens are multiplied like *Palmella* and *Hematococcus*, while the greater part follow *Nostochineæ*. *Protococcus nivalis*, or the Red Snow, is one of the most generally known examples of the order, though several, like the blood-stains at the base of walls, *Protococcus cruentus*, are amongst the commonest *Algae*. [M. J. B.]

PALMETTO. A common name for several of the Fan-palms, but especially *Sabal Palmetto*. —, **HUMBLE.** *Carludovicia insignis*. —, **ROYAL.** *Thrinax parviflora*, and *Sabal umbraculifera*. —, **SILVER-LEAVED.** *Thrinax argentea*. —, **SMALL.** *Carludovicia*.

PALMIER À ÉVENTAIL, or P. NAIN (Fr.) *Chamerops humilis*.

PALMISTE. (Fr.) *Chamerops*.

PALM-VEINED. Having the principal veins radiating from a common point.

PALMYRA-WOOD. A name given to the woody parts of the trunks of *Cocos nucifera* and *Borassus flabelliformis*.

PALO. A diuretic extract obtained from *Tinospora cordifolia*. — **BLANCO.** A Chilian name for *Flotaria diacanthoides*. — **COTO.** *Sargassum baciferum*, and other South American seaweeds. — **DE BUBA.** *Jacaranda stictifolia*. — **DE CRUZ.** *Brownea grandiceps*. — **DE LOS BRUJOS.** *Lycioplesium pubiflorum*. — **DE PAN.** *Artocarpus incisa*. — **DE SAN JUAN.** *Lasionema roseum*. — **DE VACA.** *Brosimum Galactodendron*. — **DE VELAS.** *Parmetiera cereifera*. — **MATO.** *Lycioplesium pubiflorum*, the Tree of the Magicians. — **NEGRO.** *Euxenia grata*. — **SANTO.** A Paraguay name for *Lignum-vite*.

PALOMBINA. A sort of grape cultivated in Italy.

PALOMNIER. (Fr.) *Gaultheria*.

PALSYWORT. *Primula veris*.

PALUOSE, PALUSTRIS. Growing in marshy places.

PALUNG. An Indian name for a native Beetroot.

PALUNGEO. An Indian name for the fibre of *Hibiscus cannabinus*.

PAMELLE. (Fr.) *Hordeum distichon*.

PAMEROON-BARK. *Moschoxylon Swartzii*.

PANPELMOUSE, or POMPELMOOSE.

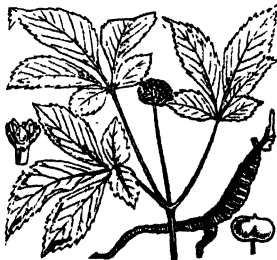
(Fr.) The fruit of the Shaddock, *Citrus decumana*.

PAMPHILIA. A genus of Brazilian trees of the family *Styracaceæ*. The surface of the plants is densely covered with ruddy-coloured woolly hairs; flowers in axillary clusters; calyx bell-shaped, five-toothed; corolla five-cleft; stamens five, the filaments united below; the anthers united at their backs by a membranous prolongation of the filaments; ovary free, three-celled; ovules erect, solitary; style one; stigma three-lobed. (M. T. M.)

PANAIS. (Fr.) *Pastinaca*.

PANAX A genus of *Araliaceæ*, comprising herbs, shrubs, or trees, natives of tropical and Northern Asia and America. The leaves are usually palmately compound with sheathing leafstalks; and their flowers greenish, arranged in an umbellate manner on branching flower-stalks. They have five spreading petals, five stamens, and eight styles, two with simple stigmas. The fruit is succulent, orbicular or divided into two lobes, rarely cylindrical, crowned by a fleshy disk, and divided internally into two one-seeded compartments.

The name *Panax* is an adaptation of the Greek word *panakeia*, signifying a panacea, or remedy for all complaints, in allusion to the supposed or real virtues possessed by some of these plants. The root of the Asiatic *P. scamus*, or *Ginseng*, is highly esteemed by Chinese physicians, who affirm that it is able to ward off or remove fatigue, to restore exhausted animal powers, to make old people young, and in a word to render man immortal if anything on earth can do so. At Peking it is said sometimes to have been worth its weight in gold. In Europe the root is valued to produce any remarkable effects, though it is described as insipid, ginnous, bitter, and slightly aromatic. The name *Ginseng* has been said to mean 'Wonder of the World,' but Mr. Stronack informs us that the first



Panax quinquefolium.

syllable means 'humans,' the second uncertain, possibly meaning 'drug,' or 'root,' as it forms part of the name of this root, and of another drug which is also a root.] The roots

of *P. quinquefolium*, a native of North America, and which has been sometimes confounded with the foregoing, are exported to China, but they are not so highly valued as the indigenous plant. *P. fruticosum*, *P. corbolicum*, and *P. Anisum* have all aromatic properties. (M. T. M.)

PANCE, PAUNCE, or PAWNCE. *Viola tricolor*.

PANCRATIS. (Fr.) *Pancretium*.

PANCRATIUM. A genus of *Amaryllidaceæ*, and the type of the pancratiiform section of the order, distinguished by the presence of a cup or coronet, on which the stamens are borne. There are about



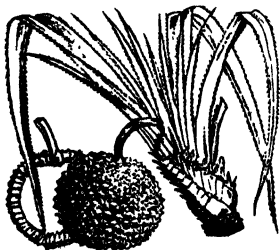
Pancretium maritimum.

half a dozen species found in South Europe, North Africa, Syria, Arabia, and Carolina, and as many more in India and the adjacent islands. They are bulbous plants, with lorate deciduous or persistent leaves, and an umbel of white flowers terminating a solid scape. The perianth tube is straight and elongated with a funnel-shaped throat, the limb six-parted and spreading, and the cup conspicuous funnel-shaped six-lobed, bearing six stamens between the lobes. The ovary is three-celled, with many ovules in each cell. The European *P. maritimum*, though not now regarded as official, has properties resembling those of the squill. It and *P. illyricum* may be grown at the foot of a wall. The tropical species form handsome stove-plants. Many of the latter are now separated under the name of *Hymenocallis*. (T. M.)

PANDANACEÆ. (*Cyclocodon*, *Freyinetia*, *Screwpinus*.) A natural order of monocotyledonous plants, belonging to Lindley's aral alliance of Endogens. They are trees or bushes, sometimes with adventitious roots, long imbricated amplexical leaves, usually with spiny margins and backs, and unisexual or polygamous flow-

ers, covering the whole of the spadix. Perianth none, or a few scales. Male flowers: stamens numerous; filaments with single two to four-celled anthers. Female flowers: ovaries one-celled, united in parcels; the ovules solitary or numerous, and the stigmas sessile, equal to the carpels in number. Fruit either fibrous drupes collected into parcels, or berries; seeds solitary in the drupes, numerous in the berries; embryo minute. They are natives of tropical regions, and are arranged in two sections:—*Pandaneæ*, with undivided leaves and no perianth; and *Cyclantheæ*, with fan-shaped or pinnate leaves, and scaly flowers. The limits of the genera are not very clearly settled, but examples occur in *Caribdenia*, *Pandanus*, and *Nipa*. The flowers of some of the plants are fragrant; the seeds of *Pandanus* are used as food; and the juice has in some instances astringent properties. [J. H. B.]

PANDANUS. One of the two simple-leaved genera of *Pandanaceæ*, and the principal genus of the order. It is distinguished by its male and female flowers being always on separate plants; and by the male inflorescence being a compound spadix made up of a number of short catkin-like spikes, each of which bears an immense number of little naked flowers, with indefinite stamens; and the female a globular or oblong head consisting of very numerous closely-packed ovaries, each containing a single ovule. There are a considerable number of species, perhaps thirty or more, all of which are confined to the eastern hemisphere, and a very large proportion of them to the islands of the Indian Archipelago, and the Mascaren Islands, abounding principally in the vicinity of the sea, and sometimes covering large tracts of country



Pandanus utilis.

with an almost impenetrable mass of vegetation. Some grow to a large size, forming trees with much-branched stems, the latter being an uncommon circumstance amongst trees of the orders to which the *Pandanaceæ* are allied. The majority, however, are large bushes about ten or fifteen feet high. Their leaves—which are very long and narrow, tough and leathery, and armed along the midrib and edges with

sharp recurved prickles—are arranged in a triple spiral series towards the ends of the branches, forming dense tufts or crowns; it is from their resemblance to those of the pine-apple that the name *Screw-pine* is derived. The lower parts of the branches and stem are naked, but densely marked with the annular scars left by the chipping bases of fallen leaves. Their fruits consist of a number of wedge-shaped clusters of drupes congregated into often large cone-like heads.

The species of *Pandanus* are remarkable for their aerial roots, with large cup-like spongioles. *P. Candelabrum* is the Chandelier-tree of Guiana, and is so called on account of its mode of branching. The most useful is *P. utilis*, the *Vicuna* or *Becou* of the Mauritius, in which island it is a very common wild plant, and is cultivated for its leaves, which are used together with those of other species in the manufacture of the bags or sacks in which sugar is exported. It is of these sacks, when done with as sugar sacks, that the well-known flat square fish-bags, commonly used in our markets, are made. The fruit of *P. fatidus* is extremely fetid, while the flowers of *P. odoratissimus* are very fragrant. The seeds of some are eaten. Several are very ornamental in our hothouses. See Plates 2c, 6g, 7g, and 13a. [A S.]

PANDIPAVE. (Fr.) *Momordica Charantia*.

PANDOREA. The only genus of *Bignoneæ* with twining branches, like those of a *Convolvulus*, and consisting of only three species: two of which, *P. australis* (*Bignonia* or *Tecoma australis* of some writers) and *P. jasminoides* (*Tecoma jasminoides* of Lindley), are widely distributed over the eastern part of New Holland; whilst a third species, *P. leptophylla* (*Tecoma leptophylla* of Blume), is confined to New Guinea. The two former species are inmates of our conservatories, and esteemed on account of their handsome pink flowers, and graceful branches. *P. australis* is a very variable plant in foliage, and goes under the various names of *Tecoma Orleyi*, *floribunda*, *diversifolia*, and *ochromantha*. In Port Jackson, the children amuse themselves by launching the fruit, split in halves, in the water, and then term it 'boats and cargo.' *Pandorea* has a cup-shaped irregularly splitting calyx, a funnel-shaped corolla, five stamens (one of which is abortive, and two of the fertile ones shorter than the others), glabrous anthers, and an oblong two-celled capsule, the partition of which runs contrary to the direction of its valves, with winged seeds arranged in several rows on either side of the partition. [B. S.]

PANDURATE, PANDURIFORM. The same as Fiddle-shaped.

PANGIACEÆ. (*Pangia*) A natural order of calycifloral dicotyledons belonging to Lindley's papaya alliance of diclinous Elogens. It is nearly allied to *Pupayaceæ*, and by some is considered a

Plate 13



b *Eriodendron*
indicum

andropogon
foliolosus

VEGETATION OF JAVA
(After Blume)

suborder of that family. Trees with alternate stalked leaves, and axillary solitary or clustered unisexual flowers. Sepals five, rarely two three or four; petals five, rarely six, with scales placed opposite them; stamens five or numerous; ovary free, one-celled; ovules numerous; placentas parietal. Fruit one-celled, succulent, indehiscent; seeds numerous; albumen oily; embryo large. Natives of warm parts of India.

gra secus, used in some parts of India.
Pangium, Hydnocarpus, Gynocardia, and Bergania are the only genera, and there are very few species. [J. H. B.]

PANGIUM. A Javanese tree, which gives its name to a small natural order, regarded by some botanists as a tribe of *Flacourtiaceae* (*Baisnea*) differing in the petals bearing each a scale at the base. The leaves are entire or three-lobed; the flowers dioecious and axillary: the males in racemes, the females solitary. The tree, known in its native country under the name of Pangl, is said to have a hard solid wood; the bark and leaves contain a poisonous principle, but the kernels of the seeds, when boiled, cut to pieces, and macerated in cold water to remove their noxious narcotic qualities, are occasionally used as a condiment, although rarely on account of their prejudicial effects on persons unaccustomed to them.

PANICAUT. (Fr.) *Eryngium*.

PANICLE. A branched raceme,

PANICUM. A very extensive genus of grasses, of the tribe *Panicoe*, the essential character of which consists in the plants belonging to it having spikelets or locusts, of two flowers, one perfect and the other imperfect, the latter having stamens only or neuter. Steudel describes 850 species under this genus, divided into eighteen sections, many of the heads of sections being distinct genera of other authors. Their geographical range is extensive, but they are chiefly natives of the tropical and subtropical regions of the earth, where in many instances one or other of the species constitute the principal fodder-grasses. For example, the *Camim* de Angola, *Panicum spectabile*, grows from six to seven feet high in Brazil, according to Nees von Esenbach, as quoted by Dr. Lindley, whilst other equally gigantic species form the field-crops on the banks of the Amazons. *P. miliaceum*, called Warree, and *P. polosum*, called Blindlee, are both extensively grown in India; while in the Deccan *P. frumentaceum*, called Shamoola, is also grown. [D. M.]

PANIZA. A Spanish name for Millet.

PANKE. *Gunnera scabra*.

PANJAM. The resinous gum of *Diospyros Embryopteris*.

PANMUHOOREE. An Indian name for *Faniculum Panmorium*.

PANNA-MARAM. A Tamil name for *Borassus flabelliformis*.

PANNOSE. Having the texture of coarse cloth.

PANOCOCO. A French name for *Ormosia coccinea*; also for *Swartzia tomentosa*.

PANSURI. Pens made from the mid-ribs of the leaflets of *Arenca saccharifera*.

PANSY. *Viola tricolor*.

PANTOUFLE DE NOTRE DAME. (Fr.) *Cypripedium*.

PANUS. A genus closely allied to *Agaricus*, but of a more leathery persistent texture. Two or three species resemble *Agaricus ostreatus*, but are too tough to be eatable. *P. stypticus* is one of the most characteristic species, with its little fan-shaped mealy or bran-like brownish pileus and abrupt stem, growing gregariously on old oak-stumps or other wood. [M. J. B.]

PANYALA. An Indian name for *Flacourtia cataphracta*.

PAO CRAVO. A Portuguese name for *Dicypellium caryophyllatum*, which produces clove-bark. — **D'ARCO.** A species of *Bignonia*. — **DE COBRA.** The wood of *Strychnos colubrinum*. — **DE GUARANA.** Cakes prepared from *Paulinia sorbitis*. — **DE ROSA.** The beautiful rose-coloured wood of *Physocalymma floribunda*. — **DE TINGUY.** *Magonia pubescens*.

PAPANGAIE. (Fr.) *Luffa aegyptiaca*.

PAPANGAY. or **PAPONGE.** (Fr.) *Cucumis acutangulus*.

PAPAREH. (Fr.) *Momordica Charantia*.

PAPAVERACEÆ. (*Poppysorts*.) A natural order of thalamifloral dicotyledons, belonging to Lindley's ral alliance of hypogynous Exogena. They consist of herbs or shrubs, usually with milky or coloured juice, having alternate exstipulate leaves, and long one-flowered peduncles. Sepals two, deciduous; petals hypogynous, usually four, cruciate—sometimes a multiple of four, regular; stamens hypogynous, usually indefinite; ovary solitary, the style short or none; stigmas two, or many and radiating; ovules one-celled, anatropal. Fruit either siliquiform with two, or capsular with several, parietal placentas; seeds numerous. The species are chiefly European, but are found scattered over tropical America, Asia, China, New Holland, Cape of Good Hope, &c. The order possesses well-marked narcotic properties. Opium is the concrete milky juice procured from the unripe capsules of *Papaver somniferum* and its varieties. There are about a score of genera, as *Papaver*, *Eschscholzia*, *Argemone*, *Platystemon*, and *Chelidonium*, and nearly 150 species. [J. H. B.]

PAPAYER. A well-known genus typical of the *Papaveraceæ*, consisting of herbs with a milky juice, distributed over Europe and temperate Asia chiefly, though one or two are described as natives of Australia and South Africa. Some of the species, however, are to be met with in many other

parts of the globe, to which they have been introduced by cultivation or commercial intercourse. The roots are fibrous; the leaves generally lobed or toothed, and hairy; the flower-stalks axillary, solitary without bracts, but terminated by a single flower, with two or three concave deciduous sepals, four or six petals, very numerous stamens, and an ovary of four or more carpels conjoined, and capped by a radiating compound stigma. The fruit is capsular, with parietal placentæ projecting into the interior, opening by pores or short valves, beneath the projecting margin of the stigma.

The Field Poppy, *P. Rhæas*, one of the most brilliant of our wild plants, decorating cornfields, railway-banks, and waste places with a perfect blaze of crimson flowers, is distinguished from the other British species by its smooth and globular fruits, and by the bristles which clothe the stem spreading out almost at right angles with it. The petals are collected for the purpose of making a coloured syrup, which has at the same time very slight narcotic properties. The seeds might possibly be used for the oil they contain, and they are by no means destitute of nutritive properties. Double-flowered varieties of various colours are not unfrequently grown in gardens as highly ornamental annual plants. *P. dubium*, frequently met with in some parts of the country, is a smaller more slender plant than *P. Rhæas*, and may be at once distinguished by the capsule which is twice as long as broad, and by the bristles which are flattened up against the stem. *P. hybridum* is less branched than the Field Poppy, which it greatly resembles, but differs in the filaments of the stamens, which are dilated from below upwards, and in the capsule, which, though globular, is covered with stiff bristles. This species is rare in this country. *P. Argemone* is the smallest of the British poppies; its capsule is in shape like that of *P. dubium*, but it has a few stiff hairs or bristles which are directed upwards. Several species are cultivated in English gardens for ornamental purposes, the most beautiful being *P. orientale*, and some varieties of the Opium Poppy. A variety of the former, with the petals united so as to form a funnel-shaped corolla, has been recently introduced.

The Opium Poppy, *P. somniferum*, is supposed originally to have been a native of the Levant, but is now widely distributed. The writer has observed it growing on the cliffs between Folkestone and Dover, and also in other places where it had more obviously been introduced. The plant varies much in the colour of its flowers and seeds, and in gardens double varieties are common. In general it forms an erect annual plant, slightly branched, about two feet in height, with the stem and leaves of a glaucous green colour, usually without bristles, but sometimes, especially in wild specimens, with a few straggling hairs. The leaves are oblong in shape, irregularly sinuous at the margin, and clasp the stem by their base. The flowers are usually of a

light-violet colour with a purple centre. The Opium Poppy is cultivated in this country for the sake of its capsules, from which syrup of poppies is prepared, a favourite remedy for children when a sedative is required; but owing to the varying strength of the preparation, its liability to adulteration with laudanum, &c., and the frequent great susceptibility of children to the influence of opium in any shape, it should be used only with great caution, and its operation should be carefully watched. A decoction of poppy-heads is often employed as an anodyne fomentation, and with excellent effect; an extract of poppy-heads is also occasionally used in minute doses in place of opium.

The seeds contain a large quantity of oil, which is extracted as an article of food, and for the use of painters. Olive oil is stated to be adulterated with it; an intermixture of comparatively little consequence, as the oil is destitute of narcotic properties. The seeds themselves, in Greece, Poland, and elsewhere, are eaten as articles of food, and have an agreeable nut-like flavour.

It is, however, for producing opium that this plant is especially cultivated in India, Persia, Asia Minor, Egypt, &c., and it seems to have been cultivated for this purpose from the earliest times of which we have any record, at least so far as Greece is concerned. The word opium is derived from the Greek *opos*, juice, as being the especial juice, just as cinchona bark is called bark.

Two varieties of the plant are cultivated for the production of opium, one with violet-coloured or white flowers and black seeds, the other with white seeds and flowers. These two kinds are mentioned by Hippocrates. The latter is the one most generally cultivated in India. A very full account of the manufacture, as well as of the properties of opium, is contained in Dr. Pereira's *Materia Medica*, and in the *Pharmaceutical Journal* for 1853. From these sources, as well as from the *Kew Garden Miscellany* (vol. vi.), the following remarks have been condensed. The preparation of the drug seems to be conducted in much the same way in the various districts whence opium is obtained, but in some much greater care is taken than in others. In India a very large extent of country is devoted to the cultivation of the Opium Poppy, and at Behar and Benares are government agencies established for the purpose of regulating the manufacture, insuring the purity of the drug, &c. When the flowers are in bloom the first step is the removal of the petals, which are used in packing the prepared drug. After a few days the imperfectly ripened capsules are scarified from above downwards by two or three knives tied together and called 'nushturns.' These make a superficial incision, or series of incisions, into the capsule, whereupon a milky juice exudes, which is allowed to harden and is then removed and collected in earthen pots. The time of day chosen for slicing the capsules is about three o'clock in the afternoon, when

the heat of the sun causes the speedy formation of a film over the exuded juice, great attention is also paid to the weather, prevailing winds, dew, &c., as all these causes modify the quantity, quality, or speediness of exudation of the opium.

The capsules are submitted to two or three slicing processes at intervals of a few days, and the drug is ultimately conveyed to the government factory, where it is kneaded into a homogeneous mass by native workmen. It is analysed by native examiners, whose tact and experience are such that the results of their examination differ but very slightly from those afforded by the more scientific investigation of the European officers. In this manner the quality of the drug is ascertained, its freedom from adulteration insured, and its strength reduced as nearly as may be to a uniform standard. When thus prepared, the drug is in a fit state for exportation; and it is then, by means of earthen cups, moulded into spherical masses of the size of a child's head, closely invested on the outside by the dried petals of the flower, compacted together by pressure and by immersion into the gummy fluid residue which drains off from the more solid opium during its preparation. It is remarkable that the natives and government officials, who thus are exposed to the fumes of this drug for several hours daily, and this at a temperature of 90° to 100° and upwards, are seldom injuriously affected: some of the operators are literally immersed in opium for several hours daily, so far as regards their legs and arms, and yet slight drowsiness at the end of the day is the sole inconvenience ever experienced, and this by no means frequently.

The Indian opium is exported in enormous quantities to China, in spite of the prohibition of the Chinese government, and its vigorous attempts to prevent the introduction of the drug. Comparatively little Indian opium finds its way into the British markets, where the most esteemed and most largely used kind is known as Smyrna or Turkey Opium. This is imported in irregular masses covered on the outside with dock-seeds. It is frequently adulterated. Other kinds of opium are occasionally imported, but in small quantities. Opium has been prepared of very good quality in this country, but its preparation is not profitable.

The chemical constitution of opium is somewhat intricate and variable; its medicinal effects, however, are mainly due to the presence of an alkaloid called *morphia*. To external appearance opium is a reddish-brown sticky gumlike substance, with a bitter taste, and a peculiar unmistakable perfume. It is beyond all doubt the most valuable of all drugs, and may be used with advantage in an immense number of conditions: to relieve pain, allay spasm, promote sleep, relieve restlessness, produce perspiration, or check excessive discharges. In small doses its effects are those of a stimulant, followed by depression; in larger doses constipation, perspi-

ration, contracted pupils, and somnolency are induced, and in still larger quantities coma and death. These matters, however, as well as the effects of the habitual use of opium internally, or by smoking as practised by the Chinese, hardly come within the limits of this article. The reader is referred to the works already mentioned, and to De Quincey's *Confessions of an Opium Eater*. It is necessary, however, to caution the general reader against accepting as ordinary occurrences those that are exceptional. [M. T. M.]

PAPAW. A tropical fruit, the produce of *Carica Papaya*. —, NORTH AMERICAN. *Asimina triloba*.

PAPAYACEÆ. (*Caricæ*, *Modecæ*, *Papayæ*.) A natural order of calycifloral dicotyledons belonging to Lindley's papayal alliance of diclinous Exogens. They are trees or shrubs, not branching, with alternate lobed leaves supported on long slender petioles, and with unisexual flowers; and are found in South America and in other warm countries. Calyx minute, five-toothed; corolla monopetalous, inserted into the base of the calyx: in the males tubular and five-lobed, in the females divided nearly to the base into five segments; stamens ten, inserted into the throat of the corolla; ovary free, one-celled; ovules indefinite, attached to five parietal placentæ, stigma five-lobed, lacinated. Fruit usually succulent and indehiscent, sometimes capsular and dehiscent, one-celled; seeds indefinite, enveloped in a loose mucous coat, embryo in the axis of fleshy albumen. One of the most important plants of the order is *Carica Papaya*, the papaw-tree, which yields an acid milky juice, and an edible fruit. The juice of the unripe fruit is anthelmintic. This tree is said to have the property of rendering meat tender. *Carica* and *Modecca* furnish examples of the few genera, which contain some score or more of species. [J. H. B.]

PAPAYER. (Fr.) *Carica*.

PAPEETA. An Indian name for the St. Ignatius Bean: see *IGNATIA*.

PAPER-TREE of Siam. *Trophis aspera*.

PAPERY. In texture, the same as Charteaceous.

PAPHINIA cristata is a very curious orchid belonging to the *Masillaridæ* group, native of Trinidad and New Grenada. It forms a peculiar genus, technically distinguished from its allies by having its four pollen-masses attached in two pairs to a long caudicle, setaceous at its apex, and a minute subtriangular gland. The plant has oblong or ovate compressed, two or three-leaved pseudobulbs, from the base of which issue pendulous one or two-flowered peduncles; the flowers large and conspicuous, with similar and nearly equalized fleshy, widely expanded, lanceolate sepals and petals, curiously streaked or barred and spotted with deep chocolate-brown or purple on a dull white ground,

and a singular unguiculate three-parted smallest lip, of a chocolate-purple colour, tipped with a fringe of white filiform glands, and with four similar glands on the claw, and a crest between the side lobes. [A. B.]

PAPILIONACEÆ. A suborder of leguminous plants, characterised by having the flowers papilionaceous, and the petals imbricated in aestivation, the upper one exterior. The flowers are like those of the pea, and consist of five irregular petals, the upper being the vexillum or standard which covers the rest in the bud, the two lateral being also or wings, and the inferior the carina or keel, consisting of two petals more or less completely cohering.

The plants of this suborder have frequently beautiful flowers, as in *Cytisus Laburnum*, *Wistaria*, *Lupinus*, *Cilanthus*, *Erythrina* or coral-flower, &c. They are often nutritious, as in the various kinds of clover, bean, pea, medick, lucerne, sainfoin, mellilot, &c. Many are used for their medicinal qualities, as in the case of *Glycyrrhiza glabra*, the liquorice; *Astragalus vera*, *creticus*, *gummifer*, and others, which yield gum-tragacanth; *Myrospermum peruvianum* and *M. toluiferum*, which yield balsam of Peru and balsam of Tolu; *Pterocarpus Marsipium* and *P. erinaceus*, which furnish kino, &c. Broom-tops, procured from *Sarothamnus scoparius*, are used as a diuretic; the hairs from the legumes of *Mucuna pruriens* in the West Indies, and of *M. pruriens* in the East, under the name of cowhage or cowitch, are used as anthelmintics. Others are valuable in commerce and the arts, as furnishing food, dyes, fibres, timber. Various species of *Indigofera*, as *I. tinctoria* and *I. cærulea*, furnish the indigo of commerce; *Pterocarpus santalinus* yields red sandalwood, which is used as a dye; *P. Draco* yields gum-dragon; and *P. dalbergioides* is said to yield Andaman redwood; *Baptisia tinctoria* gives a blue dye, and is the wild indigo of the United States; *Crotalaria juncea* supplies fibres, which are known as sunn or Bengal hemp; the fragrant seeds of *Dipterix odorata* are known as tonka-beans; a similar fragrance is given out by some species of *Mellilotus*; *Arachis hypogæa* produces its legumes underground, and hence receives the name of ground-nut. *Robinia Pseud-acacia*, the locust tree, yields a hard durable wood; according to Bertoloni, a kind of ebony is the produce of *Fornarina ebenifera*; rosewood is the timber of *Dalbergia*, *Machaerum*, and *Triptolemaea*.

There are certain poisonous plants in this group; thus the seeds and bark of *Cytisus Laburnum* are narcotic, the roots of many species of *Phaseolus*, as *P. multiflorus* (the scarlet-runner) and *P. radicans*, are poisonous; the branches and leaves of *Tephrosia toxicaria*, and the bark of the root of *Piscidia Erythrina*, are employed as soporifics. *Physostigma venenosum* yields the Calabar ordeal bean; *Gompholobium uncinatum* and *Gastrolobium grandiflorum* are deadly sheep poisons in the Australian

lonies. The suborder contains about 350 genera, and about 5,000 species. [J. E. B.]

PAPILIONACEOUS. Having such a corolla as that of the pea.

PAPILLÆ. Soft oblong superficial glands; also the aciculus of certain fungi.

PAPILLOSE, PAPILLIFEROUS. Covered with minute soft tubercles or excrescences.

PAPOOSE-ROOT. The root of *Caulophyllum thalictroides*.

PAPPEA. A genus of *Sapindaceæ*, the only species of which is a small tree about twenty feet high, a native of the Cape of Good Hope, and hence called *P. capensis*. It has smooth leathery oblong leaves, with the edges bent backwards, and racemes of small unisexual flowers, both the leaves and the racemes of flowers being in clusters at the ends of the branches. The flowers have an unequally five-parted calyx, and four to six petals covered with hairs outside; the males containing eight to ten stamens inserted beneath a ring-like disk, and the females a three-celled ovary with a short style and trifid stigma. Its fruit, which is called Wilde Plum (i.e. Wild Plum) from its plum-like eatable flesh, is formed of three carpels, but two are frequently abortive, and the other contains a single seed. A vinous beverage and excellent vinegar are prepared from the pulp of the fruit, and an eatable though slightly purgative oil is extracted from the seeds, which, besides being used for food, is recommended as a remedy for scald-head and baldness. Its trunk affords a handsome wood, used for small articles of furniture and for ploughs, &c. [A. B.]

PAPPOPHORUM. A genus of grasses of the tribe *Pappophoreæ*. The inflorescence is in contracted spike-like panicles, with the spikelets two to four-flowered, the lower flowers hermaphrodite, the upper sterile; glumes two, the outer shortest; pales two, membranaceous. Steudel describes twenty-seven species, which are mostly natives of New Holland, Africa, and parts of the East Indies. [D. M.]

PAPPUS. The calyx of composites, in which that organ is reduced to a membrane, or scales, or hairs, or a mere rim. *Pappiform* means resembling a pappus.

PAPULÆ (adj. **PAPULOSE**). The same as Papillæ.

PAPYRACEOUS. Of a papery or chartaceous texture.

PAPYRUS. A genus of cyperaceous plants, belonging to the tribe *Cyperææ*. The inflorescence is in many-flowered spikelets, surrounded by long bracts; glumes imbricated, in two rows, one-flowered; style three-cleft; scales two, membranaceous; ovary without bristles underneath; seed three-cornered. *P. antiquorum*, the Paper Reed, is the plant which yielded the substance used as paper by the ancient

Egyptians. The soboles, or underground rootstocks, spread horizontally under the mud in places where the plant grows, continuing to throw up stems as they creep along. These stems are from eight to ten feet high, a portion of them being above the surface of the water. The paper was made from thin slices, cut vertically from the apex to the base of the stem, between its surface and centre. The slices were placed side by side according to the size required, and then, after being watered and beaten with a wooden instrument until smooth, were pressed and dried in the sun. The stems were likewise used for ornamenting the Egyptian temples, and crowning the statues of their gods. The Paper Reed grows naturally in the south of Italy, as well as on the banks of the Nile and Jordan, but in Britain it requires the aid of a stove to grow it properly, and then it must have a good supply of water. The stems of *P. corymbosus* form the Indian matting, of which large quantities are imported. These plants are sometimes still retained in *Cyperus*, the Paper Reed being called *Cyperus Papyrus*. [D.M.]

PÂQUERETTE. (Fr.) *Belvis perennis*.

PÂQUEROLLE. (Fr.) *Belitum*.

PARABOLICAL. Ovate, very obtuse, contracted below the point.

PARACOROLLA. Any appendage of a corolla.

PARADISANTHUS *bahienensis* is a little terrestrial two-leaved stemless orchid, with simple erect spikes of milky-white flowers curiously marked with a succession of deep purple transverse stripes on the sepals and petals, forming circles round the centre of the flower. It has similar and nearly equal sepals and petals, the former connate at the very bottom, and the two lateral ones slightly unequal at the base; a three-lobed articulate lip with a curious pentagonal-mouthed sac on its hind part, at the base of which are a couple of diverging denticulate plates; a slender column abruptly bent forward above its middle; and four pyriform pollen-masses, sessile in two pairs upon a markedly transverse triangular gland. [A. S.]

PARAGRAMMA. A group of eastern tropical creeping-stemmed polypodiaceous ferns, usually associated with *Grammitis* or the net-veined *Polypodiaceæ*; but their constantly elongated sori parallel with the costa connect them with the *Ternstroemia*. They have simple coriaceous fronds, non-indusiate linear-oblong submarginal sori, and immersed anastomosing veins having free veinlets in the areoles. [T. M.]

PARAIBA. A Brazilian name for *Stimuba versicolor*.

PARALLELINERVED, PARALLELIVENOSE. Having the lateral ribs of a leaf straight, as in *Amarus glutinosa*; also having the veins straight and almost parallel but united at the summit, as in *Arasacæ*.

PARANEMATA. The paraphyses of algae and other cryptogams.

PARAPETALUM. Any appendage of a corolla consisting of several pieces.

PARAPHYLLIA. Stipules.

PARAPHYSES. A name given to the barren threads which separate the asci or sporophores in such fungi as the *Perizæ* and *agaricæ*. The term is also used for the bodies which accompany the archegonia in mosses, or the antheridia or analogous bodies in the fruit of *Balanophora*. These bodies are also sometimes called *Paranemata*. [M. J. B.]

PARASITES. A long treatise might be written on the parasites which affect vegetables, and are scarcely less injurious to them than similar enemies to the animal kingdom. Apart from all the depredations committed by external attacks, there are myriads of larvae which live within plants, boring into the trunk, devouring the young pith on which the life of the plants depends, burrowing amongst the green cells of their leaves, or causing by their presence the extraordinary growths known under the common name of Gallæ. Others, as different species of *Vibrio*, exhaust their seeds or deform their roots, while all the fleshy fungi are sooner or later doomed to destruction by their peculiar parasites, even if other causes of decay should cease. Plants suffer, however, no less from members of their own kingdom. *Balanophora*, mistletoe, *Loranthæ*, and a host of other parasites live at their expense; mosses, lichens, and algae smother their trunks and leaves; while multitudes of fungi live on their juices, or by their presence produce rapid decay. In fruit also, and succulent vegetables where vitality is low, yeast globules are formed from the spores of moulds, and true fermentation takes place, modified according to the different conditions of temperature. The mildew of corn, hops, grapes, and potatoes are all so many examples. Death also arises in many instances from the spawn of various fungi, which first attacks the roots, and thence spreads into the inmost tissues. [M. J. B.]

PARASITIC. Growing into some other plant, and deriving food from its juices.

PARASOL CHINOIS. (Fr.) *Sterculia platantifolia*. — DU GRAND SEIGNEUR. *Saltz babylonica*.

PARASPERMATIA. Small reproductive bodies found in some algae, and resembling spores.

PARASTAMEN, PARASTEMON. Any kind of abortive stamen.

PARASTYLI. Abortive styles.

PARATODA. A Brazilian name for *Polthomorpha umbellata*.

PARDANTHUS. A genus of *Irídaceæ*, consisting of a few herbaceous species, found in India, China, and Japan, and having rhizomatous stems, two-ranked

ensiform leaves, and branching flower-stems bearing orange-coloured flowers spotted with purple. These consist of a six-leaved rotate perianth, with equal segments; three subsecund stamens, with subulate filaments and connivent anthers; a clavate style with three petaloid stigmas; and a three-celled ovary with numerous ovules. [T. M.]

PARACHITES. A genus of *Apocynaceae*, better known under the name of *Rhynchospermum*, which, however, must give place to that of *Parachites*, as it is already applied to a genus of *Compositae*. The species are found in India, China, Japan, and Borneo, and are woody climbers with opposite elliptical or lance-shaped leaves, and yellow white or rosy jasmine-like flowers, arranged in axillary or terminal cymes. They have a five-parted calyx, with a ring of glands inside; a jasmine-like corolla with five arrow-headed stamens inserted about the middle of the tube; and a fruit consisting of two linear nearly cylindrical follicles or pods, four to nine inches long, each containing numerous beaked seeds with a tuft of silky hairs at their apex.

P. Thunbergii, well known in gardens as *Rhynchospermum jasminoides*, and cultivated in greenhouses for the sake of its sweet-scented white flowers, is a native of China and Japan. Its leaves are in size and form like those of the privet, only more rigid; while the flowers, which are produced in great profusion at the ends of the branches, are not unlike those of a jasmine, but with a shorter tube. [A. A. B.]

PAIREIRA BRAVA. *Cissampelos Pareira*. —, WHITE. A name given by the natives of Cayenne to *Abutilon rufescens*.

PARELLE. (Fr.) *Rumex Patientia*. — **DES MARAIS.** *Rumex Hydrolapathum*.

PARENCHYMA (adj. **PARENCHYMATOUS**). Cellular tissue which has a spheroidal, not tubular form.

PARIÉTAIRE. (Fr.) *Parietaria officinalis*.

PARIETAL. Growing to the walls or interior surface of an ovary.

PARIETARIA. A genus of herbaceous perennials belonging to the *Urticaceae*, and distinguished from *Urtica* by having the calyx of the fertile flowers four-cleft, and the style prominent. It is represented in Britain by *P. officinalis*, the Common Pellitory-of-the-wall, a bushy plant from twelve to eighteen inches high, with reddish brittle stems, oblong ovate dull-green leaves, and tufts of small greenish flowers in the axils of the upper leaves. The structure of the flowers is very remarkable. The stamens in their early stage are curved inwards, but when ripe for discharging the pollen expand under the action of the sun or the irritation produced by the introduction of any foreign body, and discharge the pollen in the form of a little cloud of dust. The ashes of the plant are said to

contain a quantity of nitre. French, *Pariétaire*; German, *Glaukraut*. [C. A. J.]

PARIETES. The inside walls of anything.

PARINARIUM. One of the genera of *Chrysobalanaceae*: it is divided into four sections, characterised by the form of the calyx, and the number of fertile stamens contained in the flowers. The calyx has a long or short tube and is five-cleft; the petals are five in number; the fertile stamens vary from seven to fifteen or an indefinite number, and are either disposed in a complete circle or in a semicircle with sterile ones opposite; and the ovary, which is two-celled, with its stalk adhering to the calyx-tube, ripens into a dry fruit, with a thick rind surrounding a two-celled hard rough stone containing two seeds. [Between thirty and forty species are known, the genus being widely diffused in the warmer regions of both hemispheres; nine are peculiar to tropical Africa, and one, *P. Nonda*, to Australia.]

The fruit of *P. excelsum* is about the size of an Imperatrice plum, covered with a rough skin of a greyish colour, and commonly called the Rough-skin or Grey Plum. It is brought into the markets on the West Coast of Africa, but is not much esteemed on account of the small quantity of eatable matter it contains, which is only the dry farinaceous substance surrounding the large stone. *P. macrophyllum*, another West African species, with a larger fruit than the last, is called the Gingerbread Plum. The leaves of *P. laurinum*, a native of the Feejee and other Polynesian islands, supply the chief material used by the natives for covering the side-walls of houses, its stems also afford them tough spars for their canoes, and from its seeds they obtain a much-esteemed perfume. [A. S.]

PARIPINNATUS. The same as Equally-pinnate.

PARIPOU. *Guillemia speciosa*.

PARIS. An herbaceous perennial belonging to the *Trilliacae*, distinguished by having six to ten spreading or reflexed sepals, anthers with their cells fixed one on each side of an awl-shaped filament, and a three to five-celled berry. *P. quadrifolia*, Herb Paris, a native of moist shady woods in many parts of Great Britain, sends up, to the height of a foot, a simple stem, bearing near its summit four whorled large ovate acute leaves, and a single terminal large green flower. The leaves and stems were formerly used in medicine, and the juice of the berry, though considered poisonous, has been employed in curing inflammation in the eyes. French, *Pariette*; German, *Einbeere*. [C. A. J.]

PARISHIA. A beautiful Malayan tree with pinnate leaves, and large terminal panicles of small flowers, forming a genus of *Anacardiaceae*, remarkable for the calyxlobes which after flowering are very much enlarged and foliaceous. In this respect it resembles at first sight *Melanorrhoea*, but in the latter genus it is the petals, not

the sepals, that enlarge after flowering, and the flowers are pentamerous, not tetramerous as in *Parishia*.

PARISIOLE. (Fr.) *Trillium*.

PARITIUM. A genus of *Malvaceae*, one of the many into which the old Linnæan *Hibiscus* has been divided by recent botanists. It is characterised by its flowers having the five-cleft calyx surrounded by an eight or ten-cleft or toothed outer calyx; by the column of stamens being five-toothed at the top, with the five-cleft style protruding out of it, and bearing five, round velvety stigmas; and by the capsules being five-celled like those of *Hibiscus*, but having in addition to the five true partitions a spurious partition in the middle of each cell, through which they split open when ripe. The ten or twelve known species are tall trees or high shrubs, widely distributed throughout the tropics of both hemispheres. Their leaves are large entire or lobed, with prominent radiating nerves, one or three of which bear glands at the base.

P. elatum, the Mountain Mahoe, affords the beautiful lace-like inner bark called Cuba bast, at one time only known as a material used for tying round bundles of genuine Havannah cigars, but afterwards imported,



Paritium elatum.

particularly during the Russian war, as a substitute for the Russia bast used by gardeners for tying up plants; it is now largely substituted by other materials. The tree, which is found only in Cuba and Jamaica, grows fifty or sixty feet high, and yields a peculiar greenish-blue timber, highly valued by the Jamaica cabinet-makers. All the species of *Paritium*, particularly *P. tiliaceum*, which is to be found in most tropical countries, afford more or less fibre, which the natives make into ropes, mats, clothing, &c. [A. S.]

PARKBANE. *Aconitum theriophorum*.

PARKERIA. One of the synonyms of *Ceratopteris*; which see. It was proposed to be made the type of an order, *Parkeria-*

cea, but in reality is only a form of *Ceratopteris*, in which the striae of the ring happen to be reduced to an almost rudimentary condition. [T. M.]

PARKIA. A small but widely spread genus of *Leguminosae*, having representatives in Western Africa, India, Java, Brazil, and Surinam. All the species are large unarmed trees, with twice-pinnated glandular-stalked leaves, composed of numerous pairs of leaflets, and small flowers collected into dense heads at the ends of long stalks, the lower ones being males and those above perfect. The tube of the calyx is cylindrical and two-lipped; the five petals are nearly equal, and joined to the middle or free; the ten stamens are connected by their bases; and the pods are stalked, clustered, flat with thick leathery valves, and contain a number of seeds enveloped in farinaceous pulp.

P. africana, the African Locust tree (*Nitta* or *Nutta* of the negroes), is a tree attaining thirty or forty feet in height, and having leaves with from twenty to thirty pairs of divisions, each having from thirty to fifty pairs of narrow downy leaflets, the main leafstalk bearing a large gland near the base. Its flower-heads are somewhat pear-shaped, and its pods contain from thirteen to fifteen seeds. The natives of Soudan, who call the tree *Doura*, roast the seeds and then bruise and allow them to ferment in water until they become putrid, when they are carefully washed, pounded into powder, and made into cakes which are excellent sauce for all kinds of food, but have an unpleasant smell. An agreeable beverage is prepared from the sweet farinaceous pulp surrounding the seeds, and sweetmeats are also made of it. The tree is not only a native of Western Africa but of tropical Asia, and has been carried to tropical America by the negroes. [A. S.]

PARKINSONIA. A genus of *Leguminosae*, comprising an ornamental spiny shrub, found in all parts of America between Montevideo and California, and in a cultivated state in most other tropical countries, a species peculiar to the Cape, and another confined to Mexico. All have abruptly pinnate leaves, with minute leaflets, and racemes of yellow flowers, which have a deeply five-parted calyx, five petals the upper of which is broader and long-clawed, ten distinct stamens bent downwards, and a sessile ovary with a thread-like style. Their narrow pods split into two valves, and contain few or many seeds separated from each other by constrictions in the pod.

P. aculeata—called in Jamaica the Jerusalem Thorn, and in the French West Indian Islands *Genet épineux*—though originally a native of some part of the American continent, is now found in nearly all tropical countries, where, from its spiny nature, it is used for making hedges; while in Mexico the Indians employ it as a febrifuge and sudorific, and also as a remedy in epilepsy. It grows from twelve

to fifteen feet high, and has sweet-smelling flowers, and leaves with winged stalks and blunt leaflets, by which it is distinguished from the Cape of Good Hope species, which has round unwinged stalks and sharp-pointed leaflets. [A. S.]

PARK-LEAVES. *Hypericum Androsaemum*.

PARLATORIA. A genus of *Cruciferae*, comprising a few annuals from the Levant, with the habit of *Cochlearia* or *Alliaria*, and with white flowers on peduncles which are deflexed after flowering. The pod is articulated to the thickened pedicel, two-valved, with the valves keeled and veined, the partition disappearing. [J. T. S.]

PARMELIAEAE. An important natural order of lichens with an orbicular or kidney-shaped persistent not deliquescent disk, bordered by the thallus. It contains three very distinct groups:—

1. **PELTIGERI**, in which the thallus is horizontal, and the disk at first veiled, as in *Peltidea*.
2. **EUPARMELIACI**, with the disk at first closed and a horizontal thallus, as in *Lecanora* and *Parmelia*.
3. **USNEACEI**, with the disk open from the first, and the thallus mostly centripetal, as in *Roccella*, *Ramalina*, and *Usnea*.

The species of the second division are extremely numerous, and constitute a great portion of the foliaceous lichens which abound everywhere on rocks and trees, while the third supplies the branched or braid-like lichens which hang down from their branches. This order contains almost all the lichens which are useful, either as esculents, medicines, or dyewoods. [M. J. B.]

PARMELIA. The typical genus of *Parmeliaceae*, containing an immense number of foliaceous lichens, some of which, as the yellow *P. parietina* and the grey *P. saxatilis*, occur on almost every tree. Many of the species are almost cosmopolitan, though others are confined to temperate or tropical districts. Some afford excellent dyewoods. *P. perlata*, for example, is estimated sometimes at from 1901. to 2251. a ton. [M. J. B.]

PARMENTIERA. A genus of *Crescantiaceae*, consisting of two American species, and named in honour of the French botanist Aug. Parmentier, who did much for economic botany. *Parmentiera* has a spathaceous, deciduous calyx; an almost bell-shaped corolla, of a white or greenish colour; and a fleshy cylindrical fruit (which may be compared either to a cucumber or a wax-candle), with lentil-like seeds. Indeed, in the Isthmus of Panama, *P. cereifera* is termed the Candle-tree, or Palo de Velas, because its fruits, often four feet long, have quite the appearance of yellow wax-candles, and a person entering the forests which are composed of this tree almost fancies himself in a chandler's shop, for from all the stems and older branches these fruits are suspended. They

have a peculiar apple-like smell, which communicates itself in some degree to the cattle fattened with them, but which disappears if, a few days previous to killing, the food is changed. The fruit of *P. edulis* is eaten by the Mexicans, under the name of Quauhxioti or Cuajilote. Its surface, unlike that of *P. cereifera*, is rough. Both species are middle-sized trees, with either simple or trifoliate leaves, and serrated leaflets. [B. S.]

PARMENTIERE. (Fr.) *Solanum tuberosum*.

PARNASSIA. A genus placed by some in *Proserpinae*, by others in *Saxifragaceae* or *Violaceae*, and distinguished by having arranged intermediately with the stamens the same number of fan-like nectaries fringed with globular-headed filaments. *P. palustris*, Griseb. of *Parnassia*, common in bogs, especially among the mountains in the North of Britain, is a singularly beautiful plant. It bears from the root several bright-green smooth roundish leaves cordate at the base, among which rises to the height of about a foot a simple angular stem bearing below the middle a solitary small leaf, and at the summit a single large flower of a creamy-white colour delicately veined, and opposite each of the five petals a nectary of the same colour. Several species of similar habit are found in North America. The genus takes its name from Mount Parnassus, where, owing to the elegance of its form, it is fabled to have been produced. French, *Fleur du Parnasse*; German, *Einblatt*. [O. A. J.]

PAROLINIA. A genus of *Cruciferae*, comprising a rigid undershrub from the Canaries, with lanceolate-linear entire leaves, pink flowers, and a cylindrical pod with keeled valves produced into a long bifid horn; seeds margined. [J. T. S.]

PARONYCHIAEAE. The same as *ILLECEBRACEAE*: which see.

PARONYCHIA. A large genus of *Illecebraceae*, inhabiting the warmer parts of the temperate zone of both hemispheres. They are small perennials (rarely annuals) often caespitose, with opposite or whorled leaves, white scarious interpetiolar stipules, and cymose heads or fascicles of small flowers, often hidden by the large white scarious bracts. The calyx is five-cleft, with a short funnel-shaped or cup-shaped tube; petals five, filiform, sometimes absent; stamens five (or fewer by abortion) with very short filaments; styles two; utricle indehiscent or opening by five slits at the base, one-seeded. [J. T. S.]

PAROPSIA. A genus of *Passifloraceae* consisting of a few shrubby species, which are natives of Madagascar, tropical Africa, and the Malay Archipelago. They have alternate leaves, without stipules, and are likewise destitute of tendrils. The flowers are small, solitary or densely panicled, and have each a ten-parted perianth in two rows; within the inner row is a ring of thread-like processes, aggregated together into five bundles, placed opposite the inner segments. The stamens are five, opposite

the outer segments of the perianth, and attached to the short stalk supporting the ovary, which is one-celled with three parietal placentae. The seeds are provided with a cup-shaped arillus, which is described as being eaten in Madagascar, and having a very sweet taste. [M. T. M.]

PARROTTIA. A genus of *Hamamelidaceae*, consisting of two species, one from Kashmir, the other, *P. persica*, from Northern Persia, the latter yielding a very hard wood. The leaves are alternate, oval, acuminate, and towards the point furnished with small teeth. The tube of the calyx is bell-shaped, and the border divided into five or seven lobes; the corolla is wanting; the stamens are from five to seven, the styles two; and the capsule is two-celled, each cell containing one seed. [B. S.]

PARROT'S-BILL. A New Zealand name for *Cyananthus puniceus*.

PARROT-WEED. A West Indian name for *Bocconia frutescens*.

PARRYA. A genus of *Cruciferae*, consisting of perennial herbs from the Arctic regions, with the leaves chiefly radical, fleshy, entire or toothed, and the flowers rose-coloured or purple. The pod is broadly linear or oblong, the valves veined, and the seeds in two rows, margined. [J. T. S.]

PARSLEY. *Petroselinum sativum*. —, **BASTARD.** *Caucalis*. —, **BASTARD STONE.** *Sison Amomum*. —, **BLACK.** *Melanoselinum decipiens*. —, **BUR.** *Caucalis daucoides*. —, **COV.** *Olaerophyllum temulentum*. —, **DOGS.** *Aethusa Cynapium*. —, **FOOL'S.** *Aethusa*. —, **HAMBURGH.** A variety of garden parsley with a fleshy root, for which it is cultivated. —, **HEDGE.** *Torilis Anthriscus*. —, **HEMLOCK.** *Conioselinum*. —, **HORSE.** *Smyrnatum Olusatrum*. —, **MARSH.** *Elaeostelinum*. —, **MILK.** *Selinum*. —, **MOUNTAIN.** *Peucedanum Oroselinum*. —, **SQUARE.** *Ptychotis heterophylla*. —, **STONE.** *Sison Amomum*; also *Libanotis vulgaris*. —, **WILD.** *Cardiospermum*.

PARSLEY-PIERT. *Alchemilla Aphanes*; also *Erica Aphanes*.

PARSNIP, or PARSNEP. *Pastinaca sativa*. —, **COW.** *Hieracium Sphondylium*. —, **HEADOW.** An American name for *Thaspium*. —, **SEA.** *Echinophora*. —, **WATER.** *Stium*, also *Helosciadium nodiflorum*.

PARSONIA. A genus of *Apocynaceae*, having a funnel-shaped corolla, the border of which is five-parted and bent back; the stamens inserted near the base of the tube; and the style single, dilated at the apex. The genus has representatives in the East and West Indies, and in Australia; and consists of twining shrubs with opposite leaves. The name was given in honour of Dr. Parsons, a physician and writer on Natural History. [G. D.]

PARTED, PARTITE. Divided into a determinate number of segments, which

extend nearly to the base of the part to which they belong. Thus, *bipartite* is parted in two, *tripartite* in three, and so on.

PARTHENIUM. A genus of *Compositae* of the tribe *Heliantheae*, consisting of herbs or undershrubs, with alternate leaves, and small nearly globular heads of white flowers in a terminal flat corymb. The involucre has two rows of broad bracts, and contains five shortly obcordate female florets in the ray, and several tubular male ones in the disk; the receptacle has membranous scales. The achenes are flattened from front to back, with a callous margin, and a pappus of two small awnlike or broad scales. There are six species known, natives of Northern or tropical America, among which *P. Hysterocephalus* with twice pinnate leaves, common in the warmer parts of America, has been introduced into our botanical gardens.

PARTIALIS. A secondary division; as in umbellifers, where the umbels of the second degree bear this name.

PARTIBLE. Capable of being divided, but not dividing spontaneously.

PARTITE. Divided nearly to the base: thus *partitions* are the deepest divisions into which a leaf can be cut without becoming compound.

PARTITIONED. Divided by internal horizontal partitions into chambers.

PARTRIDGE-BERRY. *Gaultheria procumbens*; also an American name for *Mitchella*.

PARTRIDGE-WOOD. The wood of certain South American and West Indian trees, one of which is supposed to be *Andira inermis*.

PARVATIA. A genus of *Lardizabalaceae*, closely allied to *Stamantia*, from which it is distinguished by its flowers having six lance-shaped petals, much smaller than the six sepals. The stamens of the male flowers are united into a tube; those of the female are free and barren, the latter containing, also, three egg-shaped ovaries terminated by oblong sharp-pointed styles. The only species, *P. Brunoniiana*, is a tall climbing shrub, with long-stalked trifoliate leaves, and axillary racemes of small greenish flowers; it is a native of the Khasia mountains. [A. S.]

PASCALIA. A Chilean genus of *Compositae*, related to *Heliotropis*, and represented by a single species, *P. glauca*, an erect perennial herb, with a resinous smell, and furnished with trinerved leaves, a single yellow-rayed flower-head nearly an inch across terminating each branch. The strap-shaped and female ray-florets have three-sided achenes; and in the tubular and perfect disk-florets the achenes are four-sided, surmounted by a minutely-toothed pappus crown, and nearly enveloped in the chuffy scales of the receptacle. The plant cultivated in England as *P. glauca* is evidently

a species of sunflower, and has nothing to do with this genus. [A. A. B.]

PABCO. The fruits of *Canarium edule*.

PASCUOUS. Growing in pastures.

PAS-D'ÂNE. (Fr.) *Tussilago Furfura*.

PASPALUM. An extensive genus of grasses belonging to the tribe *Paniceæ*. The inflorescence is in simple racemes solitary or fingered; inferior flower neuter, one-paled, membranaceous; superior flower hermaphrodite, two-paled. Steudel describes 262 species, which have a wide geographical distribution, chiefly in the tropical and subtropical regions. [D. M.]

PASQUE-FLOWER. *Anemone Pulsatilla*.

PASSAN-BATU. The Stone Oak, *Lithocarpus javensis*.

PASSE-FLEUR. (Fr.) *Lychnis coronaria*.

PASSE-PIERRE. (Fr.) *Crithmum maritimum*, and *Salicornia herbacea*.

PASSE-RAGE CULTIVÉ. (Fr.) *Lepidium sativum*. —, **PETIT** *Lepidium graminifolium*.

PASSERINA. A genus of heath-like shrubs of the order *Thymelacææ*, natives for the most part of the Cape of Good Hope. The flowers are closely aggregated together towards the end of the branches, each having a pinkish funnel-shaped perianth, with a four-cleft limb and no scales; and eight stamens protruding from the tube of the perianth, those opposite to its lobes longer than the rest. The fruit is one-seeded, not enclosed within the base of the perianth, as that is deciduous. *P. tinctoria* is employed in the dyeing of wool yellow. [M. T. M.]

PASSE-ROSE. (Fr.) *Althæa rosea*.

PASSEROUS. (Fr.) *Valerianella coronata*.

PASSE-TOUT. (Fr.) A fine variety of *Hyacinthus orientalis*.

PASSE-VELOURS. (Fr.) *Celosia cristata*.

PASSIFLORACEÆ. (*Passionworts*.) A natural order of calycifloral dicotyledons belonging to Lindley's violal alliance of hypogynous Exogens. They are herbs or shrubs, often climbing, with alternate stipulate or exstipulate leaves; and are natives chiefly of warm climates in America, and in the East and West Indies. Sepals five, combined below into a tube; petals five, perigynous, often with filamentous or annular processes on their inside; stamens five, monadelphous, surrounding the gynophore, rarely indefinite; ovary one-celled, with a gynophore; ovules anatropal; styles three, stigmas dilated. Fruit often stipitate, one-celled, sometimes three-valved, opening by loculicidal dehiscence, or succulent and indehiscent. Seeds indefinite, arillate or strophiolate. There are upwards of a dozen genera, as *Passiflora*, *Tecoma*, &c., and more than 200 species. [J. H. B.]

PASSIFLORA. The technical name of the genus to which the popular name *Passion-flower* is applied. It constitutes the typical genus of *Passifloracææ*, and comprises a considerable number of herbaceous or shrubby plants of climbing habit, provided with tendrils, and of a few erect trees without tendrils. The leaves are lobed or entire, with or without stipules, and having axillary flower-stalks usually provided with three bracts, enveloping the base of the flower. The perianth has a short tube whose limb is divided into four or five segments, or more generally into ten coloured segments, arranged in two rows; intermediate between the inner segments of the perianth and the stamens are two or more rows of coloured thread-like processes, constituting the 'corona'; stamens four or five, opposite to the outer segments of the perianth, spreading widely apart above, but below united together, and to the stalk supporting the pistil, which is one-celled, with three parietal placentae, and terminated by three cylindrical styles having rather large button-like stigmas at their extremities. The fruit is succulent within, and has a more or less hard rind; seeds numerous, partly imbedded in pulp, and provided with an arillus.

These singular and beautiful plants are chiefly natives of tropical America, a few being indigenous in Asia. The name was applied from the resemblance afforded by the parts of the plant to the instruments of our Lord's Passion and its attendant circumstances: thus the three nails—two for the hands, one for the feet—are represented by the stigmas; the five anthers indicate the five wounds; the rays of glory or, some say, the crown of thorns are represented by the rays of the 'corona'; the ten parts of the perianth represent the Apostles, two of them absent,—Peter who denied, and Judas who betrayed our Lord; and the wicked hands of His persecutors are seen in the digitate leaves of the plant, and the scourges in the tendrils.

On the leafstalks of these plants may frequently be seen small glands, which may possibly be the representatives of abortive lobes. The tendrils emerge from the axils of the leaves, and are probably to be considered in the light of abortive flower-stalks; at least it is by no means uncommon to find flower-buds on them. The ray or crown of these flowers has been the subject of much controversy, and it can hardly be said that its true nature is perfectly made out. It has been considered to consist of a series of modified petals or stamens, or as a perfectly distinct organ originating from the receptacle of the flower, between the petals and the stamens. To the writer, the crown of the *Passion-flower* appears to consist of a series of outgrowths from the hollow thalamus, and which are not protruded until after the formation of the other parts of the flower. The corona seems to have some important office to fulfil in connection with fertilisation. The anthers are at first introrse, but subsequently turn over and become extrorse, allowing the pollen to fall on

to the corona. When an insect visits the flower for the purpose of obtaining honey, its course is obstructed by the threads of the corona, and in its attempts to disengage itself and penetrate the nectary, it becomes dusted

for some reason or other. *P. carrulea* and some of its varieties and hybrids are hardy, and even produce their fruit in sheltered situations in our climate. [M. T. M.]

PASSION-FLOWER. *Passiflora*.

PASSIONS. *Rumex Patientia*.

PASSIONWORKS. Lindley's name for the *Passifloraceae*.

PASTEL. (Fr.) *Isatis*. The same term is applied to the colouring matter obtained from *Isatis tinctoria*.

PASTBQUE. (Fr.) *Citrullus vulgaris*.

wards as to come in contact with the back of the intruding insect, and to wipe off the pollen from it. By watching the movements of the stamens and styles it may be seen that the anthers bend downwards, and that the styles also vary in position at different times, but the latter are always so placed that contact with pollen from their own flower is prevented, while the access of foreign pollen is facilitated, a circumstance which has now been observed in many other cases.

The corona, it may also be noted, is supposed by some persons to be the seat of the odorant principle of the flower.

Many of the species have edible fruits; such are *P. flamentosa*, *P. pallida*, *P. lutea*, *P. maliformis*, *P. cocinea*, *P. laurifolia* (the Water Lemon of the W. Indies), *P. edulis*, *P. alata*, *P. Buonapartea*, *P. incarnata*, *P. serrata*, *P. maliformis* (the Sweet Calabash of the W. Indies), *P. ligularis*, *P. ornata*, *P. sinfolia*, *P. carulea*, *P. quadrangularis* (the Granadilla), and *P. macrocarpa*, fruits of which last weigh sometimes as much as 8 lb. The part eaten is the fleshy aril attached to the seeds, or the juicy pulp in which these are imbedded. This pulp has an agreeably cool taste in some, and a sweet mawkish flavour in others. In the West Indies the pulp is sucked through a hole in the rind. Fruits of the Granadilla and some other of the edible species are commonly seen in the Paris markets, and occasionally in Covent Garden, as they not unfrequently ripen in this country.

Although so many of the species furnish edible fruits, they are nevertheless not devoid of suspicious qualities in other organs. Thus the root of *P. quadrangularis* is stated to possess powerful narcotic properties, and to be used in the Mauritius as a diuretic and emetic; the roots of *P. contrayerva* and *P. normalis* are considered as antidotes to poison, and the flowers of *P. rubra* are stated to be used in the form of a tincture, for their narcotic effects, in the West Indies. *P. latifolia* has a reputation as an expectorant, and as a remedy in hysteria and female complaints; its leaves are also employed for poultices in inflammatory affections of the skin. The bitter and astringent leaves of *P. laurifolia* are used as anthelmintics, while those of some other species are mentioned as being employed in intermittent fevers.

A great number of species are cultivated in this country for the beauty of their foliage and flowers, or for their fruits. Several have already been mentioned; other valuable kinds have been produced by hybridisation. The flowers of some have exquisite fragrance. For ornamental purposes *P. alata-carulea*, *P. kermesina* Lemichauxiana, *P. Loudoni*, and *P. Buonapartea* are deserving especial notice in a genus almost all the species of which merit cultivation

PASTINACA. A genus of umbelliferous plants, consisting of only two or three species, of which the most important is the Common Parsnip, a well-known culinary vegetable. The genus is distinguished by having its fruit flattened from front to back, as in *Heracleum*, from which it differs in having the flowers small and yellow, and the vittæ more slender and descending down nearly to the base of the fruit. The species are chiefly from the Mediterranean region and West Central Asia.

The Common Parsnip, *P. sativa*, is a biennial indigenous to Britain, and usually found by roadsides where the soil is deep and calcareous. In its wild state the leaves are downy underneath, and the root small and hard; but the cultivated plant has large pinnated leaves of a rich green colour, with oval toothed leaflets. The flower-stem attains the height of three or four feet, and bears a number of yellow flowers disposed in large terminal umbels. The root is white or cream-coloured, mild, sweet, and aromatic. In the Channel Islands, where Parsnips are grown to great perfection, the roots are often eighteen inches long, and from four to five inches in diameter.

As an esculent, Parsnips are known to have been used from a very early period. According to Pliny, they were held in such repute by the Emperor Tiberius, that he had them annually brought to Rome from the banks of the Rhine, where they were then successfully cultivated. They are in great request by Roman Catholics during Lent, and are dressed in various ways, and eaten with salt-fish. They have been lately recommended as a substitute for the potato, but, although they contain a large portion of nutritive matter, they have been found on analysis to be inferior to potatoes as an article of diet—the latter (according to Dr. Lancaster) having nearly twice the amount of flesh-forming matter in their composition. Notwithstanding this result, we entertain a high opinion of this vegetable, and when thoroughly boiled, and mashed with butter, it makes an excellent dish, which is generally much esteemed.

In Holland Parsnips are used in soups, whilst in Ireland cottagers make a sort of beer by mashing the roots and boiling them with water and hops, and afterwards fermenting the liquor. A kind of marmalade preserve has also been made from them;

and even wine, which in quality has been considered to approach the famed Malmsey of Madeira. [W. B. B.]

PASTISSON. (Fr.) *Cucurbita Melopepo*.

PATABEA. A genus of *Cinchonaceae*, consisting of shrubs with oval pointed leaves, and axillary or terminal flowers, provided with four small bracts, arranged crosswise; calyx-limb short, entire, or slightly four to six-toothed; corolla with a short tube, and a limb of four to six oblong spreading lobes; anthers four to six, sessile within the throat of the corolla. Fruit succulent, two-celled, two-seeded, surrounded by the calyx. The species are natives of Guiana. [M. T. M.]

PATAGONULA. A small genus containing two species, natives of Jamaica, branching shrubs with alternate leaves, and small flowers in panicles without bracts. They have a very small calyx, increasing around the drupaceous fruit; a rotate corolla, with a short five-cleft limb; five stamens inserted in the throat of the corolla; and a simple style, doubly dichotomous, and having a stigmatic surface on each of the four divisions. The fruit is a subglobose drupe, with a one-celled stone.

The position of this genus is doubtful. It was referred to *Cordia* in *Hortus Kewensis*, and to *Cordiaceae* by Chamisso, and doubtfully by Endlicher. Alph. Decandolle, from the examination of *P. bahiensis*, refers it to *Verbenaceae*; while Schauer separates it from this order on account of its different habit, inflorescence, calyx, and fruit. [W. C.]

PATARA. A Tahitian edible tuber, probably that of *Dioscorea pentaphylla*.

PATATE. (Fr.) *Solanum tuberosum*. — **DOUCE.** *Batatas edulis*.

PATAWA. *Encarpus Batava*.

PATCHOULI. A perfume obtained from an Indian herb, *Pogostemon Patchouli*.

PÂTE D'AMANDE. (Fr.) The farinaceous matter which is left after the oil is expressed from almonds. — **DE GUI-MAUVE.** A confectioner's name for a lozenge made from *Althæa officinalis*.

PATELLA, PATELLULA. An orbicular sessile shield in lichens, surrounded by a rim which is part of itself, and not derived from the thallus.

PATELLIFORM. The same as Kneepan-shaped.

PATENOTRIER. (Fr.) *Staphylea pinnata*.

PATENS, or PATENT. Spreading wide open; as petals from the calyx. *Patentissimus* is spreading open so much as to fall back.

PATERSONIA. A small genus of New Holland *Fridaceae*, distinguished by having a hypocrateriform perianth, with six segments, the three inner of which are minute; three stamens, with their filaments

connate into a tube; a hairlike style with three laminaform stigmas; and a three-celled prismatic ovary containing numerous ovules. They are perennial herbs, with fibrous roots, from which spring narrow ensiform leaves, and showy but very fugacious blue flowers. [T. M.]

PATHOLOGY. That part of Botany which relates to the diseases of plants.

PATIENCE. (Fr.) *Rumex Patientia*. — **DES BAUX, GRANDE.** *Rumex Hydrolapthum*. — **DES JARDINS.** *Rumex Patientia*. — **SAUVAGE.** *Rumex obtusifolius*.

PATISSON. (Fr.) A kind of Gourd.

PATMAWORTS. A name formerly proposed by Lindley for the *Rafflesiaceae*.

PATONIA. A genus of Cingalese shrubs now referred by Drs. Hooker and Thomson to *Xylopia*.

PATRAQUE. (Fr.) *Solanum tuberosum*.

PATRINIA. A genus of *Valerianaceae*, so named in compliment to a French botanical traveller in Siberia, who discovered some of the species. They are herbaceous plants, with tufted leaves, and yellow flowers in terminal corymba. The main features of the genus are:—Calyx with an erect very short limb, which is sometimes entirely wanting; corolla regular, tubular with a three-lobed limb; stamens four or five; fruit membranous, crowned by the limb of the calyx, with two empty compartments, and a third containing a single seed. [M. T. M.]

PATTE D'ARAIGNÉE. *Nigella damascena*. — **DE LAPIN.** *Sedum villosum*. — **DE LION.** *Leontopodium alpinum*. — **DE LOUP.** *Lycopodium clavatum*. — **DOIE.** *Chenopodium*. — **D'OURS.** *Acanthus mollis*.

PATULOUS. Spreading half open.

PATURIN. (Fr.) *Poa*. — **À MANCHETTES.** *Poa pilosa*. — **COMMUN.** *Poa trivialis*.

PAULIA. A genus of gelatinous lichens resembling *Stictis*, an allied genus, in the gonidia being produced exactly in the same manner as *Palmella botryoides* is multiplied, a structure which obtains also in *Emericella*. [M. J. B.]

PAULINIA. With the exception of a single West African species, the whole of this large genus of *Sapindaceae*, consisting of about eighty species, is confined to the tropical regions of the western hemisphere. Nearly all are climbing shrubs furnished with tendrils, and having variously divided compound leaves, with stipules at their bases, and axillary racemes of white flowers with two opposite tendrils below them. The flowers have five sepals either distinct or two of them united; four petals bearing scales inside near the base; eight stamens inserted on the inside of the two or four glands of the disk; and a short three-parted style. The genus, however, is distinguished from some of its allies by

the fruit, which is a pear-shaped three-sided three-celled (or by abortion one-celled) capsule, with thin partitions, opposite which it splits open when ripe, each cell containing a solitary seed half enveloped in an aril.

From the seeds of the Guarana, *P. sorbita*, several tribes of Indians on the Amazon prepare hard cakes called Pao de Guarana (i. e. sticks of Guarana), which form a considerable article of trade, and are carried into all parts of Brazil, where a cooling beverage is prepared from them. The ripe seeds are thoroughly dried, then pounded into a fine powder, which is made into dough with water and formed into cylindrical rolls, from five to eight inches long, which become excessively hard when dry. The beverage is prepared by grating about half a tablespoonful of one of the cakes into a glass of sugar-and-water. It is greatly used by the Brazilian miners, and is considered to be a preventive of all manner of diseases. Its active principle is a substance called *guaranine*, which is identical in its composition with the theine of tea.

[A. S.]

The Guarana is extensively used in Brazil, Guatemala, Costa Rica, and other parts of South America, as a nervous stimulant and restorative. The pounded seeds constitute Guarana. It is used both as a remedy for various diseases, and also as a material for making a most refreshing beverage. Not only is the active principle of Guarana identical with theine, but, as far as is known, no other substance yields it so abundantly; the amounts being 507 per cent. as against good black tea, which yields 2·13, and coffee from 0·8 to 1·00. The mode of using the Guarana is curious and interesting. It is carried in the pocket of almost every traveller, and with it the palate-bone or a scale of a large fish, the rough surfaces of which form a rasp upon which the Guarana is grated; and a few grains of the powder so formed are added to water, and drunk as a substitute for tea. The effect is very agreeable. *P. Cupana* also enters into the composition of a favourite national diet-drink; its seeds are mingled with cassava and water, and allowed to pass into a state of fermentation bordering on the putrefactive, in which state it is the favourite drink of the Orinoco Indians.

[T. M.]

PAULO-WILHELMIA. A genus of *Acanthaceae*, containing a single species from Abyssinia. It is a shrub, with large ovate-cordate and petiolate leaves, and rose-coloured flowers in apparent whorls, crowded together so as to form a leafy spike. The calyx is unequally five-parted; the corolla funnel-shaped, with a long slender tube, and an equally five-cleft limb; the four exerted stamens have anthers with two equal parallel cells; the slender exerted style has a subulate stigma; and the capsule is narrow and four-sided, bearing near the base four compressed seeds, inserted on hooked retinacula. [W. C.]

PAULOWNIA imperialis is a Japanese

tree with the habit of *Catalpa*, and which was therefore originally published by Thunberg as a species of *Eugenia*, but it has much more the botanical character of *Scrophulariaceae*, of which it is now considered as forming a distinct genus. It is a soft-wooded tree of moderate size, with a large dense spreading head, and broadly ovate-cordate entire or lobed opposite leaves. The flowers, nearly two inches long, in terminal panicles, are of a purplish-violet colour; the hard ovoid acuminate capsules, one to one-and-a-half inches long, open loculicidally in two valves, and contain numerous winged seeds. When first introduced, its rapid growth, large leaves, and the exaggerated accounts of the beauty of its flowers caused it to be much planted, but the somewhat hoary tint of the down which covers the leaves renders their green too dull; the flowers moreover come out too early to succeed well in our climate, and their colour is far from brilliant. It is indeed altogether inferior to the *Catalpa*, and scarcely more hardy.

PAUMELLE. (Fr.) *Hordeum distichum*.

PAVETTA. A genus of shrubs of the *Cinchonaceae*, natives of tropical Asia, and also of tropical and Southern Africa. The flowers are white, in terminal corymbs, and differ little from those of the allied genus *Ixora*, except in the lobes of the corolla, which are twisted in the bud; and in the style, which projects for some distance from the corolla, and is terminated by a club-shaped stigma. Two or three species are grown as ornamental stove shrubs. The root of *P. indica* is bitter, and is employed as a purgative by the Hindoos. The leaves are likewise used medicinally, and for manuring; knife-handles are made from the roots. [M. T. M.]

PAVIA. Shrubs or middle-sized deciduous trees belonging to the *Sapindaceae*, and distinguished from *Aesculus* by having a smooth not prickly capsule. *P. rubra*, often called Red-flowered Horse-chestnut, is a slender-growing tree twenty to thirty feet high, from the mountains of Virginia and Carolina, and said also to be a native of Brazil and Japan. Several varieties are cultivated in England, differing in habit and in the form of their leaves. *P. flava*, also a native of North America, attains a larger size than the preceding, and is further distinguished by having the leaves downy beneath, and by the colour of its flowers. *P. discolor* is a shrub rarely exceeding the height of five or six feet, and as it bears numerous handsome flowers, is often planted as an ornament to the shrubbery. Other species are occasionally cultivated. [O. A. J.]

PAVONIA. A genus of *Malaeeae* named in honour of Don Josef Pavon, a botanical traveller in Peru, and joint author of the *Flora Peruviana*. The species are usually small shrubs, sometimes herbs, natives of America, and rarely of tropical Asia. Their leaves are various in form, sometimes having pellucid dots; the flower-stalks are

axillary; and there is an involucre or outer calyx of five or more leaflets, distinct or united together, generally in one row, but occasionally in two. Calyx five-cleft; petals five, oblique; ovary sessile, five-lobed, five-celled, each compartment containing a single ovule; style ten-cleft; fruit of five one-seeded carpels.

P. diuretica is employed medicinally in Brazil, as also are *P. scylanica* and *P. odorata* in the southern parts of India. Some of the species are grown in stovehouses in this country, but are not remarkable for beauty. [M. T. M.]

PAVOT. (Fr.) *Papaver*. — COQ. *Papaver Rhoeas*. — CORNU. *Glaucium luteum*. — DES JARDINS. *Papaver somniferum*. — DU MEXIQUE. *Argemone mexicana*. — DE TOURNEFORT, or DU LEVANT. *Papaver orientale*. — EPI-NEUX. *Argemone mexicana*. — JAUNE DES PYRÉNÉES. *Meconopsis cambrica*. — PORTE-SOIE. *Papaver setigerum*.

PAXILLUS. A genus closely allied to *Agaricus*, but distinguished by the gills readily separating from the pileus. *P. involutus* is one of our commonest fungi, especially about fir-woods, being remarkable for its involute margin, and yellowish somewhat branched porous hymenium, which becomes brown when bruised. [M. J. B.]

PAXTONIA. A genus of orchids named in compliment to Sir Joseph Paxton, the well-known horticulturist. The only species, *P. rosea*, is one of the very few orchids which have the petals all similar, instead of one (called the lip) being strikingly unlike the others. It was established as a genus by Dr. Lindley, but further acquaintance shows reason to suspect that it is what is called a peloria or regular form of another orchid, *Spathoglottis spicata*. The plant is terrestrial, and has dense tufts of oblong three-leaved pseudobulbs marked with ring-like scars, and erect slender distantly-sheathed scapes, taller than the pilate leaves, and bearing upon its summit six or eight pretty rose-coloured flowers about an inch and a half across. These have a six-leaved perianth with the divisions alike, an erect almost terete column somewhat thickened towards the top, and eight narrow club-shaped unequal pollen-masses coherent at their apices. [A. S.]

PAYENA. A genus of *Sapotaceae* named in honour of the celebrated French chemist. The species are shrubs with elliptical leaves, and axillary flower-stalks. Calyx four-parted, its segments ovate, externally pubescent; corolla tubular below, bell-shaped above, where it is divided into eight pieces; stamens eight, inserted into the tube of the corolla opposite to its lobes, and between them as many little teeth. The connective is prolonged into a fleshy point; the ovary is hairy, with eight compartments; and the style is smooth, twice as long as the calyx. [M. T. M.]

PAYPATROLA. A genus of tropical American trees of the order *Violaceae*. The

flowers are in dense branching spikes or clusters; sepals and petals five, nearly equal, the latter coherent at the base after flowering; filaments combined into a short cup bearing the anthers; ovary sessile; style terminal, short, irregularly dilated or two-lobed at the top; fruit capsular, three valved. [M. T. M.]

PEA. *Pisum*. —, BLACK-EYED. A West Indian name for *Dolichos sphaerospermus*. —, BUTTERFLY. *Citioria Mariana*. —, CHICK. *Cicer arietinum*: the name was formerly written Cich or Clche, sometimes Rammes Ciches. —, CONGO. *Cajanus indicus bicolor*. —, EARTH. *Lathyrus amphicarpyus*. —, EARTH-NUT. *Lathyrus tuberosus*. —, EGYPTIAN. *Cicer arietinum*. —, EVERLASTING. *Lathyrus latifolius*. —, FLAT. *Platyllobium*. —, GLORY. *Citanthus*. —, HEART. *Cardiospermum halicababum*. —, HEATH. *Lathyrus macrochirus*. —, HOARY. *Tephrosia*. —, MILK. *Galactia*. —, NO-EYE. *Cajanus indicus flavus*. —, ORANGE. The small immature fruit of the Curaçao orange used for flavouring wines. —, PARTIDGE. *Helleborus*; also *Cuscuta Chamæscitæ*. —, PIGEON. *Cajanus indicus*. —, ROSARY. The seed of *Abrus precatorius*. —, SCURFY. *Pisalea*. —, SEA. *Lathyrus maritimus*. —, SPURRED BUTTERFLY. *Centrosema*. —, STURT'S DESERT. *Citanthus Dampieri*. —, SWEET. *Lathyrus odoratus*. —, TANGIER. *Lathyrus thiancavius*. —, WOOD. *Lathyrus macrochirus*.

PEACH. *Amygdalus persica*. —, GUINEA. *Barcrocephalus esculentus*. —, NATIVE, of Australia. *Bumelia acuminatum*. —, —, of Sierra Leone. *Barcrocephalus esculentus*. —, NEGRO. *Barcrocephalus esculentus*.

PEACH-BLISTER. An affection to which peach-leaves are subject, the leaves becoming thick bladdery and curled. By some it is supposed to be produced by aphides; by others it is attributed to the action of cold winds when the leaves are expanding. In some cases it is undoubtedly produced by a minute fungus of the genus *Ascomyces*. If the leaves of a tree are once affected, the malady is very apt to recur in future seasons. [M. J. B.]

PEACH-WOOD. Nicaragua-wood, *Cesalpinia schinata*.

PEACHWORT. *Polygonum Persicaria*.

PEACOCK'S TAIL. *Padina pavonia*.

PEA-FLOWER. A West Indian name for *Centrosema* and *Citioria*.

PEAR. *Pyrus communis*; the name is also applied, generically, to species of *Pyrus* of the group *Pyrophorum*, consisting of the Pears proper. —, ALLIGATOR, or AVO-CADO. *Persia gratissima*. —, ANCHOVY. *Grass caudiflora*. —, GARLIC. *Crataegus gynandra*. —, GRAPE. *Amelanchier botryopium*. —, PRICKLY. *Opuntia vulgaris*, and *O. tuna*. —, STRAWBERRY. *Cereus triangularis*. —, WILD. A West Indian name for *Clathra tinifolia*.

PEARL-EVERLASTING. *Gnaphalium margaritaceum*.

PEARL-FRUIT. The fruit of *Margyri-carpus setosus*.

PEARL-GREY. Pure grey, a little verging to blue.

PEARL-MOSS. The same as Carageen.

PEARL-PLANT. *Lithospermum officinale*.

PEARLWEED, or PEARLWORT. *Sagina*.

PEARMAN. A kind of Apple.

PEAR-SHAPED. Obconical, with the sides a little contracted.

PEAR-WITHE. A West Indian name for *Tanacetum Jacoba*.

PEASE. The seeds of the varieties of *Pisum sativum*.

PEA-TREE. *Sesbania*. —, **SIBERIAN.** *Caragana*.

PÊCHER. (Fr.) *Amygdalus persica*.

PECTIDIUM. The *Pectis punctata* has been distinguished under this name as a genus on account of a slight difference in the scales of the pappus, which are stiff hard awns, not at all dilated at the base.

PECTINARIA. *Stapelia articulata*.

PECTINATE. The same as Pinnatifid, but with the segments numerous close and narrow, like the teeth of a comb. *Pectinato-laciniate* is cut in a pectinate manner; that is to say, pectinate, with the lobes very long and taper-pointed.

PECTIS. A genus of *Compositæ*, comprising nearly thirty species, natives of South America, the West Indies, or Mexico, all glabrous herbs, with opposite leaves more or less marked with pellucid glandular dots, usually narrow and entire, bordered with a few long stiff hairs or bristles at the base. The flower-heads are usually small, with tubular involucre of a single row of bracts, the receptacle naked, the florets of the ray ligulate, those of the disk tubular. The achenes have a pappus of several scales or stiff bristles, varying in different species in number, and in being more or less dilated at the base. On this account the genus has been divided into four, *Pectidopsis*, *Pectidium*, *Pectia*, and *Lorentia*, but which may be much more conveniently regarded as sections. None of the species are of sufficient interest or beauty for cultivation.

PEDALIACEÆ. (*Pedaliaceæ*, *Sesameæ*, *Murtyntaceæ*, *Pedaliads*.) A natural order of perigynous Exogens belonging to Lindley's Bignonial alliance. It consists of herbaceous plants, with undivided angular or lobed exstipulate leaves, and large axillary flowers, solitary or clustered. The calyx is cut into five equal lobes; the corolla is monopetalous, irregular with a ventricose throat and bilabiate limb; the hypogynous disk is fleshy or glandular; the stamens didynamous with the rudiment of a fifth; and the ovary one-celled with parietal pla-

centæ, becoming a bony or capsular fruit with four or six spurious cells formed by the splitting of the two placentæ and the divergence of their lobes; seeds wingless with an amygdaloid embryo. The order is allied to the *Bignoniceæ*, but differs in the parietal placentæ and the wingless seeds. It is not very extensive, but is distributed over the tropics, most abundantly in Africa. The seeds of *Sesamum* yield an abundance of fixed oil of good quality, known as Gingilloil. *Martynia*, *Uncaria*, and *Sesamum* are examples of the genera, which number about a dozen. [T. M.]

PEDALIS. Twelve inches long, or the length of a tall man's foot.

PEDALIUM. The order *Pedaliaceæ* takes its name from this genus, the only representative of which is *P. murex*, a tall succulent branching annual plant, common near the sea on the Coromandel and Malabar coasts of India, and in Ceylon. This plant has long-stalked opposite oval toothed leaves, and rather showy yellow flowers produced singly in the axils of the leaves, upon short stalks which are furnished with glands near the base. They have a small five-parted calyx with the upper lobe shorter than the others; a tubular corolla equal at the bottom and wide at the mouth, expanding into five round lobes the lowest of which is the largest; four stamens in pairs of different length with the anthers forming a cross; and a thread-like style bearing a bifid stigma. Its fruits, which do not open when ripe, are four-sided and of a somewhat pyramidal or conical shape, with four sharp prickles upon the corners near the base, and are divided into three cells, one of which is empty, while each of the others contains two pendulous seeds.

All parts of the plant give off a musky odour when rubbed; and the fresh branches possess the curious property of rendering water or milk mucilaginous by simply drawing them a few times round in the vessel containing it. In India the butter-milk sold in the markets is frequently adulterated by mixing with water thickened by this means. The seeds also are mucilaginous, and are used in India for making poultices. [A. S.]

PEDANE, or PET D'ANE. (Fr.) *Onopordon*.

PEDATE, PEDATIFID. The same as Palmate, except that the two lateral lobes are themselves divided into smaller segments, the midribs of which do not directly run into the same point as the rest. Hence: *pedatiform*, having a pedate form; *pedatilobed*, or *pedatilobate*, when a palmate leaf has the supplementary lobes at the base; *pedatinerved*, when the ribs are arranged in a pedato manner; *pedatipartite*, or *pedatisect*, when a pedato leaf has segments separated into so many distinct leaflets.

PEDDA-CANREW. A Molucca name for the fruit of *Flacourtia sapida*.

PEDDIEA. The name of a Nepal shrub

constituting a genus of *Thymelacææ*. The flowers are terminal umbellate, perfect, with a coloured perianth, dilated below, contracted above, and having a four or five-cleft limb; stamens eight to ten; scales of the disk combined into a shallow tube surrounding the base of the ovary, which latter contains two pendulous ovules. Fruit succulent. [M. T. M.]

PE DE PERDIS. A Brazilian name for the diuretic decoction of *Croton perdicipes*.

PEDICEL, PEDICULE (adj. **PEDICELATE, PEDICULATE**). A peduncle of a second or higher order, as in the raceme, where the principal flower-stalk is the peduncle, and the lateral secondary ones are pedicels. *Pediculus anthers* is the filament of the stamen.

PEDICULARIS. A genus of herbaceous plants belonging to the *Scrophulariaceæ*, the characters of which are: calyx five-cleft, or unequally two to three-cleft, the segments sometimes leafy; corolla ringent, the upper lip flattened vertically. There are two British species—*P. palustris*, the Marsh Lousewort, an erect much-branched herbaceous plant, nine to twelve inches high, of a singularly pyramidal growth and purplish tinge, the leaves pinnate, and the flowers dull crimson; and *P. syriatica*, the Pasture Lousewort, common on heaths and marshy meadows, which has prostrate or spreading stems, only branched near the base, the segments of the calyx leafy, and the flowers rose-coloured. Both these plants were formerly considered to be productive of the disease in sheep from which they derive their names; but in reality the localities in which they are abundant are little adapted for pasture-ground, being from their dampness unproductive of nourishing food. Upwards of fifty foreign species are described by botanists. *P. Scopulorum Carolinum*, or Charles's Sceptre, so called by Rudbeck in honour of Charles II., king of Sweden, from its manner of growth like a sceptre, attains the height of three or four feet, and bears golden-yellow flowers one inch long, the lower lip tinged with purple. It is common in Norway, Denmark, and Lapland. French, *Pédiculaire*; German, *Läusekraut*. [O. A. J.]

PEDILANTHUS. A genus of *Euphorbiacææ*, very closely allied to *Euphorbia* itself in the structure of its flowers, and chiefly distinguished by the singularly irregular shape of the involucre, assuming almost the appearance of a slipper or shoe. There are two or three species, thick-stemmed half-shrubby plants with an acrid milky juice, natives of the warmer regions of America.

PÉDILONIE. (Fr.) *Wachendorfia*.

PÉDIVEAN. (Fr.) *Caladium*.

PEDUNCLE (adj. **PEDUNCULATE**). The stalk of a flower. *Pedunculæ corychi* are tendrils proceeding from a peduncle.

PEERGRUG. An Indian name for *Cissampelos glabra*.

PEETHA. An Indian name for *Benthamia corifera*.

PEETSAL. An Indian name for *Pterocarpus Marsupium*.

PEGANUM. The Greek word for rue, (*Ruta graveolens*), and apparently also applied by Dioscorides to the rue-like plant, which now bears the name, and constitutes a genus of *Rutacææ*. *P. Harmala* is a common plant in Southern Europe and Asia Minor, and may now and then be met with in English gardens. It is a powerfully smelling herb, with alternate sessile entire or divided leaves, provided at the base with two hair-like stipules, but destitute of the pellucid dots generally seen among rue-works. The flower-stalks are opposite the leaves, and bear a terminal white flower with greenish nerves; stamens fifteen, with filaments dilated at the base; ovary on a short stalk surrounded by a large disk, and having three compartments in the interior, each containing numerous ovules; style thread-like, becoming twisted. The fruit is capsular and opens by three valves, which have the partitions attached to them, and the albumen of the seed is horny. This plant derives its specific name from the Arabic word applied to it, and is interesting botanically, as combining in itself the characteristics of the order *Eupophyllacææ*, in its stipulate not dotted leaves, and in the nature of the fruit; and those of *Rutacææ* in the alternate arrangement of the leaves, the constance of the albumen, and the general appearance of the plant. The seeds are used in Turkey as a vermifuge; they are collected by the Tartars in the *Oïmes* for that purpose. [M. T. M.]

PEIGNE-DE-VENUS. (Fr.) *Scandix Pecten-Veneris*.

PELARGONIUM. A very extensive genus of *Geraniacææ*, almost confined to the Cape of Good Hope, though a few occur in Australia, one in the Canary Islands, and another fine species (*P. Endlicherianum*) in Asia Minor. They are known in gardens as *Geraniums*, though very different from the genus of that name, in their spurred calyx, usually irregular corolla, and the number of perfect stamens, which varies from seven down to four.

The greater number of forms cultivated in gardens are hybrids, which are produced with great facility in this genus. The species possess more or less of the astringent properties of the order, but one species at least (*P. triste*) has tubers, which are eaten at the Cape; while some have fragrant foliage from which an essential oil may be extracted, as *P. roseum* and *capitatum*. They vary much in habit; some have a turnip-shaped rhizome and no proper stem; others have a distinct leafy stem, and a good number are undershrubs with thick fleshy stems. The leaves are opposite or the upper ones alternate, entire or variously divided, with leaf-like or scarious stipules at the base. The peduncles grow opposite the leaves or axillary;

and the flowers are usually in simple umbels with an involucre at the base; the calyx is five-parted, the upper segment having a spur which is adnate to the pedicel; corolla of five petals (sometimes four or two), more or less irregular, stamens ten, four to seven only with anthers; beaks of the fruit (styles) hairy inside, and spirally twisted when mature. *Pelargonium* is divided into the following subgenera:—

Hoarea: stemless with tuberous roots; petals five or four

Seymouria: stemless, with tuberous roots; petals only two.

Polyactium: caulescent, with tuberous roots; leaves lobed, or pinnately decomposed; umbels many-flowered; petals subequal obovate, entire, or fimbriato-lacerate.

Otidia: stem succulent and knobby; leaves fleshy, pinnately or bipinnately compound; petals subequal, the upper eared at the base; stamens five.

Ligularia: stem either succulent or slender and branching; leaves rarely entire, mostly much cut or pinnately decomposed; petals subunequal, spatulate, the uppermost tapering at the base; stamens seven.

Jeikinsonia: shrubby or succulent; leaves palmately nerved or lobed; two upper petals on long claws, very much larger than the lower; stamens seven.

Myrrhidium: slender suffruticose or annual; leaves pinnatifid or pinnatisect; petals four (rarely five), two upper largest; calyx-segments membranous, strongly-ribbed, and mucronate or taper-pointed; stamens five, rarely seven.

Peristera: herbaceous diffuse, annual or perennial; leaves lobed or pinnatifid; flowers minute; petals scarcely longer than the calyx. (Habit of *Geranium* or *Brodiaea*.)

Campylla: stem short, subsimple; leaves on long petioles, undivided entire or toothed; stipules membranous; flowers on long pedicels; two upper petals broadly obovate, three lower narrow; fertile stamens five, two of the sterile ones recurved.

Dibrachya: much-branched, with weak-jointed stems; leaves peltate or cordate-lobed, fleshy; petals obovate; stamens seven, the two upper very short. (The ivy-leaved race.)

Eumorpha: slender, suffruticose, or herbaceous; leaves on long petioles, palmately five to seven-nerved, reniform, lobed or pinnatifid; petals unequal, the two upper broad; stamens seven.

Glaucophyllum: shrubby; leaves carnosous, simple or ternately compound, the lamina articulated to the petiole; stamens

Oleontium: shrubby, with carnosous branches; leaves either obovate or cordate-reniform, palmately many-nerved, undivided; petals all of one colour, scarlet, pink, or white; stamens seven, two upper very short.

Cortusina: caudex short, thick and fleshy; branches (if present) slender and half herbaceous; leaves reniform or cor-

date, lobulate, on long petioles; petals subequal, two upper broadest, stamens six or seven.

Pelargium: much-branched shrubs or subshrubs, not fleshy; leaves entire or lobed (never pinnatifid); stipules free; inflorescence frequently panicled, the partial peduncles umbelled; two upper petals longer and broader than the lower; stamens seven. [J. T. S.]

PELEGRINE. (Fr.) *Alströméria*.

PELEXIA. A small tropical American genus of terrestrial Orchids, belonging to the *Neottieae*, and scarcely different from *Stenorrhynchus*, except in having a membranous rostellum, and in the lateral sepals and lip being combined into a more conspicuous horn. [A. S.]

PELICAN-FLOWER. *Aristolochia grandiflora*.

PELIJURREE. An Indian name for the root of *Thalictrum foliolosum*.

PELIOS. In Greek compounds = livid.

PELIOSANTHES. A genus of *Liliaceae*, of the section *Ophiopogoneae*, from India. They have creeping rhizomes, with long-stalked oblong-lanceolate plicate radical leaves, and erect scapes with compact bracteated racemes or panicles of greenish flowers. The perianth is adherent to the ovary at the base, with a six-cleft rotate limb, and an annular crown at the throat; stamens six, with almost sessile anthers; seeds one to three, naked by the rupture of the ovary. [J. T. S.]

PELLÆA. *Platyloma*.

PELL-A-MOUNTAIN. *Thymus Serpyllum*.

PELLETIERA. A genus of primworts, having the calyx five-parted; the corolla in three divisions, much shorter than the calyx; stamens three, inserted at the base of the corolla; and the seed-vessel round, two to three-valved, the seeds two. The only species is a small Brazilian herb, with a quadrangular stem, opposite leaves, and axillary white flowers. [G. D.]

PELLIA. A genus of frondose *Jugmannaceae*, belonging to the tribe *Haplomaneae*, in which it is distinguished by its dorsal fruit, and elaters which do not adhere to the tips of its valves. *P. epiphylla* is very common, growing on the walls of wells, or in other shady places. Some species of *Anoura* resemble it in habitat, but have more divided and irregular ribless fronds. [M. J. E.]

PELLITORY. *Pyrethrum Parthenium*. — OF SPAIN. *Anacyclus Pyrethrum*. — OF THE WALL. *Parietaria officinalis*.

PELLITUS. Skinned; deprived of skin, or seeming to be so.

PELORIA. A term applied to those flowers which, instead of having their customary irregular form, assume a regular shape. This arises either from an increase in the number of irregular portions whereby a symmetrical

form is produced, or from an arrest of growth in consequence of which all the parts retain their primitive regularity of form and size. Both forms may be met with in *Linaria* and other genera. [M. T. M.]

PELOTTES DE NEIGE. (Fr.) The Gualdres Bush, a sterile variety of *Viburnum Opulus*.

PELTA. A target-like shield, found on the species of *Peltidea*; also a bract attached by its middle, as in peppers.

PELTANDRA. A North American genus of *Aracea*, represented by an herbaceous plant, with a thick fleshy rootstock, from which are sent up arrow-shaped leaves, borne on long sheathing leafstalks. The spadix emerges from between the sheaths of the leaves, and is invested by a green spathe, the lower portion of which is tubular and the upper portion expanded, with the point reflexed. The spadix itself is short, almost entirely covered, except at the top, with densely crowded flowers, the uppermost and lowermost being imperfect, the central ones perfect. The anthers are adherent one to another by means of their club-shaped large connectives. The ovaries taper into a very short style terminated by a depressed button-like stigma; they contain a small number of erect ovules placed on short ascending stalks. The rootstock of *P. virginica*, formerly *Arum virginicum*, contains a considerable amount of starch. [M. T. M.]

PELTARIA. A genus of *Cruciferae*, natives of Central Europe and Syria, and consisting of smooth erect perennials with ovate entire stalked root-leaves, and sessile arrow-shaped cauline ones. The racemes are numerous, disposed in a corymbose manner; the flowers small and white. Pouch indehiscent orbicular flat, with flat valves without wings, the partition vanishing; seeds two to four, or solitary by abortion. One species, *P. alliacea*, from Central Europe, has the odour of garlic. [J. T. S.]

PELTATE. Fixed to the stalk by the centre, or by some point distinctly within the margin; as the leaf of *Tropæolum*. *Peltatisfid* is applied to a peltate leaf cut into subdivisions; and *peltato-digulate* to a digitate leaf with the petiole much enlarged at the setting on of the leaflets.

PELTIDEA. A genus of lichens the species of which are vulgarly confounded with *Marchantia* under the name of liverwort. The herbaceous, however, distinguish them as Ground Liverwort. The marginal disks, which are either orbicular or reniform, are at first veiled, and often project from the thallus, retaining fragments of the veil at the margin; the underside of the frond is veined and attached to the ground, or whatever substance it may chance to grow upon, by numerous fibres. Their favourite place of growth is the top of a molehill or mud-wall, where they have good drainage; in such situations they form handsome objects, especially when in fruit or studded with a little red parasite to which they are

subject. *P. centina* was once celebrated as a remedy against hydrophobia, but its virtues are quite imaginary. [M. J. R.]

PELTIFORM. Having simple veins arranged as in a peltate leaf.

PELTINERVED. Having ribs arranged as in a peltate leaf.

PELTOBRYON. A genus of South American shrubs of the *Piperaceæ*, having oblong membranous leaves with glandular dots, and a smooth or slightly hairy surface. The stipules are opposite the leaves, lance-shaped or linear; the catkins are short-stalked, cylindrical, with membranous peltate bracts; the flowers are hermaphrodite, and have a cylindrical style, with three curved stigmas. Some of the species are made use of in South America in the same way as pepper. [M. T. M.]

PELTOPHORUM. The plants now included in this genus were formerly referred to *Cesalpinia*: two are natives of the West Indies, one of Brazil, and a fourth of the Cape of Good Hope. They are all unarmed trees of no great height, with abruptly bipinnate leaves, and large branching panicles of small flowers, which possess a five-parted calyx with nearly equal segments, five petals, ten stamens included within the petals and hairy at the bottom, and a broad shield-like smooth stigma. The pods have short stalks, and are flat and wingless, with one or a few seeds.

P. Linnæi, otherwise called *Cesalpinia brasiliensis*, yields the orange-coloured dye-wood imported from Jamaica and San Domingo under the name of Brazil-wood. It is a small tree seldom exceeding fifteen feet high, and has leaves composed of four pairs of pinnae, each of which has from six to eight pairs of small oval bluish slightly downy leaflets, and small yellow flowers. From two to four hundred tons of Brazil-wood are annually imported for the use of our dyers, who obtain fine orange-red tints from it: turners also use it for various small articles, and violin-bows are sometimes made of it.

The wood of *P. Vogelianum*, which is a native of Brazil, is also called Brazil-wood or Sobrazil. It is a larger tree than the last, attaining the height of about forty feet, with a great branching top, and the subdivisions of its leaves are more numerous, the number of pairs of pinnae varying from twelve to sixteen, and the leaflets from twenty to thirty pairs, the entire leaf resembling the frond of a fern in appearance. The racemes of flowers are of a fine golden colour. [A. S.]

PELTOPHYLLUM. A small slender leafless Brazilian annual, differing from *Tyrius* in having six lobes to the perianth and six stamens instead of three, and forming part of the small group of *Tyridææ* nearly allied to *Alismaceæ*. The name *Peltophyllum* was given by Gardner from a peltate leaf which he believed to belong to the same plant. This has been proved by Miers

not to be the case, and he has therefore changed the name to *Heurtia*.

PELTOSTIGMA. The name of a genus of *Rutaceae* to which Sir W. J. Hooker had applied that of *Pachystigma*. It is represented by a much-branched shrub, native of Jamaica, having its leaves ternate, its flower-stalks axillary, branched, with leafy bracts, and its flowers large white, fragrant, and hairy on the outside. The calyx consists of three overlapping segments, the innermost petal-like; petals four, concave; stamens numerous, inserted in two rows on to a large fleshy stalk supporting the ovary, which has eight compartments, each containing two ovules; stigma sessile, large, fleshy, irregularly lobed. Fruit of eight dry divergent carpels adherent by their bases, each two-valved with a single seed from the non-development of one of the ovules. [M. T. M.]

PELVIFORM. Like *Oyathiform*, but flatter.

PEMPHIS. A genus of *Lythraceae*, inhabiting the shores of tropical Asia and Madagascar. They have shrubby stems, covered with short white down, opposite oblong-lanceolate entire leaves, and axillary solitary one-flowered peduncles with two bracts at the base. Flowers white, with a turbinate twelve-lobed calyx, the six inner erect, the six outer smaller and spreading; petals six, obovate; stamens twelve, alternately smaller; style short; stigma capitate; capsule membranous, six-valved, three-celled at the base, opening transversely; seeds numerous. [J. T. S.]

PENACEÆ. (*Geissolemeæ*, *Sarcocollada*.) A natural order of monochlamydeous dicotyledons belonging to Lindley's rhinal alliance of perigynous Exogens. They consist of shrubs, with opposite entire exstipulate leaves, found at the Cape of Good Hope, and have no known properties of importance. Perianth coloured salver-shaped, with a four-lobed limb; stamens perigynous, four or eight, alternate with the lobes of the perianth; ovary superior, four-celled; ovules usually in pairs, anatropal, ascending or suspended; style simple; stigmas four. Fruit a four-celled four-valved capsule; seed erect or pendulous; nucleus a fleshy mass, without distinction of albumen or embryo. There are about half a dozen known genera, and twenty-one species. Examples: *Penæa*, *Geissolemea*. [J. H. B.]

PENÆA. As restricted in De Candolle's *Prodromus* this genus, the type of the order *Penaceæ*, contains half a dozen little branching Cape shrubs, with small flat entire leaves, and solitary axillary flowers at the ends of the branches, where they usually form little heads, surrounded by coloured leaf-like persistent bracts. The flowers have a coloured calyx, with a tube scarcely longer than the limb, and no petals; four stamens with extremely short filaments, a thick connective, and the valves of the anther-cells thickly fringed; a smooth

ovary with two erect ovules at the base of each of the four cells; and a four-winged style bearing four flat stigmas in the shape of a cross. The four-celled four-valved capsule is covered by the persistent enlarged calyx. A good many other species have been referred to it, but those are removed to other genera; and amongst them the plant called *Penæa Sarcocolla* in many works, from which the ancient gum-resin *Sarcocolla* is (without proof) said to have been derived. This is now placed in the genus *Sarcocolla*. [A. S.]

PENANG LAWYERS. A commercial name given to walking-sticks made from the stems of *Licuala acutifida*.

PENCIL-FLOWER. *Stylosanthes*.

PENGHAWAR DJAMEI. The name of a celebrated styptic afforded by the down or soft hair-like scales of the stem of some species of *Ocoteum*. Its action is probably mechanical, as chemical analysis affords nothing peculiar. [M. J. B.]

PENGUIN. *Bromelia Pinguin*.

PENICILLARIA. A genus of grasses belonging to the tribe *Panicææ*, the species of which are described by Steudel under *Pennisetum*. [D. M.]

PENICILLATE, PENICILLIFORM. Resembling a camel's-hair pencil; consisting of, or covered with, hairs which are nearly parallel with each other. Sometimes, marked with colour as if laid on in streaks with a camel's-hair pencil.

PENICILLIUM. A genus of naked-spored thread-moulds with a jointed stem branched at the top, each branch having a chain of spores either simple or divided. These spores are sometimes smooth, sometimes rough with little points. *P. glaucum* is one of the commonest of moulds, growing on all kinds of substances, and entering largely into the composition of yeast, but more especially of the Vinegar Plant. The species assume frequently very beautiful colours. A rose-coloured species, for instance, the agent in the destruction, some years since, of the barrack-bread at Paris, which was so much canvassed, attains its perfect growth a few hours after the bread comes from the oven. An apricot-coloured species occurs on fungi. Occasionally the same species will put on three or four different tints in the course of its growth. [M. J. B.]

PENNANTIA. A genus of *Anacardiaceæ* consisting of trees from New Zealand and Norfolk Island, with alternate simple leathery leaves, and small white or yellowish flowers in a corymbose panicle. The calyx is minute, cup-shaped, deciduous; petals five, lanceolate; stamens five, disk none; fruit fleshy, one-seeded. [J. T. S.]

PENNIFORM. Having the ribs of a leaf arranged as in a pinnated leaf, but confluent at the point, as in the Date-palm.

PENNINERVED, or PENNIVERVED. Having ribs or principal veins ~~running~~

straight from the midrib to the margin at equal distances.

PENNISSETUM. A genus of grasses belonging to the tribe *Panicæ*, and distinguished by the double involucre, composed of many bristles, the centre unequal, the inner pinnated, bearded. Spikelets two to four; glume two-valved, unequal; lower floret male, upper hermaphrodite, both sessile; pales cartilaginous. Steudel describes eighty-seven species, which are widely distributed, but mostly natives of subtropical countries. Several of them are very ornamental, and consequently cultivated in gardens. *P. longistylum* is sufficiently hardy to bear the winter in the open air in many parts of Britain, and is a very beautiful grass. [D. M.]

PENNY-LEAVES. *Cotyledon Umbilicus*.

PENNY-ROT. *Hydrocotyle vulgaris*.

PENNYROYAL. *Mentha Pulegium*. —, AMERICAN. *Hedeoma pulegioides*. —, RASTARD. *Trichostema dichotomum*. —, FALSE. *Isanthus cœruleus*. —, MOCK. *Hedeoma pulegioides*.

PENNYROYAL-TREE. *Satureja viminea*.

PENNYWORT. *Sibthorpia europæa*; also *Hydrocotyle*, *Cotyledon Umbilicus*, and *Litsea Oymbalaria*. —, MARSH. *Hydrocotyle vulgaris*.

PENSAÏRE. (Fr.) *Oenthe crocata*.

PENSEE or **P. ANNUELLE.** (Fr.) *Viola tricolor*. —, DES JARDINS. *Viola tricolor hortensis*. —, SAUVAGE. *Viola tricolor arvensis*. —, VIVACE. *Viola altaica*.

PENTA. In Greek compounds = five.

PENTACOCOUS. Composed of five cocci, or shells splitting with elasticity, and falling off a central axis or column.

PENTADESMA *butyracea*, the Butter and Tallow tree of Sierra Leone, constitutes a genus of *Clusiaceæ*, allied to *Moronea* and *Platonia*, but differing in its sepals passing gradually into the petals, which are imbricate but scarcely contorted. It is a large tree, yielding in several parts, especially in the fruit when cut, a yellow greasy juice, whence is derived its popular name. The leaves are opposite, coriaceous, and elegantly marked with numerous parallel veins; the flowers large and handsome, solitary and terminal. The fruits are said to be eaten in the country.

PENTAGLOTTIS. A name given by Wallich to an East Indian herb, which proves to be a species of *Melbania*.

PENTAPERA. A genus of heathworts, having the calyx equal and five-parted; the corolla ovate, its border five-cleft; the stamens ten, the anthers separate and without awns; and the fruit a five-celled capsule. The only species is a heath-like shrub, growing on calcareous rocks in Sicily; it was formerly known as *Erica Scia*. The name is from the Greek, and indicates the repetition of the number five in the parts of the flower. [G. D.]

PENTAPETES. A genus of *Scrophulariaceæ* of the tribe *Dombeyæ*, now restricted to a single species, an East Indian erect more or less hispid annual, with narrow leaves, and rather showy red flowers on short axillary peduncles. The genus is distinguished from *Trochetia*, to which it is most nearly allied, by the more herbaceous calyx, and the style undivided to the top.

PENTAPHRAGMA. A genus of doubtful position, but usually referred to the order of bellworts. It is distinguished by having the seed-vessel connected with the calyx by means of prolongations to which the five stamens are attached. The only species is *P. begoniifolia*, a native of Pulo-Penang; it is a creeping woolly herbaceous plant, with leaves like those of a *Begonia*, and clusters of white flowers. The name indicates the five prolongations on which the stamens are inserted. [G. D.]

PENTAPTERA. An almost exclusively Indian genus of *Combretaceæ*, closely allied to and by some botanists considered to form a section of *Terminalia*, from which, however, it is readily distinguished by the thick leathery egg-shaped fruit having five or sometimes seven equal wings produced longitudinally and at regular distances all round. About a dozen species are known, all large trees, with opposite or nearly opposite entire leaves, furnished with two glands at the base, and axillary or terminal spikes of flowers without petals, and frequently with one of the sexes abortive. The tube of their calyx is egg-shaped and marked with five or seven ribs, which ultimately enlarge and form the wings of the fruit; and the limb is bell-shaped and five-cleft.

P. glabra is a large smooth-barked timber tree, with a trunk six or eight feet in diameter and from fifty to eighty feet high, without a branch. It is common in the teak forests of Pegu, and affords an excellent dark-brown timber, useful for mast-pieces, spars, and other purposes connected with shipbuilding. In Canara, on the western coast of the peninsula of India, the natives obtain a kind of lime by calcining the bark and wood, which they prefer to ordinary lime for eating with betel-nut, and also use for whitewashing. [A. S.]

PENTAPTEROUS. Having five wings.

PENTAPTERYGUM. One of the genera into which *Vaccinium* has been somewhat unnecessarily divided. The species are Indian shrubs frequently found growing on trees. The flowers are axillary, solitary or in clusters; the calyx-tube provided with five wings (whence the name of the genus), and its limb is divided into five ovate segments; the corolla tubular, five-angled, five-lobed, the lobes short; stamens ten, distinct, the anthers sometimes provided with two short projecting points at the back, and prolonged into two long tubular processes opening at the top by a roundish hole; stigma truncate; berry subglobose, five-winged, five-celled, many-seeded, crowned by the limb of the calyx

P. javum is remarkable for the yellow colour of its flowers, an unusual occurrence in the *Vacciniaceae*. [M. T. M.]

PENTARHAPHIA. A genus of *Gemmaraceae*, composed of shrubby or half-shrubby plants inhabiting the West India Islands. The calyx is in shape like an inverted cone, and has five to ten ribs, and five long subulate lobes; the corolla is either tubular or nearly campanulate, and the stamens are projected above it. The stem and branches are resinous, the leaves oblong or obovate, generally toothed at the margin, and the flowers solitary or in umbels in the axils of the leaves. About fifteen species are recorded, but nothing is known about their uses. [B. S.]

PENTAS. A genus of shrubby *Oinchoaceae*, natives of Western tropical Africa, and named in consequence of the parts of the flower being in fives. The segments of the calyx-limb are unequal, and have sometimes one or two small glands in the notches between them; corolla with a long tube, bell-shaped, the throat hairy in the inside, and the limb with five ovate smooth segments, which overlap one another in the bud; filaments short, bearing linear anthers; disk surmounting the ovary, thick; style simple, with two-lobed stigmas; capsule nearly globular, the apex free, two-celled, opening by valves; seeds numerous.

P. carnea is a favourite hothouse shrub with broad leaves and dense terminal tufts of pink flowers. Professor Oliver has pointed out a peculiarity in the hairs of the corolla of this plant; the upper ones lining the throat are of one cell, those occurring in the tube are of more than one cell, the constituent cells containing moreover a spirally coiled fibre. [M. T. M.]

PENTASACME. Erect glabrous herbs, with perennial roots, opposite ovate lanceolate or linear leaves, and axillary peduncles bearing two rather large yellowish flowers. The five-cleft calyx, rotate corolla, and narrow smooth elongated fruit, are amongst the leading features of this small genus of *Asclepiadaceae*, of whose four species we know little except that they inhabit India and China. [B. S.]

PENTASPADON. A large Borneo tree, with pinnate leaves, and axillary panicles of small white flowers, forming a genus of *Anacardiaceae*, distinguished from *Rhus* and its allies, chiefly by small spatulate or capitate staminodia alternating with the stamens, and by a depressed ovary with a short broad recurved stigma. The fruit is unknown.

PENTHORUM. A genus of *Crossulaceae*, consisting of two species, both inhabiting swamps and ditches—*P. chinense* those of China, *P. sedoides* those of the United States and Canada. *P. sedoides* commonly goes by the name of Virginian Stonecrop in the United States. Like its congener, it is an erect herb, not succulent (like so many of the members of the order to which it belongs), with alternate membranaceous

serrated leaves, and greenish-yellow flowers, unilateral on the simple branches of the cyme. The calyx has five sepals; the corolla either five petals or none; there are ten stamens; and the capsule is five-celled, and encloses numerous seeds. [B. S.]

PENTLANDIA. A Peruvian genus of *Amoryllidaceae*, allied to *Stenomonesson*, and consisting of a beautiful bulbous plant, *P. miniata*, which bears a solitary lanceolate leaf appearing before the blossoms, and a solid scape supporting an umbel of about half a dozen drooping vermilion-coloured flowers. The perianth is tubular, contracted and subcylindrical at the base, ventricose above, and terminating in six short somewhat spreading segments; there are six stamens without any connecting membrane, but alternating with six scales according to Kunth. The capsule is three-celled and many-seeded. [T. M.]

PENTSTEMON. Herbaceous perennials belonging to the order *Scrophulariaceae*, characterised by having a rudimentary fifth stamen, from which the genus derives its name. In all the species the leaves are opposite. The handsome flowers, which grow in clustered panicles, are purple, blue, rose-coloured, white, pale yellow, or more rarely scarlet. The corolla is usually two-lipped oblong and tubular, in some species nearly campanulate. They are natives of America, and being very ornamental are much cultivated as border plants. [O. A. J.]

PEON. The Penang name for the straight spars of the Piney-tree, *Calophyllum angustifolium*.

PÉONE. (Fr.) *Pæonia*.

PEONY, or PIONY. *Pæonia*.

PEPERIDGE. *Nyssa aquatica*.

PEPEROMIA. An extensive genus of *Piperaceae*, abundant in Central and Southern America, and found also in the Sandwich Islands, in the Islands of the Pacific, in Southern Africa, and in the East Indies. They differ considerably in habit and general appearance, according to the situation in which they grow. The majority are small fleshy creeping plants, growing on trunks of trees or on damp rocks; others are erect, of a more or less shrubby character, and are terrestrial in their habits. The branches and leaves vary much in their arrangement; the latter are usually fleshy and stalked, rarely membranous, smooth or hairy, ribbed, green or coloured, occasionally with glandular dots. The spikes of flowers are variously disposed; the flowers scattered or crowded, with leafy and deciduous, or fleshy and persistent bracts, and perfect, each with two free stamens. Ovary ovate, with a roundish warty or somewhat bush-like stigma. Fruit sessile, or tapering at the base into a kind of stalk. Several species are cultivated for the sake of their foliage and as objects of curiosity rather than beauty, though the foliage of some and the graceful slender spikes of others render them desirable inmates of the stovehouse. [M. T. M.]

PEPINO A Spanish name for *Cucumis edulis*.

PEPLAMOOR. An Indian name for the Long Pepper.

PÉPLIDE. (Fr.) *Euphorbia Chamæsyce*.

PEPLIS. An unpretending herbaceous aquatic belonging to the *Lythraceæ*, common in brooks and watery places on a gravelly or sandy soil in many parts of England. The stems, which are of a reddish hue, are prostrate, branched at the base, and only a few inches long; bearing in the axils of the upper leaves, which are smooth and obovate, inconspicuous flowers. *P. Portula*, or Water Purslane, occurs over the greater part of Europe. There are no other species worthy of notice. French, *Pépide*; German, *Hipfelblume*. [C. A. J.]

PEPO, PEPONIDA, PEPONIUM. A one-celled many-seeded inferior fruit, with parietal placentæ, and a pulpy interior, such as a Gourd.

PEPON. An Italian name for the Water Melon.

PEPPER. *Piper*. —, **AFRICAN.** *Habsetia aromatica*. —, **ANISE.** *Xanthoxylon manthuricum*. —, **BELL.** *Capcium grossum*. —, **BETEL.** *Chavica Bette*. —, **BIRD.** *Capcium baccatum*. —, **BITTER.** *Xanthoxylon Daniellii*. —, **BLACK.** *Piper nigrum*. —, **BONNET.** *Capcium tetragonum*. —, **BOULON.** *Habsetia ethiopica*. —, **CAYENNE.** A condiment prepared from the dried powdered fruits of several species of *Capcium*, as *baccatum*, *frutescens*, *annuum*. —, **CHINESE.** *Xanthoxylon piperitum*. —, **CUBE.** *Cubeba officinalis*. —, **ETHIOPIAN.** *Habsetia ethiopica*. —, **GOAT.** *Capcium frutescens*. —, **GUINEA.** *Habsetia ethiopica*; also *Capcium annum*, and a name for Cayenne Pepper. —, **JAMAICA.** *Eugenia Pimenta*. —, **JAPANESE.** *Xanthoxylon piperitum*. —, **JAVA.** *Cubeba officinalis*. —, **LONG.** The fruit-spikes of *Chavica officinarum* and *C. Roxburghii*. —, **MALAGHATTA.** *Habsetia ethiopica*. —, **MALAGUETTA** or **MELEGUETTA.** *Amomum Melegueta*. —, **MONKEY.** *Habsetia ethiopica*. —, **MOUNTAIN.** The seeds of *Capparis stueckii*. —, **NATIVE**, of New Holland. *Tasmantia aromatica*. —, **NEGRO.** *Habsetia ethiopica*. —, **POOR MAN'S.** The provincial name of *Lepidium latifolium*. —, **STAR.** *Xanthoxylon Daniellii*. —, **WALL.** *Sedum acre*. —, **WATER.** *Polygonum Hydropiper*, and *Elatine Hydropiper*. —, **WHITE.** The seeds of *Piper nigrum* deprived of their skins. —, **WILD.** An Indian name for the fruits of *Vitex trifolia*.

PEPPER-BRAND. The same as Bunt.

PEPPERBUSH, SWEET. An American name for *Olethra*.

PEPPERCOORN. *Vibria*.

PEPPER-CROP. *Sedum acre*.

PEPPER-DULSE. The common name of *Laurencia pinnatifida*, sometimes eaten

in salads, but very inferior in point of quality to some other kinds of esculent seaweeds. [M. J. E.]

PEPPER-ELDER. A West Indian name for *Peperomia*, *Encelia*, and *Arianthe*.

PEPPERMINT. *Mentha piperita*. —, **AUSTRALIAN.** *Mentha australis*. —, **SMALL.** *Thymus Piperella*. —, **TASMANIAN.** *Eucalyptus amygdalina*.

PEPPERMINT-TREE. *Eucalyptus amygdalina*, and *E. piperita*.

PEPPER-POT. The man-dram, a West Indian appetizing preparation of capsicum, ochro, and other ingredients.

PEPPER-ROD. *Oroton humilis*.

PEPPER-ROOT. *Dentaria diphylla*.

PEPPER-TREE. *Schinus Molla*. —, **AUSTRALIAN.** *Drimys aromatica*. —, **SAN FRANCISCO.** *Schinus Molla*.

PEPPERWORT. *Lepidium*; also *Dentaria diphylla*.

PEPPERWORTS. Lindley's name for the *Piperaceæ*.

PER. When prefixed to Latin terms increases their force, as *persimilis* = very like.

PÉRAGU. (Fr.) *Clerodendron*. —, **À FEUILLES EN CŒUR.** *Clerodendron infortunatum*.

PERAMA. A genus of tropical American annual plants belonging to the *Cucuronaceæ*. The stems are simple or branched, covered with straggling hairs, and having opposite or ternate sessile leaves, united at the base. The flowers are in terminal heads or spikes, with or without bracts; calyx-limb with only two leafy segments in front, the hinder ones being wanting; corolla funnel-shaped, hairy within, provided with three small scales, the limb divided into three or four ovate acute segments; stamens slightly protruding from the tube, the anthers bearded at the base; ovary with three compartments, each containing a single ovule, the style slender, and the stigma divided into two teeth. Fruit capsular, surmounted by the persistent segments of the calyx and opening by a transverse slit, so as to detach the upper portion of the capsule from the lower, like a lid from a box. [M. T. M.]

PERAMAN. A resin obtained from a species of *Moronebea* by the Orinoco Indians.

PERANEMA. A genus of polypodaceous ferns typical of the *Peranemæ*, and sometimes known by the name of *Sphaeropteris*. The only species is a large tripinnate Indian fern, with stout roundish rhizomes, and herbaceous fronds bearing globose involucre sori, but distinguished from all the other genera with sori of this character by having the involucre distinctly stalked. It has the veins free. [T. M.]

PERAPETALUM. The shaggy covering of such flowers as *Menyanthes*.

PERAPHYLLUM. A membranous expansion of the calyx formed after the fruit begins to ripen, or from the beginning.

PERAPHYLLUM. A low scrubby much-branched shrub, from the Blue Mountains of North west America, with rigid lanceolate much-crowded leaves terminating the branches. It forms a genus of *Rosacea*, allied in many respects to *Amelanchier*, but the fruit contains two or sometimes three almost distinct carpels.

PERCE-FEUILLE. (Fr.) *Bupleurum rotundifolium*.

PERCE-MOUSSE. (Fr.) *Polytrichum*.

PERCE-MURAILLE. (Fr.) *Parietaria*.

PERCE-NEIGE. (Fr.) *Galanthus nivalis*; also *Leucocoryn vernum*, and *Primula veris*.

PERCE-PIER. (Fr.) *Alchemilla arvensis*.

PERCE-PIERRE. (Fr.) *Crithmum maritimum*. — **DES CHAMPS.** *Alchemilla arvensis*.

PERLEBEA. An imperfectly known genus of *Actinopaceae*, represented by a tree, native of Guiana, which has alternate leathery serrated leaves, the younger ones being concealed within the convolute stipules. The flowers are dioecious. The males are undescribed; the females are placed upon a leathery receptacle, scaly on the outside, at first concave but ultimately reflexed, and have a tubular four-toothed perianth, a free ovate ovary with a terminal cylindrical style, and a two-lobed stigma. Fruit one-seeded, surrounded by the succulent perianth. [M. T. M.]

PERILLE DAUVERGNE. (Fr.) *Lecanora parella*.

PERENNIAL, PERENNANS, PERENNIS. Lasting for several years, and yet flowering every year.

PÉREPÉ. (Fr.) *Clusia*.

PERESKIA (sometimes written *Pierescia*) A genus of *Cactaceae*, unlike the rest of the order in that several of its species have broad flat veiny leaves like those of other plants, while the remainder have fleshy cylindrical or partially flattened leaves. The genus contains about a dozen species, a few of which are tree-like and have woody stems; but the majority are shrubs with fleshy stems, and round branches armed with tufts of spines, and bearing terminal solitary or clustered flowers, frequently upon short stalks. The calyx-tube is equal with the ovary, and divided into leafy segments, and the petals are broad and expanded in a rose-like manner; the stamens are numerous, free, and shorter than the petals, and the thread-like style bears a many-rayed stigma. The fruits are pear or egg-shaped, with a broad scar at the top surrounded by the leafy segments of the calyx.

In the West Indies, where it is indige-

nous, *P. aculeata* is called the Gooseberry shrub or Barbados Gooseberry. It grows about fifteen feet high, the stem armed with bundles of straight spines, and having trailing branches bearing oblong elliptical leaves and bunches of ornamental white flowers, which produce yellow eatable and pleasant-tasted fruits, used in the West Indies for making preserves in the same way that gooseberries are with us.

P. Bleo is called *Bleo* by the natives of New Grenada, in which country it is indigenous. It is a shrub growing eight or ten feet in height, with rather soft fleshy leaves about five or six inches long, of an elliptical form, sharp-pointed at the top, and tapering to the base; and handsome rose-coloured flowers, with ten petals in two series, the inner of which are the largest and deepest-coloured. The leaves are eaten as salad in Panama. [A. S.]

PERFECT Complete in all the usual parts.

PERFOLIATE. When the two basal lobes of an amplexicaul leaf are united together, so that the stem appears to pass through the substance of the leaf.

PERGAMENEUS. Having the texture of parchment.

PERGULARIA. Twining shrubs inhabiting India, the Moluccas, and Madagascar, having broad ovate or cordate leaves, and interpetiolar cymes bearing greenish or yellowish flowers, generally highly scented, constitute this genus of *Asclepiadaceae*. The calyx is five-cleft, the corolla hypocrateriform, and the fruit smooth and ventricose. *P. odoratissima*, termed *Liane Tonguin* in Mauritius, *Malatti Tunkat* in Java, is a favourite in our botanica on account of its green sweetly scented blossoms, and is indigenous to the East Indies and Java. Together with *P. minor, montana, pallida, coronandehana, accedens*, and *bifida*, it yields a blue dye. The young leaves of *P. edulis* are eaten as a potherb in Japan. *P. sanguinolenta*, from the West Coast of Africa, yields a kind of dragon's-blood, with which the dragon's-blood of commerce is adulterated. [B. S.]

PERI. In Greek compounds = around, or placed on something surrounding some other part.

PERI. The root of *Gustrodia Cunninghamii*.

PERIANTH. The calyx and corolla combined; that is to say, when they look so much alike that they cannot be readily distinguished, as in a hyacinth.

The same term is applied, among liverworts, to the membranous covering, consisting of one or more pieces, immediately surrounding the archegonium or volt which contains the ripe capsule. The perianth is sometimes wanting, and replaced by certain scales which are termed involucre. The involucre and perianth coexist sometimes in the same plant, showing that they are distinct from each other. [M. J. B.]

PERIANTHOMANIA. An unnatural multiplication of sepals, bracts, &c. Examples are afforded by the wheat-ear carnation, the curious sweetwilliam figured below, and the hose-in-hose primrose.



Dianthus barbatus in a state of Perianthomania. In most cases the fertility of the plant is affected, and sometimes all attempt at the production of stamens and pistils is abortive. [M. J. B.]

PERIBLEMA *cuspidata* is the only representative of a genus of doubtful affinity, but provisionally classed with *Bignoniaceae* or *Crescentiaceae*. It is a native of Madagascar, is shrubby, has opposite simple and entire leaves, and axillary pedicels producing from one to three flowers. Its fruit is unknown. The calyx is five-cleft, and surrounded by a membranaceous rather inflated involucre; the corolla is funnel-shaped and five-lobed; the stamens four in number, the anthers glabrous; and the ovary two-celled, each cell enclosing but two ovules. [B. S.]

PERICARP. The shell or rind of all fruits, taken as a whole. When it separates into layers, each layer may have a different name, but the whole is still the pericarp.

PERICARPIAL, or PERICARPIO. Of, or belonging to, a pericarp.

PERICARPIUM. The peridium of certain fungi.

PERICHÆTIUM (adj. **PERICHÆTIAL**). A collection of minute leaves surrounding the base of the seta of a moss.

PERICLADIUM. The dilated sheathing base of some petioles, especially among umbellifers.

PERICLINIUM. The involucre of composites.

PERICLINOIDES. A false involucre formed of paleæ of the receptacle in composites, surrounding the sides of an elevated receptacle having florets at its summit, as in *Eruc.*

PERICLISTIA. Two shrubs collected by Martius in French Guiana were formerly described by Mt. Benthams as constituting a new genus, "allied in some respects to *Viola*, in others perhaps to *Saxifraga*." They have since, however, been placed in the Violaceous genus *Paysonia* (which see), to which one of them had indeed been originally referred. They have alternate entire leaves, and terminal flowers. [J. Br.]

PERIDERM. The outer cellular layer of bark, below the epidermis.

PERICLYMENUM, *Lonicera Periclymenum*.

PERIDIOLUM, A membrane by which the spores of some algae are immediately covered; also the diminutive of *Peridium*, a secondary and interior peridium.

PERIDIUM. A term used for the outer coat or coats of certain *Fungi*, especially in the puffballs and other closely allied natural orders. In the puffballs and *Podaxi* it is composed of interlaced threads with an admixture here and there of cells; and in these occasionally, as universally in the *Phalloides*, the component threads are in parts highly gelatinous. In the myxogastres it is composed apparently of an amorphous substance which becomes gradually indurated and brittle, with a strong admixture in many cases of carbonate of lime. In such genera as *Geaster* the outer peridium is thick and composed sometimes of two separable coats, while in *Broomelia* it is represented by a thick corky stratum. In *Lycoperdon* it is resolved into warts, spines, or other excrescences, which are often intimately connected with the inner coat. In *Oryza*, which belongs to another series, it is simple and composed of threads and not of cells, as is the case with most perithecia. [M. J. B.]

PERIGONE, PERIGONYUM. Usually the same as *Perianth*.

PERIGYNIUM. The hypogynous setæ of sedges; the flask-like calyx in which the ovary of *Carex* is included; also the hypogynous disk of other plants.

PERIGYNOUS. Growing upon some part which surrounds the ovary, usually the calyx, though sometimes the corolla is also included within the meaning.

PERILLA. A genus of *Labiata*, having the calyx bell-shaped, unequally two-lipped, the upper three-cleft, the middle piece smallest; and the corolla about as long as the calyx, with its border in five nearly equal pieces. *P. nankinensis*, an annual species with deep purple leaves, is much used in the summer decoration of modern flower-gardens. [G. D.]

PERILOMIA. A genus of *Labiata*, distinguished by having the border of the corolla with its upper lip slightly bifid, the lower in three pieces, the middle of which is largest and notched, the others short and spreading; and the fruit dry, with a wing-like membranous border. The species are herbs or shrubs, natives of Peru and

Mexico, with solitary flowers springing from the axils of the ovate leaves. [G. D.]

PERINTEGER. Perfectly entire, or undivided.

PERIPHERIC. Of or belonging to circumference.

PERIPHERICO-TERMINAL. Belonging to the circumference and apex of a body; a term applied to stems which grow both at the sides, augmenting their diameter, and at the end, increasing their length.

PERIPHYLLIA. The hypogynous scales of grasses.

PERIPLOCA. A genus of *Asclepiadaceae*, inhabiting Southern Europe and tropical parts of Africa and Asia, and consisting of about half a dozen twining with ovate or lanceolate leaves, or without any leaves whatever. The flowers are arranged in axillary cymes. The calyx is five-cleft, the corolla rotate, and the fruit cylindrical and smooth. The milk of *P. græca*, a plant common in the hedges of Southern Europe and an inmate of our gardens, has been employed in the East for poisoning wolves. *P. linearifolia* is the Domalvo of Abyssinia. The roots of *P. vomitoria* and *P. ciliata*, two little-known plants, are used as emetics in Malabar; whilst a decoction of those of *P. viridiflora* is employed in the same country in ophthalmia, and the leaves for swollen feet. For other useful species formerly classed with *Periploca*, see *HEMIDESMUS* and *CAMPTOCARPUS*. [B. S.]

PERIPTEROUS. Surrounded by a wing-like expansion.

PERISPERM. The skin of a seed. Also the same as Albumen; thus *perispermic* is furnished with albumen.

PERISPORANGIUM. The indusium of ferns when it surrounds the spore-cases or sori.

PERISPORIACEI. A natural order of ascigerous *Fungi* characterised by the receptacles or perithecia being always closed except in decay, and the nucleus never softening into a gelatinous mass as in *Sphaeriacei*. The asci are generally large, and sometimes solitary, and the sporidia less frequently eight or indeed definite than in neighbouring natural orders. The curious mycelium has been noticed under *Erysiphe*, now divided into several distinct genera. Most of the species are true parasites. See also *ORDIUM*. [M. J. R.]

PERISPORE, PERISPORIUM. The hypogynous setae of sedges; also the skin of a spore.

PERISTACHYUM. The glumes of grasses.

PERISTERIA. A genus of *Orchidaceae*, named from the Greek word *peristern*, a dove; the original species, *P. elata*, being known in Panama by the name *El Espíritu Santo*, the Holy Ghost or Dove plant, in consequence of the resemblance of the

column of the flower to a dove hovering with expanded wings, somewhat like the conventional dove seen in artistic representations of the Holy Ghost. Three other species are known; and several others have been referred to the genus, but are now placed in *Acineta*. All have fleshy pseudobulbs, large plicate leaves, and radical many-flowered scapes, with handsome nearly globular fleshy flowers. Their sepals are concave and connate at the base, and the petals resemble them, except that they are a little smaller; the lip has its lower half continuous with the column and sagittate at the base, and its upper half articulated with the lower, undivided, and bent down over the face of the column, which is short, fleshy, and wingless, and the two pollen-masses are furrowed, and sessile on a narrow gland.

P. elata, the Dove plant, has striated green pseudobulbs, as large as swan's eggs, bearing three to five lanceolate strongly ribbed and plicate leaves, sometimes upwards of a yard high and six inches across. Its flower-stem rises from the base of the pseudobulbs, and attains a height of from four to six feet; its upper portion, for about a third of its length, being occupied by a spike of almost globose very sweet-scented flowers, each about an inch and a half across, and of a creamy-white, with little lilac specks on the base of the lip. [A. S.]

PERISTOME. When the lid breaks off from the capsule of a moss, the edge of the cup is either naked, or is fringed with one or more whorls of variously fashioned teeth (the peristome), the outer of which is continuous with the inner layer of cells constituting the wall of the capsule, which is separated from the spore-cyst by a cavity traversed by a few articulated threads—the inner from the outer layer of cells in the spore-cyst. The tissues of this latter generate the spores, leaving mostly a barren cylinder in the centre, which is called the columella. The teeth consist of one or more layers of cells, and are mostly transversely articulate, and often striate longitudinally. They are usually definite in number, being four or multiples of four. They are variously combined, and often have transverse processes like little projecting beams on the inner side, called 'trabeculae'. The teeth of the inner whorl may be separate, or connected at the tips and joined together by a common plicate membrane. Other modifications occur, and there is often a deciduous external ring of cells at the line of dehiscence of the capsule. [M. J. B.]

PERISTROPHE. A genus of *Acanthaceae* containing a score of species, natives of India. They are herbs, with showy purple flowers included in a two-valved involucre, and arranged in axillary and thin terminal umbels. The calyx is five-cleft; the corolla two-lipped and resupinate, its lower lip being uppermost and three-toothed, the upper one entire or two-toothed; there are two stamens, with narrow two-celled anthers; and the capsule is two-celled with a

long flattened seedless lower portion and four-seeded above.

[W. O.]

PERISTYLUS. According to Lindley the species of orchids collected under this genus, of which there are upwards of twenty, have all the characters of *Platanthera*, except that, instead of a galeate perianth and long slender spur, their calyx is always campanulate, and the spur very short and often pouch-like. Most of the species belong to the temperate regions of the northern hemisphere; but a few are found within the tropics, principally in Ceylon, Java, and the Mascaren Islands. Nearly all have at one time or other been referred to other genera, such as *Hermidium* and *Habenaria*; and the two British species, *P. albidus* and *P. viridis*, are to be found under the latter genus in many of our local floras. [A. S.]

PERITHECIA. A word used to indicate those kinds of cysts or capsules which contain asci, and therefore not strictly applicable to those which merely give rise to sporophores producing naked spores. The Messrs. Tulane have proposed for these the name of 'pycnidia,' and for the fruit that of 'stylospores.' Perithecia are of various colours, as yellow, blue, red, black, &c., and are mostly more or less decidedly cellular in structure, their walls being of greater or less density and thickness, and more or less decidedly different from the substance in which they are immersed when a stroma is present. In consequence, it is sometimes impossible to distinguish them from the stroma; and for this reason, in *Dothidea* the ascleterous cavities are called cells and not perithecia, the only distinctive mark of the genus. In some cases a third kind of cyst occurs in *Sphaeria* and some other genera, which contains naked bodies supposed to have the function of pollen-grains. In this case the cysts are called 'spermatonia,' and the enclosed bodies 'spermata.' [M. J. B.]

PERITROPAL. Directed horizontally as regards the axis of a fruit.

PERIWINKLE. *Vinca*.

PERLERIA. A name given by Martins to a Brazilian leguminous tree, common in the province of Minas Geraes, and differing from *Leucaena* in the division of the pod by transverse partitions between the seeds. Benthams and Hooker, after examination of a typical specimen, refer it to the section *Paulectis* of that genus.

This name has also been given by De Candelles to an umbelliferous plant, which is considered by the same authors as a species of *Prunella*.

PERLIÈRE. (Fr.) *Guaphalium*.

PERMAYHUTIE. An Indian name for the Malabar Catmint, *Antonieles malabarica*.

PERNAMBUCO-WOOD. *Cassipouira echinata*.

PERNETTIA, or PERNETTIA. A genus of heathworts, distinguished by the presence of ten glands alternating with the stamens; by the convex and

slightly five-lobed stigma; and by the three-celled fruit, each cell with many seeds. The species are small branched evergreen shrubs, with alternate leaves, and drooping white flowers. They are found in Peru and Mexico, and about the southern extremity of South America. The name was given in honour of Pernetty, a French navigator. [G. D.]

PÉROLE. (Fr.) *Centaurea Cyanus*.

PERONATE. Laid thickly over with a woolly substance, becoming a sort of meal.

PERONOSPORA. A genus of naked-spored moulds, separated from *Botrytis* by Corda on very insufficient grounds, but in later times proved by Cansary and others to exhibit such characters as render its separation imperative. The mycelium or hyphasma (as it is often called) creeps amongst the loose tissue of living leaves, and rapidly causes its destruction. From the mycelium, erect threads are given off, and make their way into the surrounding air through the stomates. These threads are mostly inarticulate, and more or less branched and often forked above, and have at their tips large generally ovate spores. Amongst the threads of the mycelium globose sacs are produced, containing a single spore. This structure has, however, been observed in a few species only. *Peronospora* are most active agents in the destruction of vegetables, and it is to the ravages of *P. infestans* that the potato murrain is due. The endochrome of the spores has lately been observed to be converted into zoospores, which in wet weather very rapidly extend the ravages of the murrain. This species differs from all others in the curious swellings which exist on the upper branches. A species of *Peronospora*, apparently *P. arborescens*, has lately been injurious to poppy crops in India. [M. J. B.]

PEROTIS. A genus of grasses belonging to the tribe *Agrostideae*. The inflorescence is in nearly simple spikes, with one flowered spikelets. There are about half-a-dozen species, natives of India, China, and New Holland. [D. M.]

PERPIGNAN-WOOD. A name under which the wood of *Celtis australis* is used by the French.

PERRETTE. (Fr.) *Citrus Limetta*.

PERROQUET. (Fr.) *Aistrioneria pittacina*.

PERROTTETIA. A genus of *Celastraceae*, consisting of unarmed shrubs, with alternate ovate serrate leaves, and minute flowers in slender axillary panicles. The calyx-lobes and petals are five each, the ovary is free and two-celled, with two erect ovules in each cell, and the fruit a small globose berry. There are four species known, from the mountains of New Grenada, Mexico, and the Sandwich Islands.

PERSEA. The Alligator Pear of tropical America, and its allies, form a genus of *Lauraceae*, characterised by their perfect flowers having a more or less downy six-parted calyx, which persists at the base of the fruit but at length falls away, the segments

being either unequal or nearly equal; and twelve stamens in four series, the inner one of which is sterile and the three outer fertile, with four-celled anthers, the inner series of fertile ones having two globular stalked glands at their bases. All the species are trees, with alternate entire arch-nerved leaves, and panicles of small flowers in clusters, producing large fleshy one-seeded fruits, supported upon a thickened stalk.

P. gratissima, the Avocado or Alligator Pear, is a common tree in tropical America and the West India Islands, where it attains the height of twenty-five or thirty feet. It has elliptical leaves, narrow towards the base and about six inches long, and bears large pear-shaped fruits covered with a smooth brownish-green or deep-purple skin. These fruits are highly esteemed in the West Indies and tropical America, though strangers at first do not relish them. They contain a large quantity of firm pulp possessing a buttery or marrow-like taste, and are hence frequently called Vegetable Marrow or Midshipman's Butter. It is usually eaten with spice, lime-juice, or pepper and salt. An abundance of oil, useful for illuminating purposes and for soapmaking, may be obtained from the pulp by expression. The seeds yield a deep indelible black stain, and are used for marking linen. [A. S.]

PERSIAN-BERRIES. The seeds of *Rhamnus infectoria*.

PERSICA. The Peach, *Amygdalus Persica*.

PERSICARY. *Polygonum Persicaria*.

PERSICAIRE. (Fr.) *Polygonum*. — **DU LEVANT.** *Polygonum orientale*.

PERSIL, or **P. COMMUN.** (Fr.) *Petroselinum sativum*. — **A LARGES FEUILLES.** *Petroselinum peregrinum*.

BÂTARD. *Caucalis latifolia*. — **D'ÂNE.** *Anthriscus sylvestris*. — **DE MACÉDOINE.** *Athamania macedonica*. — **DES MARAIS.** *Apium graveolens*. — **DES MONTAGNES.** *Athamania*; also *Ligusticum Levisticum*. — **FRISÉ.** Curled Parsley — **SAUVAGE.** *Anthriscus vulgaris*.

PERSIMMON. *Diospyros virginiana*.

PERSISTENT. Not falling off, but remaining green until the part which bears it is wholly matured: as the leaves of ever-green plants.

PERSONATÆ. A name given by Linnaeus to a natural order embracing certain plants which have irregular gamopetalous or monopetalous corollas: such as figworts, verbenas, bignonias, &c.

PERSONATE. A term applied to a monopetalous corolla, the limb of which is unequally divided: the upper division or lip being arched, the lower prominent and pressed against it, so that when compressed the whole resembles the mouth of a gaping animal; as the corolla of *Anthriscum*.

PERSOONIA. An extensive genus of

Proteaceae, distinguished by having a calyx of four equal sepals, sometimes only four-cleft, thickened at the base, which occasionally is enlarged into a small sac; by having a stamen inserted on the middle of each sepal or segment; by its filiform style, generally longer than the stamens, straight or curved, with an obtuse stigma; and by its one or two-celled fruit being a drupe, with a leathery covering, and having a single seed in each cell. The flowers are generally solitary, but at times are produced in terminal spikes, often clothed with brownish hairs. The leaves are scattered, leathery in texture; needle-shaped as in *P. microcarpa*, *pinifolia*, *tenuifolia*, and *Chamapitys*; linear as in *P. molle* and *longifolia*; lanceolate as in *P. angulata* and *daphnoides*; obovate as in *P. elliptica*, *marginata*, *velutina*, and *cornifolia*; and oval and acuminate as in *P. Cunninghamii*. They form trees or large shrubs, and are found in most parts of Australia. One species, *P. Toro*, a lofty tree, is found in New Zealand. [R. H.]

PERTUSARIA. A genus of lichens belonging to the natural order *Endocarpet*, which are characterised by a pale single or double perithecium piercing the horizontal thallus by a distinct ostium. *Pertusaria* is distinguished by the perithecia being sunk several together in wart-like processes, while in *Porina*, separated from it—the species of which are inhabitants of warm climates, while those of *Pertusaria* belong more especially to the temperate zones—the perithecia are solitary. *Pertusaria* has large sporidia, which become blue when treated with iodine. *P. communis* is one of our commonest lichens on the trunks of trees. When barren, the mealy disks called soredia, which are so common on lichens, abound to such a degree that it assumes a totally different habit, and with some other metamorphosed species constitutes the spurious genus *Variolaria*. This again, especially on old trunks, spreads with the growth of the bark for many inches, and the soredia predominating over the crust it assumes the name of *Lepraria*. [M. J. B.]

PERTUSE. Having slits or holes.

PERULE. The covering of a leaf-bud formed by scales; also a projection in the flower of orchids formed by the enlargement of two lateral sepals. See **MERTUM**.

PERVENCHE. (Fr.) *Vinca*. — **DU CAP.** *Vinca rosea*. — **GRANDE.** *Vinca major*. — **PETITE.** *Vinca minor*.

PERVILLEÆ. A genus of *Asclepiadaceæ*, consisting of only one species, *P. tomentosa*, a Madagascar twiner, with opposite broad oval or obovate leaves, tomentose on the under-surface, and cymose flowers, of a yellowish colour blotched with purple. The calyx is five-cleft, the corolla rotate, and the fruit oblong, covered with woolly hair, and enclosing comose seeds. [B. S.]

PISCATOREA. This genus of prebids was founded upon a species from Veraguas,

originally referred to *Huntleya*, and another from New Grenada was afterwards added to it; but it is now abandoned as a genus by its author, Dr. Reichenbach, and is reduced to a section of *Zygopetalum*, distinguished from the other sections of that genus by its slender semiterete column with a triangular ear on each side at its base, and its lip with a replicate limb, and a thick broad numerously plaited and folded crest near its base. [A. S.]

PESSETTE. (Fr.) *Olecr arletinum*.

PESOMERIA *tetragona*. An orchid from the Isle of Bourbon, belonging to the *Blepharidodendron* division of *Epidendrea*, remarkable on account of its deciduous bracts and sepals, which fall off spontaneously soon after the flower expands. Its sepals and petals are almost alike in shape, size, and colour; the lip is undivided, cucullate, parallel with and partly surrounding the column, with the lower part of which it is adnate and forms a slight protuberance at the bottom; the column is semiterete and thickened upwards, with a four-toothed anther-bed; and the pollen-masses four, unequal and bifid. The plant is terrestrial, and has sharply four-cornered jointed stems a foot or more high, broad membranous long-pointed leaves, and lateral peduncles bearing a loose spike of eight or ten largish flowers, of a reddish-brown internally and greenish externally, except the lip, which is yellow streaked with orange-red. [A. S.]

PESSALOO. An Indian name for *Phascolium Mungo*.

PESSE. (Fr.) *Abies excelsa*; also *Hippuris*. — D'EAU. *Hippuris vulgaris*. — DU CANADA. *Abies canadensis*.

PESTALOZZIA. A very curious genus of contomycetous *Fungi*, consisting of large septate spores springing from an obscure mycelium, and crowned with two or three delicate hyaline short threads proceeding from the same point. They form little dark specks on leaves, as of oranges, camellias, &c. A few years since some leaves of camellias were sent to us, with a view to ascertain the nature of a little parasite which was doing immense damage in one of our first-rate nurseries. The fungus was clearly *P. Guepinii*, and as the genus had not before occurred in England, we were anxious to ascertain the origin of the camellias. As we suspected, they had been obtained from Italy, and no doubt the pest had been imported with them. This little history is important as showing how easily new diseases may be introduced from abroad, and consequently as it bears on the vexed question of the origin of the potato and vine diseases. The same name has been given by Zollinger to a cucurbitaceous genus, near *Telfairia*. [M. J. B.]

PESTILENCE-WEED. *Tussilago Petasites*.

PETALOMANIA. An unnatural multiplication, repression, or alteration of petals. Each flower has its proper number of pe-

tals, which can be increased only by some cause, the consequences of which must be characterized as disease. All double flowers, therefore, which arise from multiplication of petals, must be regarded as diseased, however they may be prized by the florist, and the more so as the tendency is mostly to check fertility. Repression or extreme diminution of petals, as in many species of *Stene* and allied genera, though not affecting fertility, must be referred to the same head. How far the changes which occasionally take place in such genera as *Catanthos* amongst the orchids, by means of which three different types are exhibited in the same spike or truss, are due to diseased action or not, is at present uncertain. The same remark applies to the occurrence of regular or (as they are called) polioroid flowers in *Antirrhinum* and other plants. [M. J. B.]

PETALOSTYLE. An Australian genus of *Leguminosae*, comprising a shrub with pinnate leaves, and axillary clusters of yellow flowers. Calyx of five equal pieces; petals five spreading, nearly equal; filaments five, three fertile, two without anthers; ovary few-seeded, terminated by a large petaloid three-lobed style. [M. T. M.]

PETALS. The divisions of the corolla, when they are not united to each other by their edges.

PETALINE, PETALOID, PETAL-LIKE. Having the colour and texture of a common petal.

PÉTANIELLE. (Fr.) *Triticum turgidum*. — ROUSSE. A kind of *Triticum*.

PETARKURA. An Indian name for the seeds of *Gynocardia odorata*.

PETASITES. A genus of *Compositae*, established for three or four species of *Tussilago*, which have the flower-heads partially diocious in racemes, sometimes branching into panicles. The essential characters which separate them from the common coltsfoot with one-headed scapes are very slight; and the foliage is the same. They are all European, and one species, *P. vulgaris* or *Tussilago Petasites*, is frequent in sandy meadows on the banks of streams in England, and known under the popular name of Butterbur.

PET D'ÂNE. (Fr.) *Onopordon*. — DE LÉOPARD. *Doronicum*. — DU DIABLE. *Hura crepitans*.

PETER'SWORT. A West Indian name for *Ascyrum hypericoides*.

PETIOLENEOUS. Consisting of petiole only.

PETIOLAR, PETIOLACEOUS. Inserted upon the petiole; as *cirrhus petiolaris*, a tendril inserted on a petiole.

PETIOLE (adj.) **PETIOLATE.** The stalk of a leaf. —, **COMMON.** The first and principal leafstalk in compound leaves;

when they have secondary or tertiary petioles, these are called partial.

PETIOLULAR. Of or belonging to a petiole.

PETIOLULES (adj. **PETIOLULATE**). Petioles of a second degree; that is, partial petioles, such as belong to the leaflets of compound leaves.

PETIT ABSINTHE. (Fr.) *Artemisia pontica*. — **BASILIC.** *Ocimum minimum*. — **CERISIER DES HOTTENTOTS.** *Castanea lucida*. — **CORAIL.** *Cratogeomys corallina*. — **CYPRESS.** *Santolina Chamæcyparissus*. — **CYTISE.** *Cytisus sessilifolius*. — **ÉPEAUTRE.** *Triticum monococcum*. — **FLAMBE.** *Iris pumila*. — **HOUX.** *Ruscus aculeatus*. — **LISERON.** *Convolvulus*. — **MARCEAU.** *Salix aurita*. — **MUGUET.** *Asperula odorata*. — **PASSE-RAGE.** *Lepidium graminifolium*. — **POIS.** *Pisum sativum*. — **SOLEIL.** *Helianthus multiflorus*.

PETITE BOURRACHE. (Fr.) *Omphalodes verna*. — **BUGLOSSE.** *Lycopsis arvensis*. — **CHÉLIDOINE.** *Ficaria ranunculoides*. — **CHÈNE.** *Teucrium Chamædrys* and *Veronica Chamædrys*. — **CIGUË.** *Æthusa Cynapium*. — **CONSOUDE.** *Omphalodes verna*. — **DOUVE.** *Ranunculus Flammula*. — **ÉCLAIRE.** *Ficaria ranunculoides*. — **ENDIVE.** *Ochortum Endivia angustifolia*. — **ÉSULE.** *Euphorbia exigua*. — **JACINTHE.** *Hyacinthus non-scriptus*. — **MARGUERITE.** *Bellis perennis*. — **MAUVE.** *Malva rotundifolia*. — **ORTE.** *Urtica urens*. — **OSEILLE.** *Rumex Acetosella*. — **PERVENCHE.** *Vinca minor*. — **RADIAIRE.** *Astrantia minor*. — **SAUGE.** *Salvia hispanorum*. — **TITHYMALE.** *Euphorbia exigua*.

PETIT-BAUME. A West Indian name for a liquor obtained from *Croton balsamiferum*.

PETIT-GRAIN. An essential oil obtained from the fruit and leaves of *Citrus Bigaradia*.

PETIVERIACEÆ. (*Petiveria*.) A natural order of monochlamydeous dicotyledons belonging to Lindley's sapindal alliance of hypogynous Exogens. Undershrubs or herbs with a garlic-like odour, alternate entire stipulate leaves, and racemose or panicle flowers. Calyx polysepalous; no corolla; stamens indefinite, alternate with the calycine leaves; ovary superior, one-celled, with one style, and a lateral stigma; ovules erect. Fruit one-celled, indehiscent and dry, with a wing at the back. Natives of the West Indies and tropical America. There are three genera, and about a dozen species. [J. H. B.]

PETIVERIA. The four species of this genus typical of the *Petiveriaceæ*, all natives of tropical America, are erect branching undershrubs, with alternate entire glabrous minutely stipulate leaves, and long whip-like terminal and axillary spiked inflorescence, bearing very small remote sessile flowers, each with three bracts at

its base, the side ones of which are much smaller than the other. It is characterized by having a four-parted herbaceous calyx, by its fruit being armed with four to six subulate reflexed sharp bristles or spines, and by its seeds having thin eccentric albumen and a straight embryo. All the species are remarkable for possessing a garlic-like odour and more or less acidity. *P. alliacea*, a widely distributed species, extending from Carolina to Guayaquil and Rio Janeiro, called Guinea-hen Weed in the West Indies, and Raiz de Guiné in Brazil, is extremely acrid, and in the latter countries it is put into warm-baths to restore motion to paralysed limbs. [A. B.]

PETRÆA. A genus of *Verbenaceæ*, containing thirteen species of twining shrubs or small trees, natives of tropical America. They have opposite coriaceous leaves, and large violet flowers in showy loose racemes. The epicalyx is three-leaved persistent, and increases to a large alze around the fruit; it is coloured and united to the tube of the calyx, which is funnel-shaped with five teeth alternating with the leaves of the epicalyx; the deciduous corolla has a short cylindrical tube, and spreading limb divided into five roundish lobes; there are four included stamens inserted in the throat of the corolla, sometimes with the rudiment of the fifth; and the ovary is seated on a subcylindrical fleshy gynophore. The capsule is enveloped in the calyx, and covered by its bent-down teeth; it is two-celled, each cell containing a single large seed. [W. G.]

PETROCALLIS. A genus of *Cruciferae*, the only species of which, *P. pyrenaica*—a pretty little tufted perennial peculiar to alpine places in the Pyrenees, and growing in dense patches like some of our saxifrages—is placed in *Draba* by Hooker and Bentham. The stems, an inch or two high, are densely clothed with wedge-shaped lobed leaves, and terminate in a raceme of rather large purplish flowers which are followed by small oval swollen netted two-celled siliques, with one or two seeds in each cell. The prominent netted veins on the fruit together with cut leaves distinguish this plant from other species of *Draba*. [A. A. B.]

PETROPHILA. A large genus of *Proteaceæ*, having a regularly four-cleft calyx bearing on each of its segments a nearly sessile anther; a filiform style with a spindle-shaped stigma, generally constricted in the middle and articulated; and the fruit a nut containing a single seed, either winged or having hairy margins. The flowers grow in heads, rarely in spikes; the leaves are rigid, round, and filiform, or sometimes plane and lobed. They are large shrubs, natives of most parts of extratropical Australia, but principally of the southwestern portions. [R. H.]

PETROSELINUM. A genus of the order *Umbelliferae*, distinguished by having each half of the fruit with five equal narrow ribs; and one oil-vessel in each furrow, the

of junction having two. The plants—[indicated by Bentham and Hooker in *Curum*—herbaceous, chiefly natives of Eastern ope. *P. sativum*, now *Curum Petroselinum*, [the common potherb known as Parsley.] The name *Petroselinum* is said to have been derived from the Greek *petros*, a stone, from its being a native of rocky or stony places; but there is good reason to think that it had a widely different origin. Parsley has ever been an object of superstitious observances; for besides its being the assigned plant from beneath which came our brothers and sisters, we remember how it was always considered such ill-luck to transplant it, that but few people in the midland counties could be got to perform such an act. Mr. John Jones of Gloucester, who has published some interesting notes upon this subject, on asking a person to whom the order to remove a bed of parsley to another place had been vainly repeated, the reason for this neglect, received the following reply: 'He was quite willing to root it up and destroy it entirely, but transplant it he would not, nor did he know any one who would willingly take upon himself the consequences of such an act.' Mr. Jones thinks that it is probable this herb was dedicated to Persephone, as Queen of the Dead, presuming her to be identical with Hecate or Selene, the resemblance of its Greek name (*Selinon*) to that of the last-named divinity at once suggesting its direct derivation from her. The correctness of this supposition is supported by other etymological considerations, as thus—its Greek name being preserved with the prefix of Peter:—

Archaic Greek . . .	<i>Zelikon</i> .
Latin	<i>Petroselinum</i> .
Italian	<i>Petroselino</i> .
German	<i>Petersilie</i> .
French	<i>Perail</i> .
Welsh	<i>Perillya</i> .
English	<i>Parsley</i> .

These names our authority freely translates Peter's Moon-plant, and adds that the connection of the name of Peter with it is suggestive of the policy by which the prejudices of the rude people amongst whom Christianity was first introduced were met and modified, in the transference of objects of reverential regard from the tutelage of long-honoured Pagan divinities to that of Christian saints. Parsley, thus dedicated to funeral rites by the Greeks, was afterwards consecrated to St. Peter in his character of successor to Charon, and doorkeeper of Paradise.

We incline to believe in this archaeological derivation of the name, and more especially as superstition in connection with Parsley is widely spread over Europe, which accounts for the name being so much alike in different languages, as well as the reverential regard in which the plant itself is held.

[The Corn Parsley, *P. segetum*, a small white-flowered glabrous annual, with pinnate leaves, and very irregular flower-umbels, occurs locally on hedgebanks and in cornfields, chiefly in the South of England.] [J. B.]

PETROSUS. Growing in stony places.

PETTIGREE, or PETTIGRUE. *Baculus aculeatus*.

PETUNIA. A word modified from the Brazilian *petun*, tobacco, and applied to a genus of *Solanaceae* (or *Atropaceae*) in consequence of its affinity with the tobacco genus. The species are natives of South America. They have sticky leaves, and axillary solitary flowers, with a calyx of five spoon-shaped segments; a funnel-shaped or somewhat salver-shaped corolla, the limb spreading and five-lobed; five included stamens of unequal length; and an ovary with two compartments supporting a simple style, and button-like stigma. The fruit is a two-valved capsule, containing numerous seeds.

One or two species, with numerous varieties and hybrid forms, are common in gardens, where they are much used as bedding-out plants. The colour of the flowers is white or some shade of violet or purple, and latterly some have been introduced whose flowers are marked with purple stripes on a white ground. Some of the varieties are sweet-smelling. Double flowers are frequently met with, the doubled condition arising from the substitution of petals for stamens, and sometimes from the multiplication or increased number of the petals themselves. In one variety the margin of the corolla is green and leaf-like, the other portions being of a violet hue; in this variety the stamens are also frequently replaced by leaves, the filament of the stamen answering to the stalk of the leaf, while the anther is replaced by the blade. [M. T. M.]

PETWOOD. *Berrya mollis*.

PEUCEDANUM. A genus of the umbellifer family with each half of the fruit five-ribbed, the two lateral ribs indistinct, the other three narrow; and having one or two oil-cells in each furrow of the fruit. The species are smooth perennial herbs, having white, yellow, or greenish-yellow flowers. The genus has representatives in different parts of the world; and some of the species have occasionally been employed in medicine. A resinous secretion is yielded by certain of them. [G. D.]

PEUPLIER. (Fr.) *Populus*. — **BAUMIER.** *Populus balsamifera*. — **D'ITALIE.** *Populus dilatata*.

PEWTERWORT. *Equisetum hyemale*.

PEYREYMONDIA. A genus of *Cruciferae*, of the section *Schizopetalae*, comprising an annual herb from Chili, scarcely differing from *Schizopetalum*, except in having the embryo of the seed with two white cotyledons, which are incumbent and spatulate, thicker at the apex, the radicle dorsal and straight. [J. T. B.]

PEZIZA. A very large genus of ascomycetous *Fungi*. The hymenium lines the cavity of a fleshy membranous or waxy cup which, though sometimes closed at first, is always ultimately opened. The

species present an immense variety in respect of form, size, colour, and clothing, and are generally remarkable for elegance. Some are mere specks, while others are several inches across. They grow on the naked ground, and upon all sorts of decaying vegetable substances, a few being essentially inhabitants of the dung of animals. Some of the large species approach very near to *Helvetia*, and there is little doubt that such species as *P. acetabulum* are equally wholesome with the esculent *Helvetia*. A form of *P. cochlearia* is sometimes sold as a substitute for morels. Amongst the most conspicuous in this country are *P. aurantia*, which grows about the stumps of old felled oaks, and is of the brightest orange; *P. coccinea*, which grows on dead sticks supported by a decided stalk, is white externally and of a bright scarlet within; while *P. onotica*, which is ear-shaped, is of the most delicate orange inclining to rose-coloured. Many other species might be quoted of almost equal beauty, though scarcely so brilliant and attractive in point of colour. In a few there is a large tuberos root, which, like the tuber of a phanogam, lies dormant for a time, and two or three species are almost strictly subterraneous. The *Pezize* have their maximum in the temperate zones, but the tropics produce some exquisite species. [M. J. B.]

PFES. An Indian name for *Chamærops Rutchana*

PFEIFFERA. A name given to a genus of *Cutaceæ*, in honour of Dr. Pfeiffer, a German author of several works on that order of plants. The only known species, *P. cereiformis*, a native of Mexico, is an erect branching fleshy plant a foot or more in height, resembling a *Cereus* in general appearance, having a three or four-sided stem, and branches of the same shape, with the angles wavy, and bearing at short distances white downy cushions furnished with five to seven sharp bristly spines. The flowers are white tinged with rose-colour, and have two rows of erect segments, the outer ones or sepals being shorter and the inner lance-shaped and forming a funnel-shaped corolla; their numerous stamens are shorter than the corolla, and the columnar style bears a five or six-rayed stigma. The young berries are bluntly five-sided, with tufts of spiny bristles on the angles, but become globular (about half an inch in diameter), pellucid, and of a reddish-violet colour, crowned with the withered flower. [A. B.]

PHACA. A genus of *Leguminosæ*, long adopted as distinct from *Astragalus*, in that the partition—which, in the latter genus, almost or quite completely divides the pod into two cells—is reduced in *Phaca* to a slightly prominent rib, or at most projects halfway across the pod. A considerable number of American and a few European and Asiatic species were referred to it; but now that a much greater number of *Astragali* have been carefully examined, this difference in the pod is found to be in

many instances so vague, and always to bear so little relation to habit and other characters, that the species of *Phaca* have now all been reunited with *Astragalus*.

PHACELIA. Annual or perennial herbs, with branched tufted stems, incised leaves, and spikes of blue flowers, which when in bud are circinate like those of *heliotrope*. They belong to the *Hydrophyllaceæ*, and are marked by the fugacious corolla and two-celled capsule. All are natives of America. [*P. tanacetifolia*, an annual border-plant, is often cultivated for bees.] [C. A. J.]

PHACIDIACEÆ. A natural order of as-cigerous *Fungi* with a coriaceous or carbonaceous receptacle, and the disk at length exposed by the regular or irregular fissure of the outer coat. They are in fact *Helvetiaceæ* as far as the hymenium is concerned, and *Sphaeriaceæ* as regards the receptacle or perithecium. In the typical genus, *Phacidium*, the depressed receptacles burst above by a few angular lacinae. The finest and most common of our British species, *P. coronatum*, occurs on dead leaves in woods, and is often very pretty with its yellow disk surrounded by black teeth. *Hysterium* borders very closely on *Opegrapha*, as does the genus *Sphaeria* among the *Sphaeriaceæ* on *Verrucaria*. [M. J. B.]

PHACOCAPNOS. A genus of *Fumariaceæ* from the Cape of Good Hope, consisting of a climbing herb with the habit of *Corydalis claviculata*, but differing from that genus in having the seeds without a strophole at the hilum. [J. T. S.]

PHÆDRANASSA. A genus of *Amaryl-lidaceæ*, comprising a few bulbous plants of Peru and Quito. They have broadish ovate leaves, and terete scapes supporting an umbel of several drooping flowers. The perianth is tubular funnel-shaped, shorter on the lower side, the tube short, and the limb nearly erect, of spatulate convolute segments. There are six exserted stamens growing from the top of the tube; a straight style with simple clavate stigma; and a three-celled ovary with the ovules crowded in two rows in each cell. *P. chloracra* is a very handsome plant with flowers upwards of two inches long, the short tube green and the convolute limb segments purplish-rose, tipped with green. [T. M.]

PHÆOCARPOUS. Bearing a fruit which has no adhesion with surrounding parts.

PHÆOGAMOUS. Having manifest flowers.

PHÆO, PHAIOS. Prefixed to Greek compound = fuscous.

PHÆOCORDYLIS. *Rhopalocnemis*.

PHÆOCYST. The name given by De-caine to the Cytoblast.

PHÆOSTOMA. *Clarkia*.

PHAGNALON. A genus of the tribe *Asteræ* of *Compositæ*, readily recognised by its habit. Its essential character is

found in the uniserial pappus of rough hairs, which are eight in number in the outer female florets, and ten in the inner perfect ones. There are seventeen species, distributed chiefly over the Mediterranean region, the eastern limit being Tibet, and the western the Canary and Cape de Verd Islands. They are perennial herbs with a woody rootstock, from which, in most species, are given off a great number of unbranched shoots about a foot high, each terminating in a single flower-head, and the whole forming a compact rounded mass. The stems and the under surface of the leaves are clothed with white down, and the flower-heads generally contain many tubular yellow florets, but in a few species are corymbose, and purple. [A. A. B.]

PHAJUS. The original species upon which this genus of orchids was founded by Loureiro is a cultivated Chinese plant, and all the other eighteen or twenty since added are natives of the tropical and sub-tropical regions of the eastern hemisphere. They are tall erect mostly terrestrial plants, with great broad plicate leaves, and radical leafless scapes bearing a few large showy flowers. Their sepals and petals are nearly alike, mostly spreading, and free; the lip entire or three-lobed, broad and convolute round the column, with the base of which it is adnate and formed into a spur; the column is long, semicylindrical, and dilated at its apex; and the anther four or obsoletely eight-celled, and containing eight pollen-masses attached in fours to an elastic membrane. [A. S.]

PHALACRÆA. A genus of *Compositæ*, consisting of two or three South American herbs, nearly allied to *Ageratum*, but without any pappus to the achenes.

PHALÆNOPSIS. The species of this genus rank amongst the most beautiful of the numerous orchids known to cultivators in this country. For a long time only a single species was known, but others have latterly been discovered, all natives of the islands of the Indian Archipelago; and the genus now contains about a dozen species. They are epiphytes, with scarcely any stems, few broad thick leathery two-ranked leaves, notched at the top, and perennial racemose inflorescence bearing numerous mostly large showy flowers. These have flatly-spread free sepals and petals, the latter of which are much larger and wider than the former; a three-lobed free lip continuous with the prolonged base of the column, and furnished with a callosity at its base; a semiterete column, thickened upwards; and a two-celled anther, containing two pollen-masses attached by a strap-shaped caudicle to a cordate gland. The best-known species in our gardens, that first introduced from Manila, is the one referred to *P. amabilis* by Dr. Lindley, but which is now reported to be not the true *P. amabilis* of Blume. It has large and very thick tough dark-green somewhat elliptical leaves; and a long drooping stalk bearing at its extremity a raceme of a dozen or

more large exceedingly beautiful almost entirely pure white flowers, the only colour about them being some streaks and spots of yellow and crimson on the lip, which is three-lobed, smaller than the petals, and has two three-toothed plates at its base, and two curious twisted tendrils at its tip. But the most magnificent species of the genus is *P. Schilleriana*, which has not only beautiful flowers but beautiful leaves also, the latter being irregularly mottled all over with very deep green upon a lighter green ground, and the former tinged with delicate pinkish purple. At the base of its lip there are a couple of yellow callosities, and instead of being furnished with tendrils, its tip is prolonged into a pair of recurved horns. [A. S.]

PHALANGES. Bundles of stamens; a collection of several stamens joined more or less by their filaments.

PHALARIS. A genus of grasses of the tribe *Phalarideæ*. The inflorescence is in close spike-like panicles, the spikelets with one perfect flower, and generally the rudiments of two imperfect ones, which latter form minute scales between the outer empty glumes; glumes two, carinate; pales two, carinate on their backs. The score or more of described species are mostly from Central Asia. *P. canariensis* supplies the well-known canary-seed, so much used for singing cage-birds. [D. M.]

PHALLOIDEI. A natural order of gastromycetous *Fungi*, distinguished by their soft cellular receptacle which bursts through a gelatinous volva, and by the sinuous hymenium melting down with the spores into an olivaceous foetid semifluid mass. Many of the species are extremely beautiful, but their beauty does not compensate for their odious smell. A few species occur in temperate regions, but the order has its maximum in tropical regions, or at least in countries where the thermometer never descends very low. The gelatinous volva of one or two species is eaten where better food is scarce, and one, *Lycurus Mokusu*, has been prescribed when burnt as a remedy in ulcers. [M. J. B.]

PHALLUS. The typical genus of the *Phalloidei*, a natural order of *Fungi*. The pileus is conical, perforated at the apex, free at the base, slightly wrinkled or deeply pitted, and either naked beneath or furnished with a free sponge-like membrane, or with a bell of network. The species are sometimes tinted with pink or scarlet, and those with the network are objects of universal admiration where they occur. One species, *P. fatidus*, is extremely common in some districts of England. It is the pest of the Kew pleasure-grounds, from its unsightly form and detestable smell. A doubtful species, said to have a better odour, occurs amongst sand on the coast of Suffolk. *Cynophallus*, of which we have one species, *C. ocellatus*, is distinguished by its imperforate adnate pileus. [M. J. B.]

PHALLUS. The peridium of certain fungi.

PHALLOCALIS. A genus of *Iridaceae*, the one species, *P. plumbea*, having been separated by Dean Herbert from *Ophelia*, to which it was first referred; and characterised by its short two-lobed transverse stigmas, which have the two outer crests petaloid and the inner scarcely perceptible; and by its thin-skinned apparently indehiscent fruit, and nearly flat thin-edged seeds. The plant has a slender stem, a yard or more high, furnished with distant sword-shaped plicate leaves, and bearing upon its summit a solitary widely expanded lead-coloured flower, tinged with yellow in the centre, about three inches across, and so fugacious that it lasts only a few hours, expanding before sunrise and drying away by noon. It is a native of Mexico. [A. S.]

PHANEROGAMOUS. The same as Phanogamous. The term *Phanerogamia*, or *Phenogamia*, is applied to flowering plants in contradistinction to *Cryptogamia*, the name applied to flowerless plants.

PHANES, PHANEROS. In Greek compounds = manifest.

PHARBITIS. A genus of showy annual twining plants, belonging to the *Convolvulaceae*, and allied to *Convolvulus*, from which they are distinguished by their three-celled capsules. *P. hederacea* (*Liseron de Michaux* of French horticulturists) is a pretty plant with numerous clear azure-blue flowers of a satiny texture, sometimes described under the name of *Ipomoea hederacea*. *P. hispida*, known also as *Convolvulus major*, has heart-shaped leaves, and large white, purple, blue, rose, or variegated flowers growing in clusters three to five together in the axils of the leaves. The above species are grown in the open air, but most of the others require protection. [C. A. J.]

PHARNACEUM. A genus of *Caryophyllaceae*, of the tribe *Molluginae*, from the Cape of Good Hope, consisting of small herbaceous or shrubby plants, with slender usually terete or filiform bristle-pointed leaves, alternate below, and forming a coma above, with fringed stipules. The cymes are compound, the terminal ones stalked, the axillary often sessile, but sometimes the flowers are umbellate or solitary; calyx five-parted, often coloured; petals none; stamens five, rarely six or seven; styles three; capsule three-valved, three-celled, many-seeded. [J. T. B.]

PHARUS. A genus of grasses of the tribe *Oryzæe*. The inflorescence is in solitary spiked or compound panicles; male and female flowers separate, the males slightly stalked, the females sessile. Steudel describes six species, which are large broad-leaved grasses, natives of South America. [D. M.]

PHASCEÆ. A natural order of acrocarpous mosses, distinguished by the capsule being mostly nearly sessile, having no proper lid, and therefore not opening by a

horizontal fissure like other mosses. Almost all the species are small and insignificant annuals, though not without interest to the botanist. *Archidium* differs in its perennial growth, and the small number of its large angular spores. *Vetula*, which is also perennial, has a large hooded long-beaked veil, and a persistent columella, and has somewhat the habit of *Spilachnum*. The only European species grows, like most *Spilachnideæ*, on dung. [M. J. B.]

PHASCUM. A genus of annual mosses with an indehiscent capsule and fugacious columella. The species are for the most part stemless, and sometimes are of such rapid growth that the plant passes through every stage before the original germinating threads have vanished. The species are numerous, and are divided by authors into several distinct families. Their favourite place of growth is exposed fields and wall-tops. They are rather plants of the plains than of the mountains. [M. J. B.]

PHASEOLUS. A genus of *Leguminosæ*, of the suborder *Papilionaceæ*, easily recognised by the carina or lower petal of the corolla terminating in a long spirally-twisted point. It consists of annuals, or herbaceous perennials, with the rootstock often tuberous, and having annual stems, either erect and short or more frequently twining. The leaves have usually three leaflets, the lateral ones inserted on the common stalk at some distance from the terminal one; the flowers are two or three together, on knot-like protuberances, along axillary peduncles, and often very showy. The calyx is campanulate with four or five teeth; the stamens diadelphous, one free and the other nine united in a sheath; and the pod straight or slightly curved, containing several seeds which are usually more or less flattened. There are nearly fifty species known, natives of hot climates, especially of Southern and Central America, with a few dispersed over Africa, Southern Asia, and the Southern States of North America.

Amongst them many have been long and generally cultivated for human food, and a few for ornament. The most remarkable are *P. vulgaris*, the Kidney or French Bean or Haricot, of uncertain origin, probably Asiatic, the most generally cultivated in Europe and other temperate climates. Amidst a number of varieties or races, often described as species, it may always be known by its few-flowered peduncles, and by the ovate striate bracts at the base of the calyx. *P. multiflorus* (*coccineus*), the Scarlet Runner, a native of Mexico, has a thick tuberous rootstock, and annual twining stems, showy scarlet or white flowers, numerous on the peduncles, and rough pods. *P. lunatus* is apparently wild in America, as well as in Asia and Africa, but so generally cultivated in hot climates that it is difficult to ascertain its origin. In Europe it is unknown, being too tender for our climate. It is much like the Common French Bean in general aspect, but the flowers are much smaller and more numerous; and the pod is flat, short, broad,

and somewhat crescent-shaped, with only two or three seeds. *P. peruviana*, common in the Northern States of North America, is very near *P. lutea*, but with a narrower pod; it does not appear to be cultivated. *P. Mac*, of which *P. Mungo* is a variety, is a native of tropical Asia, and is much cultivated in India and some parts of Africa; like *P. vulgaris*, it is dwarf and erect or twining, but is very hairy with large stipules; and the narrow nearly cylindrical hanging pod is very hairy; the seeds are small, and the flowers insignificant. *P. senecioides*, a common maritime species in tropical countries, especially America, belongs to a section remarkable for the large size of the wings or lateral petals of the corolla. *P. trurillensis* is a showy species with large variegated flowers often transmitted as wild or cultivated from India as well as from many parts of South America. *P. Caracalla*, believed to be a native of Brazil, is often grown under the name of Caracol in the gardens of South America, Southern Europe, and sometimes in India, for its large showy and sweet-scented flowers. In all, the petals are twisted at the top with the carina into a corkscrew. Some other kidney-beans cultivated in hot countries, and formerly referred to *Phaseolus* or *Dolichos*, now form the genus *Vigna*.

The Common Kidney Bean, *P. vulgaris*, not unfrequently called the French Bean, is stated to have been introduced in 1507—although by some writers it is believed to have been first imported from the Netherlands about the year 1509, when the taste for gardening began to revive in England. The whole plant is slightly pubescent, with leaves composed of three oval pointed leaflets, having angular footstalks, knotted at the base, and small stipules. The flowers are axillary, clustered, white, rose, or lilac. The legume or pod is from three to six inches or more in length, compressed and pendulous, terminating in a small sharp point.

The earliest notice we have of Kidney Beans is that given by Pliny, who calls them *Phaseoli*, and says the pod is to be eaten with the seed. Several kinds appear to have been known to Gerard in 1590; and since that time cultivation has produced numerous varieties, which, although similar to one another in appearance, are very different in habit. Some are termed runners, from having stems which twine round stakes six or eight feet high for support; others are dwarf and bushy, while many hold a middle place between the two. Of some of these again the young green pods are eaten—of others the seeds; while in a third division both pod and seed may be used until nearly arrived at maturity. In this country it is the green pods in a young state which are most valued, and when properly dressed they are highly esteemed as a wholesome vegetable. On the Continent the ripe seeds, under the name of *Haricots* (see *SOPHORES*) are much used by cooks in the composition of a dish so called, as well as for a variety of soups and stews; and in Roman Catholic countries they are

well known to form the greater part of the food of the people during Lent. When very young the green pods are frequently preserved as a pickle by themselves, and also form an ingredient in 'mixed' pickles.

The Scarlet Runner Bean, *P. multiflorus*, is usually considered to be a half-hardy annual, and is treated as such, although in reality it is a tender perennial having tuberous roots which may be taken up and preserved during winter for planting in spring. It is a native of South America, and is stated to have been introduced in 1633. Although specifically distinct from *P. vulgaris*, yet in foliage and general appearance it differs but little from some of the varieties of that species. The whole plant is slightly pubescent, of a twining habit, and if supported will climb to the height of eight or ten feet. The flowers are produced in solitary racemes, about the length of the leaves, and arranged in pairs with bracts somewhat shorter than the calyx. They are very handsome, the upper part, or standard, being scarlet, while the wings and keel are of a pale red or rose-colour. The pods are pendulous, not quite so long as those of the Common Kidney Bean, but broader, compressed and more succulent, with a rougher surface.

As a culinary vegetable, the Scarlet Runner is much esteemed, and occupies a place in almost every garden—more particularly in that of the cottager, where during the summer and autumn it is not only one of its greatest ornaments, but is also one of the most productive and useful vegetables the cottager can possibly cultivate. The young green pods are dressed in the same way as those of the Kidney Bean. It is worthy of notice that the roots are narcotic and poisonous. (W. B. B.)

PHAUM. An Indian and Mauritian name for *Angræcum fragrans*.

PHEASANT'S-EYE. *Adonis æstivalis*, and *A. autumnalis*.

PHEASANT-WOOD. The same as Partridge-wood.

PHEBALIUM. A name said to be derived from the Greek word *phibale*, a myrtle, in allusion to the appearance of some of the species. The genus is included among *Rutaceæ*, and consists of small trees or shrubs, natives of extratropical New Holland. The stems and leaves are clothed with star-shaped hairs, or silvery or reddish scales. The flower-stalks are axillary or terminal, arranged in an umbellate or corymbose manner; flowers small, with an entire or more or less five-cleft calyx; petals five lance-shaped, longer than the sepals; stamens ten, longer than the petals, five shorter than the remaining five; ovary five-lobed on a short stalk, with five compartments each containing two ovules, one ascending, the other pendent; styles five, confluent, with a five-furrowed stigma. Fruit of five two-valved one-seeded follicles. (M. T. M.)

PHEGOPTERIS. The name now some-

times applied to a large group of *Polypodium*, in which the rhizome, instead of being articulated with a rhizome as in *P. vulgare*, are continuous and adherent to a caudex, which may be either short and erect as in *P. alpestre*, or elongated and creeping as in *P. Dryopteris*. Usually the sori are medial on the free veins. Generally speaking, the habit of growth is that of *Lastrea*. [T. M.]

PHELIPÆA. A genus of *Orobanchaceæ*, resembling the broomraps in habit, and distinguished mainly by the tubular calyx, which is furnished with two or three bracts, and by the capsule opening at the top instead of the side. The genus thus characterised will include two British species of Broomrape—*Orobanchæ cærulea* and *O. ramosa*. [C. A. J.]

PHENACOSPERMUM. Endlicher has proposed to constitute under this name a genus of *Musaceæ*, comprising certain species from tropical America, which resemble *Heliconia* in general appearance. The flowers are not known, but the fruit is capsular, and contains numerous seeds arranged in several rows. From the allied genus *Ravenala* it is distinguished by its somewhat globular seeds, which are attached by means of a long stiff funicle or umbilical cord, which breaks up into a fibrous tow-like aril overlying or concealing the seed; hence perhaps the name. [M. T. M.]

PHILADELPHACEÆ (*Syringæ*.) A natural order of calycifloral dicotyledons belonging to Lindley's grossal alliance of epigynous *Exogæna*. Bentham and Hooker include it in *Rosifragaceæ*. Calyx valvate with a persistent limb; petals alternate with the divisions of the calyx, and equal to them in number, imbricate; stamens indefinite; ovary adherent to the tube of the calyx; styles distinct; stigmas four to ten; ovules attached to a central placenta. Fruit a four to ten-celled capsule, free above, with indefinite scabiform pendulous seeds, with a loose membranous arillus. Shrubs with deciduous opposite exstipulate leaves without dots; flowers usually in trichotomous cymes. They are natives of the south of Europe, of North America, Japan, and India. They have no marked properties. The flowers of *Philadelphus coronarius* (*Syringa*) have a peculiar sweetish odour due to the presence of an oil, which to some persons is overpowering and disagreeable. *Deutzia scabra* has a scurvy matter on its leaves, which, under the microscope, is seen to consist of beautiful stellate hairs. There are five genera, including twenty-seven species. Examples: *Philadelphus*, *Deutzia*. [J. H. B.]

PHILADELPHUS. A genus of shrubs better known by the names *Syringa* and Mock Orange, giving name to the order *Philadelphaceæ*, and distinguished from *Deutzia* by having four petals. *P. coronarius* is the large bushy shrub so common in shrubberies and cottage gardens, and remarkable in early summer for its terminal tufts of large creamy-white flowers having a powerful odour, which at a distance is

thought to resemble that of orange-flowers; and known also by the flavour of its leaves, which is precisely that of cucumbers. The terminal flower in each tuft, it should be observed, has five petals. Other species with scentless flowers are less frequently cultivated. French, *Séringat*; German, *Pfeifenstrauch*. [C. A. J.]

PHILARIA. (Fr.) *Phillyrea*.

PHILESIACEÆ (*Philesiads*.) A natural order of monocotyledonous plants belonging to Lindley's class of *Dictyogæna*. They are nearly allied to *Rosburghiaceæ*, from which they differ in their trimerous symmetry, parietal placentæ, and orthotropical ovules. Most authors include them in that order. They are natives of Chili, and comprise the genera *Phileta* and *Lapageria*, each with a single species. [J. H. B.]

PHILESIA *buxifolia*, the Pepino of Valdivia, is a small evergreen box-leaved erect shrub, native of the extreme southern part of South America, from Valdivia to Magalhães' Straits, bearing an abundance of large beautiful drooping, somewhat bell-shaped, bright rose-red, rather waxy flowers. By some botanists it is referred to *Smilacææ*, while others place it and the apparently closely allied genus *Lapageria* in



Philesia buxifolia.

a separate order, styled *Philesiaceæ*. It is the only species of the genus, and is characterised by having a small three-leaved calyx and a large three-petaled corolla, monadelphous stamens, and an obscurely three-lobed stigma. In habit it is very different from *Lapageria*, being an erect stiff shrub instead of a scrambling climber, and having penninerved in place of five-nerved leaves. [A. S.]

PHILIBERTIA. *Sarcostemma*.

PHILIPPIA. A genus of heathworts, having eight stamens partly adherent to each other, and a four-celled four-valved seed-vessel, containing many seeds. The species are natives of the Cape, Madagascar,

and Mauritius. They are shrubs, having the leaves in whorls of three or six; and the flowers small near the ends of the branches. [G. D.]

PHILIPPODENDRON. A name given by Poiteau, in honour of King Louis-Philippe, to a little tortuous shrub cultivated in the Paris Jardin des Plantes, and then believed to have been of Nepalese origin, and to be the type of a new natural order. A further investigation has, however, proved it to be the *Plagianthus betulinus*, a malvaceous plant from New Zealand.

PHILLYREA. Evergreen shrubs and trees introduced from the shores of the Mediterranean, and commonly planted in shrubberies and parks where it is desired to have a mass of foliage in winter. Many species and varieties are employed for this purpose, all of which agree in having oblong more or less serrated opposite leaves, and inconspicuous greenish-white flowers growing in axillary clusters. They belong to the order *Oleaceae*, and are closely allied to the olive, but bear a globose berry. The species most commonly grown are *P. latifolia*, *P. media*, and *P. angustifolia*, from which numerous varieties have been derived. The *Phillyreas* with hollies and yews were formerly much employed as subjects for the topiary art; but they are now mostly allowed to retain their natural habit. —, CAPE. *Cassine capensis*. [C. A. J.]

PHILODENDRON. A genus of tropical American plants of the family *Araceae*. They have mostly scrambling stems, which attach themselves to the trunks of trees, whence the name of the genus. The leaves are large, often irregularly lobed, the blades attached to the stalk by a kind of joint, and



Philodendron Smil.

the veins very small and densely crowded. The spathe opens after the fertilisation of the flowers, and falls off when the fruit is ripe. The spadix is nearly of the same size as the spathe, wholly covered with flowers, the abortive ones being placed below the stamens; anthers sessile, opening at the summit; ovary many-celled, with numerous

ovules attached to the inner angle of each compartment by means of long threads. Several species are in cultivation as stove plants. [M. T. M.]

PHILOGLOSSA. A decumbent Peruvian herb, with yellow radiating flower-heads, constituting a genus of *Compositae*, of the tribe *Heliantheae*. It is technically placed near *Calliopsis*, but differs at first sight by the much more numerous narrow ligulate ray-florets. The branches of the style are also very hispid.

PHILOGYNE. One of Haworth's spurious genera of amaryllids, of which he described eight species, all founded upon well-known varieties of *Narcissus odoratus*, the sweet-smelling *Narcissus*. [A. B.]

PHILOTHECA. A genus of *Rudaceae*, consisting of heath-like shrubs, natives of the eastern extratropical parts of Australia. The leaves are linear, and the flower-stalks axillary and terminal, solitary with small scale-like bracts. The calyx is five-parted; petals five, stalked, much longer than the sepals; stamens ten, those opposite the petals shorter than the rest; the filaments hairy above, and combined below into a smooth tube; ovary on a short stalk, five-lobed, the styles combined into one. Fruit of five two-valved capsules or follicles, each with one seed. *P. australis*, with red flowers, is grown as an ornamental shrub in greenhouses. The name should be more correctly *Psilotheca*, from the Greek *psilos*, smooth, in allusion to the smooth sheath or tube formed by the lower part of the stamens. [M. T. M.]

PHILYDRACEÆ. (*Waterworks*.) A natural order of petaloid monocotyledons belonging to Lindley's xyridal alliance of Endogene. They are closely allied to *Xyridaceae*, and differ chiefly in the want of an outer perianth, in the inner perianth being two-leaved, in having three stamens, two abortive, and in the embryo being large in the axis of the albumen. The flowers have spathaceous bracts; the roots are fibrous, the stem simple, leafy and often woolly, and the leaves ensiform and sheathing at the base. They are natives of New Holland, Cochinchina, and China. [J. H. B.]

PHILYDRUM. The type of the *Philydraceae*, and comprising a single species, native of wet marshy places in China and Australia. This plant, *P. lanuginosum*, is an erect annual attaining a height of two to three feet, with lance-shaped leaves dilated at the base, covered (as also are the outer portions of the perianth, and the capsules) with dense woolly hairs. The flowers are yellow, placed on long spikes, and protected by sheathing bracts. The genus is distinguished from *Heteraria*, the only other genus of the order, by the anthers, whose cells are somewhat spiral, and by the placenta of the fruit, which are two-lobed and recurved, bearing the numerous seeds on the outer surface. The seeds, moreover, are marked externally with spiral striations, and have a little cap-

like process at one end. The genus derives its name from the localities in which the species is found.

The flowers of this plant consist of a yellow perianth in two segments, and three stamens—one fertile opposite the lower segment of the perianth, two sterile and petaloid. Dr. Lindley describes the flower as wanting the calyx, and having a two-leaved corolla; but from the fact that the upper segment is frequently notched, and from the arrangement of the veins and the position of the stamens, it seems preferable to consider the parts of the perianth as constituting a calyx rather than a corolla. The leaves are equitant, spongy within, and with partitions of star-shaped cells. The structure of the flower-stalk is like that of an Exogen rather than an Endogen, being cellular on the outside and in the centre, while between the two layers a perfect circle of woody tissue occurs. The pollen-grains are round, and cohere in groups of four. [M. T. M.]

PHLEBODIUM. One of the net-veined genera separated from *Polypodium*, with which it agrees entirely in respect to the fructification. The veins are reticulated, with free included veinlets, which are ex-current; and the sori are placed on the converging apices of two or more of these veinlets occupying an elongated areole, the costal areole being transverse and void. The typical species is *P. aureum*. [T. M.]

PHLEBOMORPHA. The mycellum of certain fungi.

PHLEUM. A genus of grasses belonging to the tribe *Agrostideæ*. The inflorescence is mostly in oval spike-like panicles; glumes boat-shaped, keeled, with short awns at their points; pales or inner glumes shorter than the outer, with a short awn on the back. Of this genus fourteen species have been described by authors, most of which belong to Northern Europe. *P. pratense* is the Cat's-tail or Timothy Grass of agriculturists, and a very valuable species, being one of the earliest and most productive among British grasses. This species is the badge of the Sutherlands. *P. alpinum* is an Alpine plant, and only found in one or two localities on the Scotch mountains, at great elevations. [D. M.]

PHLEGUM. The cellular layer of bark below the epidermis.

PHLOMIS. A genus of the labiate order, having the border of the calyx entire or three-toothed, and the tube of the corolla short, the upper lip compressed, entire or notched, and the lower three-cleft and spreading. The species are herbs and shrubs, found in different parts of Europe and Asia, with wrinkled leaves, and flowers yellow, white, or purple. Several have been long known as garden plants. The name is adopted from one used by ancient Greek writers. [G. D.]

PHLOX. Far-write showy herbaceous plants, mostly perennial, belonging to the *Polymniaceæ*, and distinguished by the fol-

lowing characters:—calyx deeply five-cleft; corolla salver-shaped, with an elongated tube and wedge-shaped segments, which are twisted before expansion; stamens five, inserted above the middle of the tube; cells of the caule one-seeded. Most of the species agree in sending up rod-like unbranched stems, one to four feet high, with opposite undivided leaves, and terminal panicles of handsome flowers, which are white, blue, some shade of red, or variegated. They are all natives of North America, and many species have been so long cultivated and hybridised that their specific names have given place in many instances to the names by which they are distinguished by horticulturists. *P. Drummondii*, an annual species, is among the most showy of the family, and from its low habit, and profusion of flowers of many hues, is deservedly popular. German, *Fl. ammenblume*. [O. A. J.]

PHOEBEROS. *Scolopta*.

PHOENICEOUS. Pure lively red, with a mixture of carmine and scarlet.

PHOENIX. With the exception of two species found in South-eastern Africa, this genus of palms, of which about a dozen species are known, is confined to Northern Africa and tropical Asia, extending as far east as Hong Kong. As a genus it is readily distinguished by its pinnate leaves from the other genera of the tribe *Corypheæ*, which is characterised by the flowers possessing three distinct ovaries. Some species have scarcely any trunk, while others (as the Date Palm) rise to a great height, and have their trunks thickly covered with the scars of fallen leaves. The flower-spikes grow out from amongst the leaves and bear flowers of one sex only, the two sexes being upon distinct trees. Both kinds have a cup-shaped three-toothed calyx, and a corolla of three petals with their edges valvate in the male, and overlapping in the female; the former containing usually six (very rarely three or nine) stamens, with hardly any filaments and narrow erect anthers, and the latter three distinct ovaries with sessile hooked stigmas. Only one of the ovaries, however, comes to perfection, and ripens into a one-seeded fleshy fruit, the seed being composed of horny albumen with a groove down the front and the embryo placed at the back.

The Date Palm, *P. dactylifera*, is cultivated in immense quantities all over the northern part of Africa, and more sparingly in Western Asia and Southern Europe; and in some of these countries its fruit, though only known by us as an article of luxury, affords the principal food of a large proportion of the inhabitants, and likewise of the various domestic animals,—dogs, horses, and camels being alike partial to it. The tree usually grows about sixty or eighty feet high, and lives to a great age, trees of from one to two hundred years old continuing to produce their annual crop of dates. Numerous varieties are recognised by the Arabs and distinguished

by different names, according to their shape, size, quality, and time of ripening. The fruit, however, is not the only valuable part of this widely dispersed tree, for, as with the cocoa-nut tree, nearly every part is applied to some useful purpose. The husks of the poorer classes are entirely constructed of its leaves; the fibre (*li*) surrounding the bases of their stalks is used for making ropes and coarse cloth, the stalks themselves for crates, baskets, brooms, walking-sticks, &c., and the wood for building substantial houses; the heart of young leaves is eaten as a vegetable; the sap affords an intoxicating beverage (*lagbi*), though to obtain it the tree is destroyed; and even the hard and apparently useless stones are ground into food for camels.



Phoenix dactylifera.

Finally, we may mention that the Date was probably the Palm which supplied the 'branches of palm-trees' mentioned by St. John (xii. 13) as having been carried by the people who went to meet Christ on his triumphal entry into Jerusalem, and from which Palm-Sunday takes its name.

P. sylvestris, called the Wild Date, is supposed by some authors to be the parent of the cultivated date. It is common all over India, and, like the last, attains a considerable height. Large quantities of toddy or palm-wine are obtained from it, but the Asiatics, more skilful than the Africans, obtain it by merely cutting off the young flower-spike, by which means they do not destroy the tree. Date-sugar, so extensively used in India, is made by simply boiling the toddy. [A. S.]

PHOENOCOMA. A generic name proposed by D. Don for the *Helicorysum prostratum*, a Cape species which differs from the others in the central forets of the head being males only and not hermaphrodite. It is a rather showy everlasting, with very small granular clustered leaves, and large solitary terminal flower-heads, having an involucre of many rows of scales, the outer of which are short and

appressed, and the inner long radiating shiny and of a beautiful rose-purple colour. The tubular five-toothed forets are seated upon a naked receptacle. The pappus consists of a single row of rough bristles, those of the male club-shaped, and those of the female variously cohering. [A. S.]

PHOLIDIA. A genus of *Myoporaceae*, containing fifteen species from N. Holland. They are shrubs with entire leaves, and flowers on very short solitary axillary peduncles. The calyx is deeply five-cleft, undergoing no change in fruiting; the corolla is funnel-shaped, with an unequally five-lobed spreading limb; there are four didynamous included stamens, with crescent-shaped anthers; and the ovary is oblong and four-celled, with a capitate emarginate stigma. The drupe has a four-celled and four-seeded stone. [W. C.]

PHOLIDOTA. A tropical Asiatic genus of orchids, the several species of which are all epiphytes either with pseudobulbs or fleshy jointed rhizomes, and having plicate leaves, and terminal usually imbricated and two-ranked drooping flower-spikes. Its flowers have equal distinct sepals; smaller petals; a concave entire or three-lobed lip parallel with the column, which is semi-cylindrical or winged; and a two-lipped two or four-valved anther, containing four distinct globose pollen-masses. [A. S.]

PHOLIOTA. A subgenus of *Agaricus* belonging to the series with brown or ferruginous spores, and characterised by the presence of a distinct woven veil, forming a ring on the stem. One or two are esculent, amongst which *A. pudicus* is much esteemed in Italy. *A. mutabilis* is sometimes confounded with the German: Stockschwamm, *A. mellesus*, but it is not clear that it is wholesome. [M. J. B.]

PHORADENDRON. An extensive genus of *Loranthaceae*, confined to the New World, but extending from the United States to Brazil. It has dioecious or monœcious flowers: the males with a trifid perianth, and transversely two-celled anthers opening by pores or vertical slits (sometimes one-celled ones by confuence); and the females with a three-lobed perianth, and sessile obtuse stigma. The numerous species are parasitic usually leafy shrubs, and have catkin-like jointed spikes of sessile immersed flowers. One, which grows on elms and hickories in the United States, is known as the American Mistletoe. [A. S.]

PHORANTHIUM. The receptacle of Composites.

PHORMIUM. The four species which have at different times been ascribed to this genus of *Liliaceae* are now combined into one variable species, *P. tenax*, the New Zealand Flax, which is confined to New Zealand and Norfolk Island. This plant forms large tufts, and has sword-shaped leaves growing in opposite rows and clasping each other at the base; those of one variety being from five to six feet long, of a bright green above and glaucous under-

neath, and those of another only half as long and paler in colour. Its flower-spikes, which are large and alternately branched, rise up out of the centre of the leaves; those of the large-leaved variety reaching the height of sixteen feet and bearing deep orange-red flowers, while those of the other are not more than six feet high, and have yellow flowers tinged with red. The flowers have a tubular perianth of six erect pieces, the three inner of which spread out at the tip; six stamens projecting beyond



Phormium tenax.

the perianth, and alternately shorter; and a three-celled ovary bearing a three-sided style and simple stigma, ripening into a long bluntly triangular three-valved capsule, containing two rows of small flattened black seeds in each cell.

The leaves of this plant contain a large quantity of strong useful fibre, to which the name of New Zealand Flax has been given. When Captain Cook first landed in New Zealand, he found this flax in common use among the natives for making various articles of clothing, string, nets, &c.; and since the colonisation of that country various attempts have from time to time been made to render it an article of export, but hitherto without much success—the cost of preparation, owing to the presence of a viscid gummy matter in the leaves, being too great to allow of a remunerative profit. [A. S.]

PHORUS. A termination in Greek compounds, signifying a stalk, or support; a part which bears some other parts.

PHOTINIA. A genus of *Pomaceæ* allied to *Crataegus*; but the ovary is usually two-celled only, and the succulent fruit, crowned by the persistent lobes of the calyx, has the endocarp thin and cartilaginous, not forming the bony nuts of *Crataegus*. There are several species natives of the mountainous parts of Northern and Eastern India, of China, Japan, and N.-W. America. They are all erect unarmed shrubs or trees, with evergreen laurel-like leaves, and numerous small flowers in terminal

panicles. One species, *P. serrulata*, a native of China and Japan, has long been an inmate of our shrubberies under the name of *Crataegus glabra*, and is very ornamental as an evergreen from its handsome shining foliage, but more particularly so when circumstances admit of its developing in perfection its rich panicles of innumerable small flowers of a pure white. *P. arbutifolia*, from California, has also been in cultivation, and some of the Himalayan species may be well worth introduction.

PHOTINOPTERIS. A genus of acrostichaceous ferns of scandent habit, with pinnate coriaceous fronds, which are fertile and contracted in the upper part, and have the pinnae articulated with a basal auricle on the lower side. The venation is netted, with free divaricate clavate veinlets in the ultimate areoles. The fructification, as in this group, occupies the whole of the fertile pinnae. *P. spectiosa*, probably the only species, is found in the Malayan Archipelago. [T. M.]

PHRAGMA. A spurious dissepiment in fruits, i.e. one which is not formed by the sides of carpels; a partition, of whatever kind.

PHRAGMIFER, PHRAGMIGER. Divided by partitions.

PHRAGMITES. A genus of grasses belonging to the tribe *Arundinææ*. The inflorescence forms large spreading lax panicles, with three to six-flowered spikelets, in which respect this genus differs from some others that are nearly allied, but have spikelets with one flower in each. The flowers are enveloped with long silky hairs. Stuedel describes eighteen species in his *Synopsis*; these range over various parts of the globe, from Western Europe to Japan. *P. communis* is the only native species, and is, besides, the largest British grass. Though not valuable for agricultural purposes, it is of great importance for binding the earth on river-banks with its extensively creeping rootstocks. [D. M.]

PHRIGANOPTOSIS. A name given by Re to a disarticulation of vine-shoots that takes place principally when the previous summer has been cold and cloudy, and the wood imperfectly ripened. It may be observed most years in this country in the small lateral shoots, and was known to Pliny, who after Theophrastus calls it articulated. See **CLADOPTOSIS**. [M. J. B.]

PHRYNIUM. A genus of *Marantiaceæ*, consisting of tropical Asiatic and American perennial plants with creeping roots, contracted stems, stalked leaves, and flowers in terminal heads or panicles. The inner lateral petals (abortive stamens) are larger than the outer or true petals; the lip is two-lobed; the filament is short, attached to the inner lateral segment of the corolla, the anther terminal; the ovary three-celled, with a single ovule in each compartment, a style curved above, and an incurved somewhat funnel-shaped stigma. Fruit capsular, three-celled, three-valved. Several spe-

cies are grown in this country as stove plants; they are very similar in appearance to the species of *Calathea*. Some of them yield abundance of fibre. On the authority of Loureiro, the leaves are used in China for making vinegar with sugar and water or spirit of rice. [M. T. M.]

PETHIBIASIS. A disease produced by the presence of insects; lousiness.

PHU. *Valeriana Dioscoridia*.

PHULWARAH. An Indian name for *Bassia butyracea*.

PHURRA. An Indian name for the leaves of *Chamaerops Bitchiana*.

PHYELLA. A genus of South American *Amaryllidaceae*, comprising some eight or ten handsome bulbous plants, with linear channelled leaves, and flutular terete scapes supporting umbels of numerous declinate flowers. The perianth is tube-like, six-parted with a short tube, and subequal convolute segments somewhat spreading at the apex; the stamens are six in number, inserted in the throat of the tube, with declinate filaments; the style filiform, declinate, with a simple stigma; the ovary three-celled, with many ovules in each cell disposed in two series. They are closely related to *Hippeastrum*, but the faucal membrane is not defective on the lower side. The flowers are red, and generally marked with yellow. [T. M.]

PHYCOLOGY. That part of Botany which treats of the *Algae* or Seaweeds.

PHYCOMATER. The gelatine in which the sporules of algae first vegetate.

PHYCOMA. The whole mass of an alga; its thallus and reproductive bodies.

PHYGELIUS capensis is a South African shrub, forming a genus of *Scrophulariaceae*, very nearly allied to *Pentstemon*, but differing in the long curved tube of the corolla, in the barren stamens reduced to a small scale, and in the very oblique capsule, one cell being always much larger than the other. The leaves are opposite, quite glabrous; and the flowers in a terminal panicle, each fully an inch and a half long.

PHYKENOHYMA. The elementary tissue of algae.

PHYLLOA. Handsome shrubs, with curious evergreen foliage, and the habit of a heath, belonging to the order *Rhamnaceae*. The tube of the calyx is cylindrical and five-cleft; the stamens are protected by petal-like scales; and the seed-vessel contains three seeds. Most of the species are natives of South Africa, where, with their much-branched stems and narrow leaves, they inhabit dry sandy ground, to a certain extent simulating the heath tribe. The narrow leaves are for the most part white beneath, and revolute at the margins. The flowers are small, white, and arranged in heads or spikes. Upwards of sixty species have been described, and several are

cultivated, especially *P. ericoides*, called by the French *Bruyère du Cap*. [C. A. J.]

PHYLLAGATHIS rotundifolia is a somewhat herbaceous shrub, native of Sumatra, having large cordate-ovate denticulate and strongly seven to nine-nerved leaves, of a rich glossy metallic green on the upper side, and a bright red beneath; and a terminal head of small purple flowers, surrounded by large dark-purple bracts. The genus belongs to the *Melastomaceae*, and has flowers with a campanulate four-lobed calyx having two or three bristles on the back of the lobes and others between them; four ovate pointed petals; eight stamens with subulate one-pored anthers without any prolongation of the connective; and an adherent four-celled ovary, bearing a slender style terminating in a punctiform stigma. [A. S.]

PHYLLANTHUS. A genus of dicotyledonous *Euphorbiaceae*, characterized by its perianth of five or six imbricate divisions: the male flowers with three stamens, the filaments either free or united and surrounded by five or six glands; and the females with an ovary of three cells, two ovules in each, and a short three-branched style, each branch being again forked or divided. The species are very numerous, all natives of hot countries, and very variable in stature, from small prostrate annuals to moderate-sized trees. The leaves are usually small, alternate, entire, and so arranged in opposite rows along the smaller branches as to give them the appearance of pinnate leaves. The small green flowers, often with a yellowish or purple tinge, are usually clustered in the axils of the leaves, and very frequently one female is surrounded by several males in each axil. The fruit is a small depressed or globular capsule, separating into two-valved cocci.

Few species present any special interest. The section *Xylophylla* comprises several shrubs, chiefly West Indian, curious from their flattened leaf-like smaller branches without any other leaves than minute scales. *P. Niruri* and its allies, very abundant in tropical America, as well as Asia and Africa, and *P. Urinaria*, and others more specially limited to Asia, are low prostrate annuals, weeds of cultivation, and occasionally used medicinally. The leaves of *P. Conamt* and some others are used in tropical America for poisoning fish. *P. natans*, from tropical America, is a very small species with the aspect of a *Salvinia*, usually found floating on the surface of still waters. None of the species have flowers sufficiently showy for cultivation for ornament. See *EMBLICA* and *XYLOPHYLLA*.

PHYLLARTHON. A small genus of *Crescentiaceae*, composed of shrubs or small trees confined to the islands of Eastern Africa, principally Madagascar. They have a very peculiar habit, in consequence of the leaves being narrow, and more or less linear, and made up of definite points one to two inches long. The calyx is five-cornered, ribbed and persistent; the corolla

funnel-shaped; the stamens four in number; and the fruit cylindrical, very fleshy, and apparently many-celled. The branches are more or less glutinous, and often flat or angular; the flowers appear in terminal or axillary racemes, and are generally pink; whilst the fruit, about as long as the little finger, is dirty white. In Mauritius the fruit of *P. comorensis* is used for Jellies, and is also much sought after by birds; *P. Beyerianum* has likewise an edible fruit. Both are inmates of our stoves. [B. S.]

PHYLLOIDE. (Fr.) *Phylla*.

PHYLLOLESLIA. In some plants a curl of the leaf is constitutional, as in *Salsola annularis*. A similar condition, accompanied by more or less distortion or blistering, may be produced by aphides, parasitic fungi, or by particular conditions of the atmosphere. The affection called curl in potatoes is of a different character. See CURLED and PEACH BLISTER. [M. J. B.]

PHYLLOS. This name, derived from the Greek *phylon*, a leaf, is applied to a genus of *Cinchonaceae*, the species of which have handsome foliage. The genus consists of shrubs, natives of the Canary Isles, with the leaves opposite or in whorls of three or four, and having membranous stipules prolonged into thread-like processes. The flowers are greenish in a terminal panicle; the limb of the calyx divided into two unequal deciduous lobes; the corolla wheel-shaped, five-parted, with a short tube allowing the five stamens to protrude beyond it; styles two, hairy; fruit of two dry indehiscent carpels. [M. T. M.]

PHYLLOITIS. *Scolopendrium*.

PHYLLOBYRON. The contracted pedicel of an ovary, such as occurs in some peppers.

PHYLLOCACTUS. Several species and varieties of this genus of *Cactaceae* are cultivated in hothouses in this country for the sake of their fine white or crimson flowers, which are among the largest and most showy of the order. Some confusion exists in their nomenclature, owing to many of the species having formerly been referred to the genera *Epiphyllum* and *Cereus*. They are, however, distinguished from the latter by their curious flat broad leaf-like branches; and from the former by their flowers being produced from the notches or indentures along the edges of the branches instead of at the end, and having small sepal-like segments scattered wide apart on the tube, and numerous long petals variously expanded so as to form a rose-like, or a funnel- or salver-shaped corolla, with the stamens attached to the orifice of the tube, the outer ones being longer than the inner. The nine species described by botanists are found in Mexico, Central America, and Brazil. *P. Ackermanii*, a native of Mexico, has flowers measuring as much as seven inches across, and of a rich scarlet colour like those of some varieties of *Cereus spectabilissimus*, with

broad, very sharp-pointed, slightly waved petals; its stems are rounded at the base and bear little tufts of short bristles, and its flat branches are from two to two-and-a-half inches broad and waved or deeply dented along the margin. *P. anguliger* is a West Mexican species, and is remarkable for having its flat branches deeply and sharply lobed so as to resemble pinnately cut leaves, the lobes almost forming right-angled triangles; its flowers, which are large and fragrant, have brownish outer petals, and pure white inner ones. [A. S.]

PHYLLOCARPUS. A genus of *Leguminosae*, of the suborder *Casalpinieae*, established by Riedel on a tall-growing unarmed Brazilian tree, with abruptly pinnate leaves, and lateral racemes of purple flowers, which have only three petals. The pod is long and slender, subfalcate, and having the upper margin winged. [J. Br.]

PHYLLOCLADUS. A singular genus of *Tuzaceae*, consisting of trees natives of Australia, New Zealand, and Borneo. On young seedling plants of this genus the true leaves are linear, sharply pointed, one nerved, and glaucous on the under-surface; but in the adult plants, rhomb-shaped phyllodes are formed. These phyllodes, emerging from the axils of scaly leaves, seem to be formed partly of the branchlets, and partly of a number of linear leaves all united so as to form one leaf-like organ. The fruit consists of a few thick scales each bearing one ovule. The characters of the foliage and fruit serve to distinguish this genus from its near ally *Dacrydium*. *P. rhomboidalis*, the Colery-topped Pine, is in cultivation as an ornamental tree, as is also *P. trichomanoides*, the bark of which yields a red dye. [M. T. M.]

PHYLLOCORYNE. A genus of *Balanophoraceae*, whose species are natives of Jamaica. They have a lobed or branched rootstock, from which proceed a number of flower-stalks, densely invested with scales, and bearing cylindrical or oblong heads of flowers. The stamens are connate; and there are two styles. The genus is said by Dr. Hooker, its originator, to differ from *Heliosia*, both in habit, and in the leafy flower-stalks. [M. T. M.]

PHYLLODINEOUS. Resembling a leaf, as in the flattened branches of *Xylophylla* and *Rhus*.

PHYLLODE, or PHYLLODIUM. That kind of leaf which results from an enlargement and flattening of the petiole and the loss of leaflets.

PHYLLOGLOSSUM. A curious genus of clubmosses, with the habit of an adder's-tongue. It has a tuberous root, short awl-shaped leaves, and a spike of capsules supported by a stem longer than the leaves. The capsules are axillary bivalved and subtended by a short ovate pointed bract. It is found in marshy ground in New Zealand, and is curiously connected with *Ophioglossaceae* by the very similar Cape genus *Elatia*

glossum. It may be added that the germination of *Ophioglossum*, as far as is known, seems to confirm the affinity. [M. J. B.]



Phylloglossum Drummondii.

PHYLLOIDEOUS. The same as *Follicleous*.

PHYLLOMA. The leaf-like thallus of algae, as in *Ulva*.

PHYLLOMANIA. The production of leaves in unusual numbers, or in unusual places.

PHYLLOPHORA. A genus of rose-sporoid *Alga* belonging to the *Cryptonemiacae*, with compound nuclei, tetraspores collected in raised warts, and a flat flabelliform cleft frond. *P. rubens* is very common on our coast, and extremely beautiful when clear of parasites, but generally rough with *Melobesia* or zoophytes. Three others occur in our seas. [M. J. B.]

PHYLLOPTOSIS. As the leaves of plants are temporary organs, they are of course subject to decay. In some cases their continuation with the stem is so intimate that they hang on to it when dead, till decomposition due to atmospheric agents completely destroys them. In many cases they are articulated to the stem, and when vitality is reduced below a certain point by excess of heat, deficiency of moisture, old age, or any other cause, they fall off, and leave a scar behind. Schacht supposes that a layer of cork cells is formed at the point of division, which renders their separation easy and protects the scar. We have observed something like this in pears, but we cannot find that it is a universal condition; it is, however, especially observable in Vine leaves, where the lamina even separates from the petiole. Trees lose their leaves at very different periods; in most cases they fall the first year; the Scotch fir retains them three years, and the silver fir and spruce eight or ten years. [M. J. B.]

PHYLLOTA. Australian shrubs of the *Leguminosae*, differing from *Dillwynia* in the revolute margins of the leaves, and in the absence of any strophiole; and from *Acacia* in the presence of bracteoles; and from all other allied genera in a tendency to a union of the filaments and petals.

PHYLLOTAXIS. The manner in which leaves are distributed over a stem.

PHYLLOLA. The scar left on a branch by the fall of a leaf.

PHYLLUM. A sepal. In Greek compounds = a leaf.

PHYMATODES. *Pleopeltia*.

PHYSALIS. This name, derived from the Greek *phusa*, a bladder, is applied to a genus of herbs and shrubs of the family *Solanaceae*. The calyx is five-cleft, and greatly increases in size after the corolla falls off, so that the fruit is enclosed within a large leafy bladder, whence this name. The corolla is folded in the bud, bell-shaped or wheel-shaped, and conceals the five stamens within its tube; the anthers open by long slits; and the fruit is succulent, two-celled, enclosed within the distended calyx. The species are widely distributed in tropical countries, both of the Old and New World, and one is found even in the southern and middle districts of Europe.

Several species are grown in English gardens, the best known being the hardy European species, *P. Alkekengi*, better known as the Winter Cherry, a name which it has received in consequence of its scarlet cherry-like fruit enclosed within the enlarged calyx, which also assumes a bright red colour, and thus renders the plant very ornamental in the beginning of the winter season. The calyx of this plant is frequently macerated so as to separate and preserve the fibrous network of veins by which it is traversed, in the same manner as in the skeleton leaves. In Arabia, and even in Germany and Spain, the fruits, which have a slightly acid taste, are eaten for dessert. The fruits of *P. peruviana* are likewise edible, as well as those of *P. pubescens*, the Camaru of Brazil.

Several of the species are considered to possess medicinal properties; those already mentioned are said to be useful as diuretics, while *P. somnifera* has, as its name implies, narcotic properties, on which account it was mentioned by Dioscorides. The leaves of this plant steeped in warm castor-oil are employed in India as an application to carbuncles and other inflammatory swellings. They are very bitter, and are given in the form of infusion in fevers. The seeds are stated to be employed to coagulate milk. According to Kunth, the leaves of this plant have been found with the Egyptian mummies. [M. T. M.]

PHYSEMATIUM. *Woodsia*.

PHYSEUMA. The branch of a *Chara*.

PHYSIC, CALVER'S. A North American name for *Veronica virginica*. —, **INDIAN.** An American name for *Gallienia trifoliata*.

PHYSIOLOGY. That part of Botany which treats of the functions of plants.

PHYSOCALYMMA. The beautifully striped rose-coloured wood imported from Brazil, and called Tulip-wood by our cabinet-makers, the Rosenholz of the Germans, Bois de Rose of the French, and Páo do Rosa of the Portuguese—a wood which has

of late been used in considerable quantities for inlaying costly pieces of furniture, for making various articles of small-ware, for turnery, &c.—is the produce of *P. floribundum*, the only plant belonging to this genus of *Lythraceae*. It is a tree, with opposite oval rough leaves; and large terminal opposite-branched panicles of purplish flowers, which are produced while the tree is leafless. Each flower has two large roundish concave bracts, which entirely enclose the bud before it expands; the bell-shaped eight-toothed coloured calyx is inflated and persists round the ripe fruit; the eight wavy petals are inserted between the teeth of the calyx; the twenty-four stamens are long and projecting, two of them being placed opposite each of the teeth of the calyx and one opposite each petal; and the four-celled hemispherical or four-sided ovary bears a simple long style and round-headed stigma, and by the obliteration of the partitions ripens into a one-celled fruit, with a free central column to which numerous flattened winged seeds are attached. [A. S.]

PHYSOCALYX. A genus of *Scrophulariaceae*, consisting of two species only, both of them Brazilian shrubs, with opposite or alternate entire ovate or obovate leaves, and orange-coloured flowers in terminal racemes. Their calyx is large and inflated; the corolla is tubular with five spreading nearly equal lobes; the stamens are didynamous, included in the tube, with bearded and awned anthers; and the capsule opens in two entire valves. Both species are said to be showy, but are unknown in cultivation.

PHYSOCHEILAINA. The species of this genus are so like those of *Hyoscyamus*, that they might with great propriety be classed with them, as they were originally. They are herbaceous perennials, natives of Siberia, &c.; and have the calyx slightly inflated and five-toothed; the corolla funnel-shaped below, widening above into the shape of a bell, its limb slightly five-lobed; the stamens five, protruding from the corolla, hairy at the base; and the fruit that of the henbane. *P. orientalis*, better known as *Hyoscyamus orientalis*, a native of Siberia, may be occasionally met with in gardens. It produces its violet-coloured flowers early in the season. *P. physaloides* is also in cultivation. [M. T. M.]

PHYSOLOBIUM. A genus of *Leguminosae* of the suborder *Papilionaceae*, closely allied to *Kennedya*, from which it is scarcely sufficiently distinguished by its broad orbicular vexillum without appendages at the base, giving a somewhat different shape to the flower; and by the more turgid pod. It consists of two or three species from South-west Australia, with the trailing or twining habit of *Kennedya*, and scarlet flowers, usually two or three only on each peduncle. Two species have been introduced to our gardens, but they do not appear to maintain themselves, not being so showy as the allied species of *Zichya*.

PHYSOMYCETES. A small section of *Pungi*, distinguished from *Ascomycetes* by the total absence of anything like an hymenium, and the vesicular fruit which encloses an indefinite mass of sporida. The habit is the same as that of many *Hypomyces*. It contains two natural orders only: *Antennariet* analogous to *Dematiel*, and *Mucorini* analogous to *Mucedinee*. The threads are either free or closely felted, and in one subterraneous genus, *Endogone*, they form a little ball. In *Acorotalagmus* the sporida grow from a definite point within the vesicular fruit. *Antennariet* flourish most in hot countries, and the species are so intimately connected with *Capnodium*, that it is not certain whether all of them are true species. [M. J. B.]

PHYSORHYNCHUS. A genus of *Cruciferae* of the tribe *Isatideae*, from Scinde, comprising a glaucous biennial, with the racemes arranged in a panicle. The fruit has a very large ovate acuminate persistent beak, and two small valves at the base; and the seeds, two in number, are contained in the beak. [J. T. S.]

PHYSOSPERMUM. A genus of the umbellifer order, distinguished by having each half of the fruit nearly kidney-shaped, with five slender equal ribs, and one broad oil-cell in each furrow. The species are perennial herbs, chiefly natives of Southern Europe and Eastern Asia. Their lower leaves are usually much divided, and the upper ones are in some mere scales; their flowers are white, the umbels surrounded by bracts. The name, signifying 'bladder-seed,' indicates the loose outer coat of the fruit in its early stage. [G. D.]

PHYSOSTEGIA. The generic name of plants belonging to the labiate order; having the calyx bell-shaped and much inflated; and the corolla with the upper lip entire or notched, and the lower in three round lobes, the middle one of which is notched. The species are herbs, natives of North and South America, of handsome appearance, and acquisitions to gardens. The name indicates the bladder-like character of the calyx. [G. D.]

PHYSOSTELMA. A genus of *Asclepiadaceae*, confined to India and Java, and comprising two species of twining plants, with opposite fleshy ovate or oblong leaves, lateral long-stalked umbels, a five-cleft calyx, a rotate five-lobed corolla of comparatively large size, and a corona composed of five leaflets. The fruit is unknown. [B. E.]

PHYSOSTEMON. One of the genera of *Capparidaceae*, the name of which is expressive of a peculiarity in the stamens, consisting in a bladder-like thickening of the top of the filament. The species are natives of Brazil, with annual stems, sparingly provided with leaves, and yellow flowers arranged in clusters; sepals and petals four; stamens six or eight, of unequal length, some of them bent downwards, the two or four uppermost distended

in the way before mentioned; ovary on a very short stalk bent downwards, and ripening into a two-valved pod. The kidney-shaped seeds are attached to a replum or false partition, which remains behind after the two valves of the fruit have fallen away. [M. T. M.]

PHYSOSTIGMA. The Ordeal-bean of Old Calabar, the *Esé* of the natives, is the type of a genus of *Leguminosae* of the tribe *Phaseolae*, approaching *Canavalia* in the character of its seeds, but with flowers very like *Phaseolus*, except that its bearded style is terminated by a great oblique hood covering the blunt stigma. It is upon the presence of this hood that the genus depends for its character and name. This plant, called *P. venenosum*, is a great twining climber, with pinnately-trifoliate leaves, and axillary pendulous racemes of purplish bean-like flowers. Its seeds, in which the popular interest in the plant centres, are borne two or three together in dark-brown pods about six inches in length, and are of an oblong or somewhat hemispherical form, about an inch long, roughish but a little polished, blackish-brown with a long dark sunken hilum surrounded by a lighter-coloured elevated border. These seeds are extremely poisonous, and are employed by the natives of Old Calabar as an ordeal; persons suspected of witchcraft or other crime being compelled to eat them until they vomit or die—the former being regarded as a proof of innocence, and the latter of guilt. The Calabar Bean has a remarkable property of causing contraction of the pupil of the eye. [A. S.]

PHYSURUS. The majority of the species of this genus of orchids, of which there are a considerable number, are natives of the New World, the exceptions being a few found in the islands of the Indian Archipelago. It is the type of one of the divisions (*Physuridae*) of the tribe *Neotieae*, and consists of small terrestrial plants with slender succulent roots, and slim stems bearing loosely-sheathed stalked leaves, often beautifully marked with veins, and usually dense terminal spikes of inconspicuous flowers. They have nearly equal sepals and petals, the lateral sepals placed beneath the lip, and the dorsal agglutinated to the petals. Their lip is parallel with the column, concave, constricted below the apex, and extended downwards into a frequently swollen spur; and their column is free or adnate to the bottom of the lip, straight and attenuated into an ultimately bifid rostellum, having the anther at the back, containing two sessile pollen-masses attached to an oblong or subulate gland. Some of the species are grown in this country on account of the beauty of their leaves. [A. S.]

PHYTELEPHAS. The Ivory Plant of South America, *P. macrocarpa*, producing the nuts known as Marfil Vegetal or Vegetable Ivory in commerce, is the representative of a curious genus closely allied to palms, and having their habit; but differ-

ing from them in having an indefinite number of stamens, and on that account regarded by some botanists as the type of a separate natural order, *Phytelephanteae*. The plant has a creeping rooting caudex or trunk, terminal pinnatifid leaves, and axillary flowers emitting a powerful perfume. The male and female flowers are on separate trees, and the trunk of the male plants is always more erect and taller than that of the female. The inflorescence of the male plant is a simple fleshy cylindrical spadix four feet long, with four or five spathe, and crowded with flowers; while that of the female plant, which also forms a simple but much shorter spadix, bears from six to seven flowers, of a pure white. The ovary is from six to nine-celled, each cell containing a solitary ovule. The style is elongated, and divided into six, seven, eight, or even nine branches. The fruit consists of a collection of six or seven drupes, forming clusters which are as large as a man's head, the drupes being covered



Phytelephas macrocarpa.

outside with hard woody protuberances. Each drupe contains from six to nine seeds, the Vegetable Ivory of commerce, fashioned by the American Indians, as well as by European turners, into knobs, reels of spindles, toys, &c. The seed at first contains a clear insipid fluid, with which travellers allay their thirst: afterwards this same liquor becomes milky and sweet, and it changes by degrees until it becomes as hard as ivory. Bears, hogs, and turkeys devour the young fruit with avidity. Enclosing the seeds is a yellow sweet oily pulp, which is collected at the proper season, and sold, under the name of *Pipa do Jagua*, for one real (6d.) a pound at Ocaña, New Granada. With the leaves the Indians thatch their huts. In 1834 one thousand nuts were sold in London for 7s. 6d., but the price is very fluctuating. The Ivory Plant has for some years been grown in our hothouses. It is confined to the northern parts of South America. [B. S.]

PHYTEUMA. A genus of bellworts, having the corolla wheel-shaped, its border generally in five deep narrow pieces; the stigma two to three-cleft; and the seed-vessel with two to three cells, and opening at the sides. The species are perennial

herbs, natives of the temperate parts of Europe and Asia; they are generally handsome, and some are well known in cultivation. [G. D.]

PHYTOCHLORE. Green colouring matter; chlorophyll.

PHYTOCENACEÆ. A natural group of thalamiflorous dicotyledons belonging to Lindley's ertical alliance of diclinous Exogens. They are climbing shrubs with entire or palmate leaves, and small unisexual flowers in panicles or clusters. The males have four to five sepals, four to five valvate petals alternate with the sepals, and four to five introrse stamens, the filaments arising from an androphore. The females have four to five sepals and petals, abortive stamens, a one-celled ovary on a gynophore, with two ovules, a thick style, and a large stigma. Fruit a series of drupes collected into a large globular mass; seed albuminous; cotyledons large and leafy. They are all natives of warm climates. The group is, however, by some botanists regarded as a tribe of *Olacaceæ*. [J. H. B.]

PHYTOCENE. A genus of climbing shrubs, with stalked heart-shaped or palmate alternate leaves; and small flowers, in small pea-shaped heads, on racemes that emerge from near the base of the trunk. The flowers are dioecious, arranged on globose fleshy receptacles. The males have a four-parted calyx and corolla, with four stamens united below, and attached to a short stalk supporting the rudimentary pistil. In the females the pistil is stalked, with a large and thick style terminated by a cushion-shaped stigma. The fruit is fleshy, one-celled, one or two-seeded. The wood of these shrubs is soft and porous, and of peculiar structure. When living it is full of a limpid watery sap, which is drunk by the natives of Martaban. The name of the genus, signifying 'plant-fountain,' denotes this quality. [M. T. M.]

PHYTOEROSIA. That part of Botany which relates to the diseases of plants.

PHYTOGELIN. The gelatinous matter of algae.

PHYTOGRAPHY. That part of Botany which teaches the art of describing plants.

PHYTOLACCAEÆ. (*Rhipsiaceæ*, *Phytolaccaeæ*). A natural order of monochlamydeous dicotyledons belonging to Lindley's chenopodial alliance of hypogynous Exogens. They are undershrubs or herbs, with alternate entire often dotted leaves; and are natives of warm countries in America, Asia, and Africa. Perianth four to five-parted; stamens indefinite, or alternate with the perianth segments; ovary of one or several carpels, distinct or combined, each with one ovule. Fruit fleshy or dry, indehiscent, sometimes samaroid; seeds solitary. There are twenty known genera, including *Phytolacca* and *Melina*, and comprising about eighty species. There is frequently much acridity in the plants of

this order, and some of them act as irritant emetics and purgatives. [J. H. B.]

PHYTOLACCA. The typical genus of the *Phytolaccaeæ*, distinguished by its flowers having a six-parted calyx with coloured petal-like or thin green segments, which have membranous edges and are at length reflexed under the ripe fruit; by the stamens varying from five to twenty-five in number, of which five are exterior and alternate with the calyx-segments and the rest opposite them; and by the compound ovary being composed of from five to twelve carpels arranged in a whorl round a concave torus, with their sides growing together throughout their whole length so as to form a solid ovary, which is crowned by five to twelve separate short styles curved outwards. It is distributed throughout the tropical and subtropical regions of both hemispheres, but is most abundant in the western. About ten species are known, which are mostly tall herbs or rarely shrubs, with alternate entire feather-veined leaves, and simple spike-like racemes of flowers opposite the leaves, producing succulent berry-like many-celled fruits of a somewhat globular shape but usually flattened at the top, each cell containing a single brittle-shelled seed.

P. decandra, the Poke, or Virginian Poke or Poke-weed, is a branching herbaceous plant, with a smooth green or sometimes purplish stem, from six to twelve feet high, with large green or purplish leaves, and erect flower racemes longer than the leaves, the flowers having ten stamens and ten carpels. Its dark-purple berries, called Raisin d'Amérique by the French, contain a purplish-red juice somewhat resembling red ink, and hence it is sometimes called the Red-ink Plant. A tincture of them has acquired a reputation in the United States as a remedy for some forms of chronic rheumatism, and was once a celebrated remedy for cancer. The root is an emetic and cathartic; and the young shoots, though extremely acrid, are rendered harmless by boiling, and are eaten in the United States in the same way as asparagus. It is found not only in the United States, but in the Azores, North Africa, and China.

P. toosandra is a much smaller plant than the last, seldom growing more than two or three feet high. It has a shrubby stem, and long smooth reddish-tinted herbaceous branches, bearing elliptical sharp-pointed leaves from three to six or more inches in length, and long graceful drooping racemes of flowers, which contain from ten to twenty stamens and as many carpels, and produce dark-purple or almost jet-black berries about the size of pens but flat at the top. It is widely spread over the American continent, extending from Rio de Janeiro to Mexico, and is also found in several of the West Indian islands.

In the island of Oahu the natives cook and eat the leaves of a species of *Phytolacca*, which they call Poporo-tumal, and is perhaps *P. brachystachys*; and in the West Indies the berries of *P. octandra*, the Ver-

beehina of the Mexicans, are used for washing like soap. [A. S.]

PHYTOLITHES. See **CARPOMANIA**.

PHYTOLITHES. Fossil plants.

PHYTOLOGY. That part of Botany which treats of plants in general.

PHYTON. A rudimentary plant, out of numbers of which perfect plants are made up, according to Gaudichaud.

PHYTOS. In Greek compounds = a plant.

PHYTOTOMY. That part of Botany which teaches anatomical structure.

PIA-PIA. A Tahitian name for a sort of gum extracted from the trunk of *Coccos nucifera*.

PIASSABA, PIASSAVA, or PIAQABA. A stout woody fibre, obtained in Bahia from the leafstalks of *Attalea funifera*, much used in the manufacture of brooms, brushes, &c. — **PARA.** A finer and more valuable kind of Piassaba, obtained from *Leopoldinia Piassaba*.

PICEA. A subgenus of *Conifera*, usually included in *Abies* (which see), but by some regarded as a distinct family. The Silver Fir, *Abies Picea*, otherwise *Picea pectinata*, is the type, and the principal other species are *A. cephalonica*, *Pineapo*, *Picketia*, *Nordmanniana*, *balsamea*, *grandis*, *amblyotis*, *apollis*, *bracteata*, *Webbiana*, *Pindrow*, *Arma*, *religiosa*, &c. Their chief distinguishing feature is the erect cylindrical thin-scaled cones. [T. M.]

PICEUS. Black, changing to brown.

PICHOLINE. (Fr.) A kind of olive.

PICHOT. (Fr.) A name for the Cherry.

PICKEREL-WEED. *Pontederia*.

PICKERINGIA. A small much-branched Californian shrub, described as a distinct genus of *Leguminosae* of the suborder *Papilionaceae*. The structure of the flowers is as in *Baptisia*, and the pod is unknown; but the shrubby not herbaceous habit, and the red not yellow flowers, lead to the conclusion that the genus may be maintained.

PICKPURSE. *Capsella Bursa-pastoris*; also a Norfolk name for *Spergula arvensis*.

PICKTOOTH. *Ammi Visnaga*.

PIOOTEE. One of the florist's varieties of *Dianthus Caryophyllus*.

PIOOTIANE, or PIQUOTIANE. (Fr.) *Peonies aculeata*.

PICQUEA-WOOD. The bitter wood sold as Quassia.

PICQUEA. A genus of *Simarubaceae*, one species of which, *P. amara*, yields the bitter wood known as Jamaica Quassia, in contradistinction to that furnished by *Quassia amara* or Surinam Quassia. This bitter-wood tree is very common in the lowlands of Jamaica, where it attains the height of fifty or sixty feet. The leaves are composed of four or five pairs of short-stalked oblong blunt leathery leaflets, and an odd terminal one.

Jamaica Quassia, which is that commonly met with in the shops, is of a whitish or yellow colour, and has an intensely bitter taste. Hence an infusion or tincture is much used in cases of weak digestion, where a simple bitter is required. It is remarkable that the drug appears to act on animals as a narcotic poison, though such effects have not been witnessed in the human subject; and hence the tincture is also used as a fly-poison. The Bitter Cups, so extensively sold of late in this country, are, when genuine, made of Quassia-wood, and water allowed to remain in them for a short time acquires tonic properties. Brewers are said to employ the chips as a substitute for hops. [M. T. M.]

PICRAMNIA. A rather extensive genus of *Simarubaceae*, confined to tropical America and the West Indies. Most of the species are tall shrubs, with alternate unequally pinnate leaves, the leaflets of which are usually alternate and more or less unequal at the base. They have small reddish flowers, in clusters forming long slender racemes; the two sexes growing on different plants, and the females producing olive-shaped berry-like fruits divided into two cells, each of which contains a pendulous seed. In both sexes there is a three or five-parted calyx, and as many narrow pointed petals; the males contain three or five stamens with the filaments naked and destitute of scales; and the females, imperfect scale-like stamens, and a two or rarely three-branched style.

Like the rest of the order of quassiads, the plants belonging to this genus are intensely bitter, its generic name being derived from the Greek word *picros*, in allusion to that quality. In Brazil the bark of *P. citata*, a small tree, is employed as a substitute for Cascarella; and in the West Indies the negroes use an infusion of *P. Antidema*, a shrub about eight feet high, as a cure for colic and other complaints, under the name of *Majo-bitters*. [A. S.]

PICRASMA. A genus of *Simarubaceae*, containing about half a dozen species very widely dispersed in both hemispheres, one being found in Brazil, another in the West Indies, two in Nepal, one in China, and one in Java. They are small trees, with unequally pinnate leaves, and axillary stalked cymes of small dioecious or polygamous flowers, which have the calyx four or five-parted, minute; the petals egg-shaped, agreeing in number with the divisions of the calyx, those of the female being persistent and often becoming larger and thicker; the stamens as many as, and alternate with, the petals, and having hairy filaments but no scales; and three to five distinct ovaries elevated on the thickened disk, each containing a single ovule, having the styles united, and ultimately ripening into pea-like drupes. The trees have the aspect and foliage of the species of *Ailanthus*. [A. S.]

PICRIS. A genus of herbaceous plants belonging to the tribe *Cichoraceae* of compound flowers, distinguished by having nu-

merous scales outside the involucre, a naked receptacle, and transversely striated seeds, which are scarcely beaked, but furnished with a pappus of which the inner hairs are feathery. *P. hieracoides*, the only British species, is a common wayside plant in England, but not in Scotland, two to three feet high, with bristly branched stems, rough oblong toothed leaves, and corymbs of bright-yellow flowers. French, *Picride*; German, *Bitterkraut*. [G. A. J.]

PICRORHIZA. The sole representative of this genus of *Scrophulariaceae* is *P. Kurroa*, a small perennial herbaceous plant found in Kumaon, at Gossain, and other parts of the Himalaya mountains, where its roots, which are called Hooling in Tibet, and have a powerfully bitter taste, are used as a febrifuge by the natives, and also sent down to the bazars of Bengal, where they form one of the many bitter roots sold under the name of Teeta. The plant grows six inches high, and has scarcely any stem, its leaves rising from the summit of the thick root; as also do its flower-stalks, which are from four to six inches high, and bear a dense spike of small bluish flowers at the top. The leaves are somewhat wrinkled, oblong, entire and tapering to the base but round-toothed above. The flowers have a five-parted calyx, a corolla with a short tube and four somewhat spreading entire segments, and four diverging nearly equal stamens three times as long as the corolla; and they produce small two-celled fruits about half an inch in length, which split, both through the partition and through the cell-walls, into four valves, and contain numerous small seeds covered with a loose netted transparent shell. [A. S.]

PICTUS. The same as Painted.

PIDDINGTONIA. A genus of *Lobeliaceae*, represented by a Nepalese creeping herbaceous plant, with serrated leaves downy on the under surface, and purplish flowers on axillary stalks. The limb of the calyx is divided into five linear equal lobes; the corolla is two-lipped, the upper lip divided into two linear erect segments, the lower divided into three ovate acute lobes, the tube split along the top; the two lowermost anthers are terminated by bristles; the stigma is two-lobed; and the berry is thick ovoid, two-celled. One species, *P. nummularia*, is cultivated in this country as a pretty stove annual fitted for bedding-out. It is perhaps best known under the name of *Pratia begoniaefolia*. [M. T. M.]

PIED D'ALOUETTE. (Fr.) *Delphinium*. — DE CANARD. *Podophyllum*. — DE CHAT. *Gnaphalium diotum*. — DE CHEVRE. *Eupodium Podagraria*. — DE COQ. *Ranunculus repens*. — DE CORBEAU. *Ranunculus acutifolius*. — DE CORNILLE. *Plantago Oronopsis*. — DE LEPRANT. *Elephantopus scaber*; also *Tectaria elephantipes*. — DE GRIFFON. *Helleborus foetidus*. — DE LIÈVRE. *Trifolium arvense*, and *T. Lagopus*. — DE LION. *Aichemilla vulgaris*. — DE LOUP.

Lycopus europaeus. — DE PIGEON. *Gerasium columbinum*. — DE POULE. *Cynodon Dactylon*. — DE SAUTERELLE. *Campanula Rapunculus*. — DE VRAU. *Arum maculatum*; also *Richardia athiopica*. — D'OIE. The name of several species of *Chenopodium*. — D'OISEAU. *Ornithopus perpusillus*; also *Trigonella ornithopodioides*.

PIERARDIA. A small tropical Asiatic genus formerly referred to *Sapindaceae* by some authors, but now placed in *Euphorbiaceae*. They are small trees, with alternate simple leaves; and long slender racemes of unisexual flowers, with a four-parted perianth—some species bearing the two sexes in separate racemes on the same tree, and others on different trees. The males contain eight short stamens; and the females a three-celled ovary, bearing three sessile somewhat two-lobed stigmas, and ultimately ripening into a three-celled fruit with a corky rind, each cell containing one or two seeds enveloped in a juicy eatable aril. *P. dulcis* is a Malayan species, and is distinguished by having both the sexes upon the same tree, and by its smooth entire leaves, being of a somewhat elliptical form, but broader and rounded at the top, and with a short blunt point. Its fruits, which are rather larger than a cherry, nearly round, and of a yellowish colour, contain a luscious sweet-tasted pulp, and are greatly eaten in Sumatra, where the tree is called Choopah, and also in Malacca, where it goes by the name of Rambah. *P. sapida*, an allied species, with the two sexes on different trees and with oblong leaves, is found in Tipperah and Pegu, and produces eatable fruits like those of the last. It is called Luteo by the Hindoos. [A. S.]

PIETRA FUNGAJA, or FUNGUS STONE. The Italian name of *Polyporus tuberaster*, whose mycelium is remarkable for collecting the surrounding earth into a large ball, which year after year yields a crop of esculent fungi. These balls are articles of commerce, and transported from place to place, as they are almost always fertile if put in a proper situation and well watered. There is a fine specimen in the herbarium of the British Museum, which was raised in Messrs. Lee and Kennedy's garden at Hammersmith many years since. The ball has been considered as a kind of truffle, but this is decidedly a mistake, as we can safely assert after examination of fine specimens in our possession. [M. J. B.]

PIGAMON. (Fr.) *Thalictrum*.

PIGEON-WOOD. Zebra-wood, of which there are several kinds, some of which come from Brazil. —, JAMAICA. *Guettarda speciosa*.

PIGGESNIE. An old name corrupted from Pink-sten-eye, and assigned by Dr. Prior to *Dianthus Caryophyllus*.

PIGNON, or PINONE. The edible seed of the cones of various pines, as those of *Pinus Pinaster*, which are eaten in Italy. — D'INDE. The seed of *Jatropha Curcas*.

— DOUX. A South European name for the seed of *Pinus Cembra* and *P. Pamilio*.
 — PETIT. The seed of *Orcyon Tigium*.

FIGONIL. A Quito name for *Festuca quadridentata*, which is said to be poisonous to cattle.

FIG'S FACES. The fruit of *Mesembryanthemum aquilareale*.

FIGWEED. *Chenopodium*.

FILARIS. Composed of small hairs.

FILIX. A genus of *Urticaceae*, consisting of annual or perennial herbs or undershrubs, mostly with the aspect of *Parietaria*, but very different in the structure of their flowers. The leaves are always opposite, although sometimes one of each pair is very much smaller than the other. The flowers are small and greenish, in little axillary loose cymes or clusters; the males have a four-lobed perianth and four stamens; the female perianth has three divisions, of which one is much the larger and thickened or mushroom-shaped at the top, the ovary has a single ovule, and is crowned by a tufted stigma. There are about 130 species known, almost all confined or nearly so within the tropics, in the New as well as in the Old World. One species, however, extends rather far into North America. No one species presents any peculiar interest, except it be *P. serpyllifolia*, the Artillery Plant; and most of them are insignificant weeds.

FILICANTHUS. A small genus of *Chamaeliaceae*, consisting of shrubs, with club-shaped leaves, found in South-west Australia. They are distinguished by having a ten-parted calyx with white roundish lobes; a corolla of five petals; twenty stamens, all fertile, the filaments occasionally forked; and a single style having an obtuse stigma. The flowers are white, axillary or terminal, and surrounded by an involucre. [R. H.]

FILICATE, PILEIFORM. Having the form of a cap; or having a pileus.

FILICULUS. A little cap or cap-like body; also the diminutive of *Pileus*; also the receptacle of certain fungals.

FILICORHIZA. The cap of a root, a membranous hood found at the end of the roots of *Nephera* and other plants, and distinct from the spongiole.

FILICUS. A convex expansion terminating the stipes of agaricaceous fungals, and bearing the hymenium.

FILICWORT. *Nectaris ramunculoidea*.

FILL. Hairs. *Pili polyccephali* are hairs divided at the end into several arms.

FILICORDIA. *Cordia*.

FILIDIUM. An orbicular hemispherical shield in lichens, the outside of which changes to powder; as in *Calycium*.

FILIFEROUS. The same as Hair-pointed.

PILINGRE. (Fr.) *Polygonum Persicaria*.

PILITIS. A genus of *Spacridaceae*, containing a single species, *P. acerosa*, having a sharp-pointed leafy calyx, a corolla with a hood which finally breaks away, and stamens not attached to the corolla. The flowers are terminal, surrounded by sharp-pointed ovate bracts. It is a shrub, having needle-shaped leaves with broad bases, and is found in Tasmania. [R. H.]

PILLOORN, or PILCORN. *Avena nuda*.

PILL DE BRETAGNE. (Fr.) *Lolium multiflorum*.

PILLWORT. *Pilularia*.

PILOBOLUS. A genus of vesicular moulds, consisting of two or three species, which grow on dung. When young they are of a bright-yellow hue; the short stem, however, gradually loses its colour, swells above like the hood of a Cobra, and bears a little vesicle at the apex filled with close-packed dark spores. Accounts have been given of curious motions observed in these plants, but it is believed that they are due to some little worm. [M. J. B.]

PILOEREUS. The well-known Old Man Cactus and a few allied species have been separated under this name from the genus *Cereus*, but, as in other genera of *Cactaceae*, the distinguishing characters are scarcely of generic importance. The principal differences consist in the flower-bearing portion of the plant being unlike the rest, usually forming a dense woody head at the summit of the stem, and having more numerous, longer and thinner, often hair-like spines; and the flowers themselves being smaller and having fewer divisions, with the stamens attached to the whole surface of the tube. All the species are from Mexico and tropical America. As seen in our hothouses, the Old Man Cactus, *P. sentia*, is usually a cylindrical-stemmed plant, a foot or more in height; but in Mexico, its native country, it attains a height of twenty or twenty-five feet, with a diameter of nine or ten inches, and its fluted character gives it somewhat the appearance of an architectural column. The stem is divided into thirty or forty narrow furrows, with corresponding ridges, which are furnished at very short distances with tufts of white spines surrounded by numerous long flexible white hairs resembling the grey hairs of an old man's head; hence has arisen not only the common name of the plant, but also its scientific appellation. When young the stems are fleshy and succulent, but as they get old their tissue becomes filled with an extraordinary quantity of small sand-like grains composed of oxalate of lime, not less than from sixty to eighty per cent, having been found in individual stems. [A. S.]

PILOSE. Covered with hairs; covered with somewhat erect loose distant hairs; having the form of hairs. *Pilosity* is a general term for hairiness; and *piloscus* means somewhat hairy.

PILOSELLE. (Fr.) *Hieracium Pilosella*.

PILOSTYLES. A genus of *Rafflesiaceae*, the species of which are without stem or true leaves, but consist solely of small dioecious flowers, encircled by an outer and inner series of bracts. These little flowers burst forth from the bark of trees, in Chili and Brazil, and hence have been thought, but erroneously, to be deformed flowers of *Bauhinia* or *Adesmia*, the trees on which they are parasitic. The flowers are described as dioecious; the males, which alone are known, have a four-leaved perianth surrounding a column, the summit of which is covered by small pimple-like lobes, beneath which is a dense row of one-celled anthers. [M. T. M.]

PILOT-WEED. *Stiphium laciniatum*.

PILULA. A cone like a Galbulus; any spherical inflorescence.

PILULAIRE. (Fr.) *Pilularia globulifera*.

PILULARIA. One of the four genera of *Marsileaceae*, characterised by having quill-shaped leaves or footstalks, which are circinate when young, and pill-shaped receptacles embraced by the stalk, and formed by the tips of the transformed footstalk, or from the limb of the leaf which is not in other cases developed. This is divided into two or four cells filled with spore-like antheridia and spore-cases, each spore-case containing only a single spore. The germination resembles that of *Marsilea*. The genus occurs in Tasmania, and in the north of Africa, as well as in Europe. *P. globulifera* is not uncommon in Great Britain in marshy places amongst sedge, but requires a practised eye to discover it; *P. minuta* is sometimes cultivated. [M. J. B.]

PILUMNA. A genus of the *Brassicaceae* tribe of orchids, consisting of only two species, both from the vicinity of Popayan, and both epiphytes with sheathed one-leaved pseudobulbs, and radical scapes of largish green and white flowers. It has equal uniform spreading sepals and petals; an unguiculate convolute almost entire lip, adnate to the base of the column, which is club-shaped, with a thin fringed hood at the back of the anther-bed and a fleshy rounded ear on each side in front; and two pollen-masses, with a short caudicle attached to an ovate or linear gland. [A. S.]

PIMELEA. A genus comprising some seventy or more slender branching shrubs, with entire leaves, usually opposite but occasionally alternate, and white rose or yellow flowers in terminal or rarely axillary heads, surrounded by an involucre of bracts of different shape from that of the leaves. It is included among *Thymelaceae*, and may be recognised by the funnel-shaped perianth with a four-cleft limb unprovided with scales, one or two stamens attached to the throat of the perianth, a lateral style, and a capitate stigma. The fruit has a thick rind, or is succulent and berry-like. They are natives of Australia, Tasmania, New Zealand, &c.; and have tough stringy

bark, like the other members of the *Daphnes* family. Several kinds are grown in this country as ornamental greenhouse shrubs; among the best are *P. decussata*, *P. spectabilis*, and *P. Hendersoni*. The name is derived from the Greek *pimela*, fat, in allusion to the oily seeds. [M. T. M.]

PIMENT. (Fr.) *Capsicum*; also *Chenopodium Botrys*. — **CERISE.** *Capsicum cerasiforme*. — **DE LA JAMAÏQUE.** *Eugenia Pimenta*. — **DE MOZAMBIQUE.** *Capsicum luteum*. — **DES ABEILLES.** *Melissa officinalis*. — **ROYAL.** *Myrica Gale*.

PIMENTELLA. A genus of cinchonaceous shrubs, natives of the mountains of Peru. Its characters are not perfectly known; the more important among them seem to be the cup-shaped persistent limb of the calyx; and the linear capsule dividing from above downwards into two valves, and containing numerous very small winged seeds, attached to the margins of the valves. [M. T. M.]

PIMENTO. The dried berries of the West Indian *Eugenia Pimenta* and *E. acris*.

PIMIA *rhamnoides* is the sole representative of the only genus of *Eytneriaceae* as yet discovered in the tropical parts of Polynesia, and the easternmost member of the natural order to which it belongs. It is found in the Feejees, and is a timber tree forty to fifty feet high, with ferruginous branches and foliage, alternate oblong entire leaves, a five-cleft calyx, five very minute cordate petals, five stamens, no staminodia, a five-celled ovary, and an echinate capsule resembling that of *Commersonia*. Its nearest ally is *Laetopetalum*. It was named in honour of the Arctic explorer, Captain Bedford Pim, R.N. [B. S.]

PIMENTO. The Spanish name for Capsicum

PIMPINELLA. A genus of umbellifers, the fruit of which is ovate in general outline, each half with five equal narrow ribs, the furrows between which have several oil-vessels. The species are European herbs, usually having the lower leaves more deeply divided than the upper; and the flowers white. The name is an alteration of *bipinnula*, or twice-pinnate, in allusion to the form of the leaves. [G. D.]

PIMPERNEL. *Anagallis*. — **BASTARD.** *Centunculus*. — **FALSE.** An American name for *Ilysanthes gratioides*. — **RED** or **SCARLET.** *Anagallis arvensis*. — **SEA.** *Honkenya peploides*. — **WATER.** *Samolus Valerandi*; also *Veronica Beccabunga*, and *V. Anagallis*. — **YELLOW.** *Lysimachia nemorum*.

PIMPINEL. *Pimpinella Saxifraga*.

PIMPLED. The same as Papillose.

PIMPLOES. A West Indian name for the Prickly Pear, *Opuntia Tuna* and *O. vulgaris*.

PIMPRENELLE. (Fr.) *Poterium*; also *Rosa pimpinellifolia*. — **AQUATIQUE.**

nailed with the segments laciniated; *pinnaefido-striata*, pinnatifid with the segments sinuated—and so on.

PINNATILOBED, PINNATILOBATE. When the lobes of a pinnatifid leaf are divided to an uncertain depth.

PINNATIPARTITE. Having the nervures pinnated, the lobes separated beyond the middle, and the parenchyma uninterrupted; as in *Polypodium aureum*.

PINNATISECT. When the lobes are divided down to the midrib, and the parenchyma is interrupted.

PINNULES, or PINNULÆ. The secondary divisions of a pinnate leaf.

PINOCHIO. Edible pine-seeds.

PIN-PILLOW. *Opuntia curassavica*.

PINSAPO. *Abies Pinsapo*.

PINUS. The true Pines form a very extensive genus of *Coniferae*, numbering perhaps about seventy species. They are confined solely to the northern hemisphere, and, with the exception of one Canarian species, to Europe, Asia, and America—abounding principally in the temperate and cold regions, and occurring only very rarely within the tropics. All the species are trees, a very great many growing to a large and some to an immense height and size; and being of gregarious habit, growing together in masses, they form extensive forests, especially in North America and Northern Europe.

Generically the Pines are well distinguished from the firs, spruces, cedars, and larches, which some botanists combine with them, by having their leaves in little clusters of twos, threes, or fives, sheathed at the base by thin chaff-like scales; and by the persistent woody scales of which their cones are formed being thickened into a more or less pyramidal elevation at the top, with a boss in the centre, which is often very prominent and hooked. The leaves are evergreen, and what is called needle-shaped, varying from little more than an inch to a foot or more in length, but never much thicker than a stout needle, and usually very sharp-pointed. The two sexes of flowers are borne on the same tree, and appear in the spring, the male catkins being clustered round the lower part of the young current year shoots, forming dense compound spikes; and the females solitary or in clusters at the apex of young shoots. The former are made up of numerous closely imbricated anthers inserted round a common axis, and consisting of two cells adnate to a scale-like connective; and the latter of numerous imbricated scales; each bearing two inverted ovules at its base. The cones ripen in the autumn of the second or third year after the flowering season, and consist of the enlarged and hardened scales of the female catkins, with the two ovules matured into nut-like seeds, which are nearly always furnished with thin wings.

The genus is of immense economic im-

portance to mankind, more particularly in the constructive arts, its chief products being timber and turpentine. The following are some of the most useful species:—

Pinus sylvestris, the typical Pine of Europe, especially of the northern and central parts, has a very extensive geographical range, reaching from the Mediterranean and Caucasus to lat. 74° north in Scandinavia, and eastward across Siberia to Kamtschatka. In this country it is known as the Scotch Pine, the highlands of Scotland being the only part of the British Isles where it is truly indigenous at the present day. It is the badge of the M'Gregors. The tree varies much in size according to the soil and situation of its place of growth, at high elevations being a mere stunted shrub, and in more favourable localities a tree fifty or one hundred feet high, furnishing extremely valuable timber, the different varieties of which are known in commerce as Red, Norway, Riga, or Baltic Pine. It also affords a great part of the Wood Tar of Northern Europe, and some Turpentine.

Pinus australis, or *P. palustris*, as it is sometimes called, is the Pitch Pine of the Southern States of North America, where it forms a great portion of what are there termed 'pine-barrens,' which are extensive and monotonous tracts of country covered with pines to the exclusion of nearly all other trees. Before the outbreak of the American civil war, nearly all the Turpentine consumed in this country came from the Southern States, and was principally the produce of this species of Pine. It also affords the timber known to builders as Georgia Pitch Pine.

Pinus Pinaster, the Cluster Pine or Pinaster, is indigenous to the European countries bordering on the Mediterranean, but has been introduced into some Asiatic

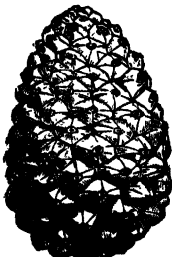


Pinus Pinaster.

and other countries. It is one of the species that flourish close to the sea, and on that account is of vast importance in such districts as the French departments of Landes and Gironde, where, by means of plantations formed of it, enormous tracts of land adjacent to the seacoast and formerly occupied by rolling sands, have been reclaimed and rendered useful for agricul-

tural purposes. It is also extremely valuable on account of the great quantity of Turpentine it yields; and since the blockade of the ports of the Southern States of America, it has supplied the bulk of the turpentine used in this country.

Pinus Pine, the Stone Pine, is a native of Southern Europe and the Levant. This is one of the species of which the seeds are eaten. They are called *Pignons* by the French, and *Pinocchi* by the Italians, and are commonly eaten for dessert, or made into sweetmeats. Several other species also yield eatable seeds: such as *P. Sabina*, the seeds of which are collected in immense quantities by the Californian and Oregon Indians as an article of winter food;



Pinus Pine.

P. Gerardiana, the Neosa Pine of the Himalayas, affording the Neosa or Chilgoza seeds sold as food in the bazaars of Upper India; and *P. Cembra*, the Siberian Cedar, whose seeds are largely consumed by the Russians, as we eat nuts. The Canary Island Pine is shown at Plate 11c. [A. G.]

PINWEED. *Lechea*.

PINKSTER-FLOWER. An American name for *Azalea nudiflora*.

PIONANDRA. A group of about twenty tropical American *Solanaceae*, collected together by Mr. Miers; but in the latest monograph of that order, the majority of them are combined with the older genus *Cyphomandra*, and the remainder referred to *Solanum*. They are small trees or tree-like shrubs, with dichotomous branches, usually entire and mostly cordate leaves, borne in pairs, one of each pair always smaller than its fellow, and extra-axillary racemes, with small campanulate flowers arranged all on one side. [A. S.]

PIONNE. (Fr.) *Paeonia officinalis*.

PIPE-DE-TABAC. (Fr.) *Aristolochia*

PIPE, INDIAN. An American name for *Monotropa*.

PIPE-TREE. *Syringa*.

PIPERACEÆ. (*Pepperwort*.) A natural

order of monochlamydeous dicotyledons belonging to Lindley's piperil alliance of hypogynous Euxoena. They are shrubs or herbs, with articulated stems, opposite verticillate stipulate or exstipulate leaves, sometimes alternate by abortion; and hermaphrodite spiked or racemose flowers without perianth, supported on a bract; stamens from two to six; anthers with or without a fleshy connective; ovary solitary free, one-celled, with a solitary erect ovule, orthotopical. Fruits somewhat fleshy, indehiscent; seed erect, with the embryo in a fleshy vitellus. They are natives of the hottest quarters of the globe, and occur commonly in South America and India. The wood is often arranged in wedges, with medullary rays, but without concentric zones. They have pungent, acrid, and aromatic properties: most of them contain an acrid resin, and a crystalline principle called *piperin*, in which their active qualities reside; some are narcotic and astringent. The substance called *matico*, or *matica*, consists of the leaves and unripe fruit of *Artanthe elongata*. There are about a score of genera, and upwards of 600 species—*Piper*, *Artanthe*, and *Peperomia* affording the best-known examples. [J. H. B.]

PIPER. This name was employed by the Romans to designate the Pepper-plants, and was derived by them from the Greek word *peperi*. The Greeks, in their turn, must have derived it from the Hindoos. Botanically, it is applied to the typical genus of *Piperaceae*, the species of which are for the most part climbing shrubs, with alternate stalked leaves; stipules adherent to the leafstalk or opposite and deciduous; spikes solitary stalked, pendulous, opposite the leaves, with dioecious or perfect flowers, protected by oblong decurrent bracts. The species are indigenous in India, the islands of the Indian Ocean, the Sandwich Islands, &c., and some of them are abundantly cultivated in the tropical countries of the New as well as of the Old World.

P. nigrum yields the Pepper of commerce, a condiment that has been held in high esteem from the earliest times. It is frequently mentioned by Roman writers of the Augustan age, and it is related that in the fifth century Attila demanded, among other things, 3,000 lbs. of pepper in ransom for the city of Rome. Pepper is cultivated in the East and West Indies, Sumatra, Java, &c., but that which comes from Malabar is held in the highest esteem. The pepper-vine will, if left to itself, attain a height of twenty or more feet, but in cultivation it is found more convenient not to allow it to exceed the height of twelve feet. The plants are placed at the base of trees that have rough or prickly bark, in order that they may the more readily attach themselves to the trunk. In three years they produce their spikes of fruits, and continue to do so for some seven or eight years, after which time they become less productive. The fruit when ripe is of a red colour; it is gathered before

it is fully ripe, and spread on mats in the sun, when it loses its red colour and becomes black and shrivelled, as we see it in the peppercorns of the shops: this is Black Pepper. White Pepper is the same fruit, freed from its outer skin by maceration in water and subsequent rubbing; occasionally it is rendered of a yet paler colour by being submitted to the action of chlorine.

Sir John Mandeville, who travelled in the years 1322 to 1356, has given us an account of the Pepper, which, with some exceptions, applies as well now as then. 'The Pepper groweth,' he writes, 'in manner as doth a wyde vine, that is planted fast by the trees of the wodee for to susteynen it by, as doth the vyne, and the fruyt thereof hangeth in manere as Reysinges: and the tree is so thikke charged, that it seemeth that it wolde broke: and when it is ripe it is all grene, as it were ivy berries; and then men kytten hem as men doe the vynes and than thei putten it upon an owven, and there it waxeth blak and crisp.'



Piper nigrum.

Pepper is imported into this country in enormous quantities, and is used as a condiment. Medicinally it is employed as an acrid stimulant in cases of weak digestion, and it has also been recommended in cases of ague to ward off the paroxysm, a practice recommended by Celsus. Pepper is also sometimes employed externally. Pepper on chemical analysis is found to contain a hot acrid resin, and a volatile oil, as well as a tasteless crystalline substance called piperin, which has been recommended as a substitute for quinine. This piperin is especially contained in some large coloured cells in the interior of the fruit. Ground Pepper is frequently adulterated, according to Dr. Hassall, with linseed, mustard-seed, wheat-flour, pea-flour, and ground rice: sago has also been mentioned as being employed for this purpose. All such adulterations can be readily detected by the microscope. At one time, when a very heavy duty was levied on this substance, tactitious peppercorns were manufactured of oilcake, clay, and a small portion of

carene. Pepper-dust, known in the trade as P. D. or B. P. D. (hot pepper-dust), consists of the sweepings of the floors of the warehouses wherein pepper is stored, or of the siftings of the pepper. It is used to mix with genuine ground pepper, also for pickling. The root of the Pepper-plant is employed by the natives of India as a tonic stimulant and cordial.

P. triticum, a nearly allied species to *P. nigrum*, yields also some little of the Pepper of commerce. Dr. Roxburgh, who first cultivated this plant, observed that the pepper of the female vines did not ripen properly, but dropped when green, and was deficient in pungency; but the pepper of those plants which had hermaphrodite and female flowers mixed on the same spike was very pungent, and reckoned by the merchants as equal to the best Malabar Pepper.

Long Pepper is the produce of *Chavica Roeburghii*. The Betel Pepper-leaf is also the produce of another species of *Chavica*, *C. Betle*; while Cubebs, another fruit formerly referred, like the two last-mentioned, to the genus *Piper*, is now considered to form a distinct genus, *Cubeba*. See CHAVICA and CUBEBA. [M. T. M.]

PIPERITOUS. Having a hot biting taste.

PIPEWORT. *Eriocaulon*. Pipeworts is the name given by Lindley to the *Eriocaulaceae*.

PIPI-PODS. The astringent legumes of *Cassipouia Pipi*.

PIPIITZAHUAC. A drastic product of *Dumetia Alamant*.

PIPPERIDGE, or PIPRAGE. *Berberis vulgaris*.

PIPPIN, NORMANDY. Sun-dried apples, pressed and stored for winter use.

PIPPUL, or PEEPUL. An Indian name for *Ficus religiosa*.

PIPSISSEWA. *Chimaphila umbellata*.

PIPTADENIA. In the character of its flowers this genus of *Leguminosae* does not differ from *Entada*, though readily distinguished by its pods, which are seldom more than six or nine inches long and not very broad, flat and membranous or somewhat leathery, sometimes contracted between the seeds but without partitions inside, and ultimately separate into two pieces, which have the seeds attached to them by thread-like funiculi. The genus is entirely confined to tropical South America, and contains about thirty species, some trees, and others large sometimes prickly shrubs, with twice-pinnate leaves, and small white or greenish flowers, either in spikes or round heads, growing from the axils.

P. peregrina is one of the tallest trees of the genus, and has leaves composed of from fifteen to thirty pairs of pinnae, each with from thirty to eighty pairs of minute leaflets; and rough leathery moniliform pods about six inches in length. The Indians of Venezuela and Brazil prepare a

kind of snuff, called *Niopo* in the former and *Parica* in the latter country, by pounding the roasted seeds and mixing the powder with lime. It produces a peculiar kind of intoxication almost amounting to frenzy, and is taken by help of an instrument made of the leg-bones of birds. On the Rio Negro this is formed by joining two pieces, so that when one end is placed in the mouth the other reaches the nostrils, and the snuff is blown with great force up the nose; but in Venezuela it consists of a bone seven inches long, with a short piece joined on towards the top so as to form a fork, which is applied to the nostrils, and the lower end being dipped into the snuff the snuff is drawn up the nose. [A. S.]

PIPTANTHUS. A Himalayan shrub forming a genus of *Leguminosæ* of the suborder *Papilionaceæ* and tribe *Podalyriæ*, very nearly allied to *Anagyris*, and with the same trifoliate leaves, and rather large pale-yellow flowers; but the standard or upper petal has the alvea closely folded back on each other. The free stamens and flat-stalked pod are as in *Anagyris*. The only species known, *P. nepalensis*, has been introduced to our botanic gardens, where, however, it requires to be grown against a wall.

PIPTATHERUM. A genus of grasses belonging to the tribe *Styzeæ*, and now included under *Urachne*. [D. M.]

PIPTOLENA. A genus of dogbanes, having the calyx tubular, shortly five-cleft, and falling off after flowering; its tube lined inside with several rows of fleshy scales; and the stigma capitate, two-lobed, subtended by four recurved lamellæ. It is an African tree, with opposite short petiole leaves, wedge-shaped at the base; and bears its flowers in the axils of the upper leaves. [G. D.]

PIPTOSTEGIA. A genus founded on *Ipomæa operculata*, and published without a technical description. The plant is well known, being used in medicine on account of its purgative qualities: it is imported into Europe under the name of *Gomma da Batata*. [W. C.]

PIRATINERA. The plants formerly included under this generic name are now referred to *Brodiaeum*. One of the species yields Snake-wood, or *Bos des Lettres*, which is exceedingly hard, and derives its name from its peculiar markings. [M. T. M.]

PIRCUNIA. A genus of *Phytolaccææ* separated from *Phytolacca*, and characterised by the five segments of the calyx being of a thick leathery texture and green colour, and either ascending or reflexed under the ripe fruit; by the stamens varying from five to thirty, and more particularly by the five to twelve ovaries being distinct, or cohering only by their bases, but never throughout their whole length like those of *Phytolacca*. The species are tall herbs, with leaves and flower-spikes resembling those of *Phytolacca*, except one which attains the height

of a tree, and has the two sexes of flowers on different plants. They are found in America, Africa, and the East Indies.

P. dioica, the arborescent species just mentioned, is distinguished not only by its size and unisexual flowers, but by the racemes being pendulous and the carpels united by their bases. It is a native of Buenos Ayres, from whence it has been introduced and partly naturalised in Spain and Portugal, where it grows very rapidly to the height of twenty or twenty-five feet, forming a handsome leafy tree with a very thick trunk of remarkably soft spongy wood, and short branches spreading so as to form a rounded head. Its leaves are of an elliptical form, on longish stalks, and measure about six or eight inches in length and from one to two inches in breadth.

P. esculenta was recommended some twelve or more years ago for cultivation in France as a culinary vegetable, but does not appear to have met with much success. Its leaves cooked as spinach, and its young shoots as asparagus, were both said to possess an excellent flavour. The plant is herbaceous, and grows from three to five feet high, with a thickish pale-green smooth stem, and branches bearing elliptical leaves from five to seven inches long and two to two-and-a-half inches broad, and erect racemes of perfect flowers, with the ovaries cohering by their bases. [A. S.]

PIRI-JIRI. The New Zealand *Haloragis citriodora*.

PIRITU. A Venezuelan name for *Gutierrezia speciosa*.

PISAILLE. (Fr.) *Pisum arvense*.

PISANG. An Indian name for *Musa paradisiaca*.

PISCIDIA. A West Indian tree constituting a genus of *Leguminosæ*, with the foliage habit and flowers of *Lonchocarpus*, but the pod bears four projecting longitudinal wings. The pounded leaves and young branches of this tree, *P. erythrina*, like those of some other allied arboreal *Papilionaceæ*, are used for poisoning fish.

PISHAMIN. *Carpodinus*.

PISIFORM. Pea-shaped.

PISONIA. A genus of tropical trees and shrubs of the family *Nyctaginaceæ*, named in honour of a Dutch physician who wrote a folio volume on the Natural History of Brazil in 1648. The flowers are arranged in cymes, provided with very small bracts, but no general involucre, and are for the most part diocious. The perianth is coloured and funnel-shaped, the limb either entire or more or less five-lobed; stamens six to ten, free, of unequal length, protruding; ovary one-celled, with a single erect ovule; fruit angular, enclosed within the persistent and hardened tube of the perianth, its angles frequently rough and prickly. Some of the species are in cultivation as stove plants, but have little to recommend them. *P. fragrans* and other species have emetic properties. *P. aculeata*,

a scrambling tree with reclining thorny branches, is described as offering serious annoyance to travellers in the West Indies by its strong hooked spines, which become entangled in the clothes or flesh of the wayfarer. The glutinous bur-like fruit adheres to the wings of birds to such an extent as to prevent them from flying, and allow of their easy capture. [M. T. M.]

PISSABED. *Taraxacum Dene-leonia.*

PISSBLUME. *Armeria vulgaris.*

PISENILIT. (Fr.) *Taraxacum.*

PISSE-SANG. (Fr.) A vulgar name for fumitory.

PISTACHY. (Fr.) The Pistachio-nut.
— **DE TERRE.** *Arachis hypogæa.*

PISTACHIER. (Fr.) *Pistacia.*

PISTACIA. The *Pistacias* or Turpentine trees form a genus of *Anacardiaceæ*, dispersed through the temperate zone of the northern hemisphere, extending in the Old World from the south of Europe and North Africa through Western Asia and the north of India to China, while a solitary species is found in Mexico. They are mostly small trees, seldom more than twenty or thirty feet high, and have pinnate leaves with or without a terminal leaflet, and axillary panicles or racemes of small unisexual apetalous flowers, those bearing the female being looser than the male, and the two sexes being produced on separate trees; the males five-parted, with a stamen opposite and inserted into each segment; the females three or four-parted, closely investing a one- (rarely three-) celled ovary. The fruits are dry egg-shaped drupes, containing a one-seeded stone with a bony shell, the seed having thick fleshy oily cotyledons.

P. Lentiscus, the Mastic tree, is a native of Southern Europe, Northern Africa, and Western Asia. It is a small tree about

transverse incisions in the bark, from which it exudes in drops and hardens into small semitransparent tears. It is principally produced in the island of Scio and in Asiatic Turkey, and is consumed in large quantities by the Turks for chewing to sweeten the breath and strengthen the gums: hence its name, which is derived from *masticare*, 'to chew.' In this country it is used for varnishing pictures, and by dentists for stopping teeth.

P. Terebinthus, the Chio or Cyprus Turpentine tree, is likewise found in Southern Europe, Northern Africa, and Asia. It has deciduous pinnate leaves, usually with three pairs of lance-shaped leaflets and an odd terminal one; and produces small dark-purple roundish furrowed fruits. The turpentine flows from incisions made in the trunk, and soon becomes thick and tenacious, and ultimately hardens. It is collected in the islands of the Greek and Turkish Archipelagoes, but seldom comes to this country. Curious horn-shaped galls, caused by the punctures of insects, are found in large numbers upon the Terebinth tree, and are collected for dyeing and tanning purposes—one of the varieties of Morocco leather being tanned with them.

P. vera, the Pistacia tree, which yields the eatable Pistachio-nuts, is a native of Western Asia, from whence it has been introduced into and is greatly cultivated in Southern Europe. Its leaves are composed of three or five (occasionally one) broad egg-shaped leaflets; and its fruits are much larger than in the last, oval, sometimes nearly an inch long, and containing a seed with bright-green cotyledons. Pistachio-nuts are greatly eaten by the Turks and Greeks, and also in the south of Europe, either simply dried like almonds, or made into articles of confectionary. Galls are also collected from this and other species; those from Cabul and Bokhara, called Gool-i-Pista, being the produce of *Pistacia Khatjuk*. The Chinese Galls (Woo-pai-tze), formerly referred to a species of *Pistacia*, are now proved to be produced by *Rhus complata*. [A. S.]

PISTIACEÆ. (*Lemnaceæ*, *Lemnada*, *Duck-weeds*.) A natural order of monocotyledons belonging to Lindley's aral alliance of Endogens. They are floating plants, with lenticular or lobed leaves or fronds, bearing one or two monocious flowers enclosed in a spathe, but with no perianth; stamens definite, often monadelphous; ovary one-celled; ovules one or more, erect or horizontal. Fruit indehiscent, membranous, one or more seeded. They are natives both of cool and warm regions. *Pistia* and *Lemna* are examples of the few genera, which comprise some two dozen species. *Lemna* forms the green covering of pools in Britain, while *Pistia* floats on ponds in warm countries. [J. H. B.]

PISTIA Stratiotes is a very common tropical water-weed, out of which many species and even separate genera have been made. It is referred to the same order as duckweed (*Lemna*), whence it is sometimes called Tropical Duckweed, but is



Pistia Lentiscus.

fifteen or twenty feet high, with evergreen pinnate wing-stalked leaves without a terminal leaflet. Mastic or Mastich is the resin of the tree, and is obtained by making

very different in appearance; indeed, its common West Indian name, Water Lettuce, is much more expressive of its general resemblance. Like duckweed, it propagates itself with great rapidity, and frequently completely covers tropical ponds and water-tanks with a coating of verdure, keeping the water beneath fresh and cool. It floats on the water, and sends down a quantity of long feathery roots, which do not always reach the bottom. The plant consists of a rose-shaped tuft of wedge-shaped slightly concave notched or round-topped leaves, two to five inches long, of a delicate pale pea-green, covered with fine hairs. Each plant sends out several runners, and upon the ends of these other similar plants are formed, which, again, send out runners, until in a short time the surface of the water is covered. Its flowers are very small, and borne in little spathes at the base of the leaves, each spathe containing one male and one female flower attached to an adnate spadix. The former occupies the upper part, just within the mouth of the spathe, and consists of three to eight four-celled anthers adnate to a short column seated in a cup-shaped disk; while the latter is nearly concealed within the spathe, beneath the male, from which it is separated by a scale-like appendage, and consists of a single one-celled ovary terminated by a thick style and cup-shaped stigma, and containing numerous ovules along its inner face. [A. S.]

PISTIL. The female part of a flower, consisting of ovary, style, stigma, and ovules.

PISTILLARY CORD. A channel which passes from the stigma through the style into the ovary.

PISTILLIDIA. Young spore-cases, the archegonia in ferns; organs in the muscal alliance, which have the appearance of pistils.

PISTILLIGEROUS. Bearing a pistil.

PISTOLOCHIA. *Aristolochia Pistolochia*.

PISTORINIA *hispanica* is the only representative of a genus of *Crassulaceae* inhabiting Spain and the Barbary coast of the Mediterranean. It is an erect annual or biennial herb, with nearly terete oblong and sessile leaves, and pinkish flowers arranged in umbels. The calyx is five-cleft, the corolla monopetalous, hypocrateriform, with its border divided into five lobes; and there are ten stamens, five scales, and five carpels. [B. S.]

FISUM. A genus of *Leguminosae* of the tribe *Viciae*, distinguished by its triangular style keeled above, subfalcate and geniculate at the base. Three species have been referred to it, but they may all be reduced to the one grown for culinary purposes. It is, however, scarcely sufficiently distinct from *Lathyrus*.

The Common Pea, *P. sativum*, is a hardy annual of the greatest antiquity, and one of the most valuable of cultivated legumes.

Its native country is unknown, but is generally understood to be the south of Europe, from whence it is supposed to have been introduced into this country, by way of Holland or France, about the time of Henry VIII. During the long period it has been in cultivation numerous varieties have been produced, some of which seldom exceed a foot in height; while others, if allowed to attach themselves to stakes by their tendrils, will climb as high as eight feet or more. The whole plant is covered with a delicate glaucous bloom. The stem is round, furnished with numerous alternate compound leaves, the leaflets of which are roundish oval entire, and of a rich deep green, often marked with blotches of a paler colour. At the base of the footstalk each leaf has a pair of stipules, which resemble the leaflets but are much larger, rounded below, and have small convex teeth; while the extremity of the footstalk is terminated by a small round branching tendril, which clasps for support round anything near it. The peduncle is axillary, sometimes one but more generally two-flowered. The flowers are large, pure white or pale violet. The pods are pendulous, smooth, deep green, and variable in size, but for the most part oblong compressed somewhat scimitar-shaped terminating in a small hooked point. The peas when ripe are also variable—some being white and round, others blue and wrinkled, and a few large irregular and dull green.

The use of Peas is familiar to every one. In their dried state they are split and used for soups, or ground into meal for puddings, &c. In either case they form an agreeable and nourishing food, containing upwards of one-seventh more of nourishing matter than is found in the same weight of wheaten bread. But it is in a green state that peas are most valued for culinary purposes, and more particularly when they are quite small and young. In Queen Elizabeth's time (about 1570), we are told, they were occasionally brought from Holland, and considered 'a dainty dish for ladies—they came so far and cost so dear.' For many years their culture does not appear to have been much attended to, but after the Restoration of Charles II. in 1660, the taste for green peas became fashionable, and has continued to be so up to the present time—enormous prices being still paid for young peas very early in the season, when they are scarce and regarded as a great delicacy. To have peas in the highest perfection, they should not be allowed to get too old or too large. When the pods become full and hard, the peas are then more suitable for soups than a vegetable dish.

Besides the varieties of Peas whose seeds are edible, there is a section denominated Sugar-peas, which is remarkable in that the pods are destitute of the inner film peculiar to the pods of the other kinds of Peas. They are consequently more fleshy and crisp, and admit of being cut and dressed in exactly the same manner as French-beans. [W. D. B.]

The original Grey Pea, *P. sativum arvense* of authors, supposed to be wild in Greece and the Levant, is probably the original parent both of the few sorts of peas grown by the farmer, and the countless numbers of still increasing sorts of the garden. Formerly varieties of the Grey Pea were almost exclusively planted on the farm; now, however, several garden varieties are introduced to field culture, as the White and Blue Prussian, Dwarf Blue and Green Imperial, the Scimitar, and others. Peas formerly took their place on the farm as a seeding crop, but at present in the neighbourhood of large towns even farmers cultivate green peas. Before the spread of the potato, peas formed a great part of the food of the working-classes, especially in the country; and a seed so rich in nitrogen was doubtless the cause of that superior muscular development which obtained among the peasantry in the last century. So important was this crop held to be, that in the letting or taking of a farm the acreage of Siddaw land (the term by which soil that would grow good boiling peas was known in Gloucester, Hereford, and Worcester) was always taken into consideration.

Field peas are often drilled with horse-beans, the mixture being known in country vernacular as Poultis—no doubt a corruption of Pulse. A greater breadth of peas is grown in the counties of Sussex and Essex than we have seen elsewhere, and in the former county we have observed roasted peas always ready in the hucksters' shops. Pea-straw is highly esteemed as fodder, its large amount of flesh-forming matter rendering it superior in regard to its feeding properties to the straw either of wheat or barley. [J. B.]

PITA. *Agave americana* and the allied species. Pita-fibre and Pita-thread are names for the fibre, called also Aloe-fibre, obtained from the leaves of the larger Agaves, such as *A. americana* and *A. mexicana*.

PITANGA, PITANGUEIRA. Names applied to Brazilian fruit-bearing species of *Eugenia*.

PITCAIRNIA. A genus of tropical American herbs belonging to the *Bromeliaceae*. They have linear spiny leaves, and flowers in clusters, perianth of six pieces, the three outer lanceolate keeled erect, the three inner ones larger, combined into a tube below, arching above or spreading, and scaly at the base within; stamens six, inserted into a ring encircling the partially adherent ovary; capsule three-celled, three-valved; seeds numerous. Several species of this handsome genus are in cultivation, and have for the most part scarlet or yellow flowers. [M. T. M.]

PITCH. The residuum obtained in the distillation of wood-tar from *Pinus sylvestris* and *P. Pinaster*; the resin of pine, extracted by fire and inspissation. It is commonly known as Black Pitch. —, AM-BOYNA. The resin of *Dammara australis*.

, BURGUNDY. The purified resinous sap of *Abies ezzeola*.

PITCHER. A hollowed-out leaf, furnished with a distinct extremity or lid; the latter being the lamina, the former the petiole; as in *Nepenthes*.

PITCHER-LEAF. *Nepenthes Phyllanthophora*.

PITCHER-PLANT. *Nepenthes*. also *Sarracenia*. —, AUSTRALIAN, or NEW HOLLAND. *Cephalotus follicularis*. —, CALIFORNIAN. *Darlingtonia californica*.

PITCHER-SHAPED. The same as Campanulate, but more contracted at the orifice, with an erect limb; as the corolla of *Vaccinium Myrtillus*.

PITCH-TREE. *Abies ezzeola*. —, AM-BOYNA. *Dammara orientalis*.

PITH. The same as Medulla.

PITH-TREE. *Horminera Elaphrozygon*.

PITHECOLOBIUM. The majority of the species now included in this genus of *Leguminosae* were referred by old authors to *Inga*, from which they are not distinguishable by their flowers, but by their leaves and pods. Thus the *Ingas* have simply pinnate leaves, and straight or only slightly curved thick-edged pods, which do not open at maturity; while the leaves of *Pithecolobium* are twice-pinnate, and the pods either spirally twisted or very much curved, sometimes so much as to form rings, not thickened at the margin, and when ripe splitting into two valves. The seeds are usually surrounded by a thin pulp. Nearly a hundred species are described, the greater number of which belong to the tropics of the western hemisphere, and the remainder to tropical Asia, with the exception of one found in Eastern Australia.

P. dulce, a large tree native of the hot regions of Mexico, produces cylindrical irregularly swollen pods curled at the top, containing a sweet edible pulp, which the Mexicans, who call the tree Guamuchil, boil and eat. The Spaniards introduced it into the Philippine Islands, from whence it has been carried to India; and it is now planted along the lines of railway in the Madras Presidency, where the fruit is known as Manila Tamarinds. Other species, such as *P. Saman* in Brazil and Venezuela, also yield eatable pods, which are given to cattle like the Carob pods of Europe. Those of *P. cyclocarpum* possess saponaceous properties and are used as soap in Caracas, as also is the bark of *P. bige numum*, or an allied species, in Cochinchina; while the bark of *P. unguis-cati* is astringent. [A. S.]

PITHYUSA. *Euphorbia Pithyusa*.

PITO. A sort of beer made from the fermented seeds of *Zea Mays*.

PITS. Depressions on the inside of cells or tubes, formerly taken for pores, which they resemble.

PI-TSL. *Scirpus tuberosus*.

PITTE (Fr.) *Fouquieria gigantea*.

PITTED. Having numerous small shallow depressions or excavations.

PITOMBA. *Sapindus seculentus*.

PITTOSPORACEÆ. (*Pittosporaceæ*.) A natural order of thalamifloral dicotyledons belonging to Lindley's berberal alliance of hypogynous Exogena. They are trees or shrubs, with simple alternate exstipulate leaves, and regular symmetrical occasionally polygamous flowers, found chiefly in Australasia. Many of them are resinous, and in some instances the berries are eaten. Sepals and petals four or five, imbricated; stamens five, alternate with the petals; ovary two to five-celled, with axile and parietal placentas. Fruit capsular or berried, with many-seeded cells, which are sometimes incomplete; seeds often enveloped in a glutinous or resinous pulp. *Pittosporum*, *Billardiera*, and *Sollya* are some of the genera, of which there are about a dozen, including some eighty or more species. [J. H. B.]

PITTOSPORUM. A genus of *Pittosporaceæ*, having a calyx of five sepals; a corolla of five petals, the claws of which are united into a tube; five stamens alternating with the petals; a single style crowned with numerous stigmas; and a smooth or hairy five-valved one-celled capsule, the seeds covered with a resinous pulp. They form large shrubs or small trees, with entire permanent leaves, and white or yellowish flowers with a spreading limb, disposed in terminal cymes or racemes. The larger number of species are natives of Australia, but some occur in Madeira, the Canaries, Cape of Good Hope, Japan, &c. [R. H.]

PITUITAIRE. (Fr.) *Delphinium Staphisagria*.

PIVOINE. (Fr.) *Pœonia*. — EN ARBRE. *Pœonia Moutan*. — DES JARDINS, or P. FEMELLE. *Pœonia officinalis*. — MÂLE. *Pœonia corallina*.

PIWARRIE. An intoxicating beverage prepared from Cassava, *Manihot utilisima*.

PIXIDELLE. (Fr.) *Lindernia*.

PIXIE-STOOLS. *Chanterellus cibarius*.

PIZIUBA. *Iriartea exorrhiza*.

PLACEA ornata. A pretty little Chilean amaryllidaceous plant, forming a genus allied to *Eucrosta*, and having a petaloid perianth of six equal reflexed spreading divisions, the two lower of which are widely separated; a coronet of six notched narrow pieces cohering into a tube at the bottom; three long and three short declinate stamens; and a curved style and truncate stigma. It has a small bulb, from which rise a pair of narrow leaves; and a flower-stem a span or so high, bearing about six flowers, which are snow-white outside and striped with brilliant vermilion lines inside. [A. S.]

PLACENTA. The place or part on which ovules originate.

PLACENTA-SHAPED. Thick, round, and concave on both the upper and lower surface; as the root of *Cyclamen*.

PLACENTATION. The manner in which the placenta is constructed or placed.

PLAGIANTHUS. A small genus of *Malvaceæ* confined to South Australia, Tasmania, and New Zealand. One species is a tall tree, and the others large shrubs, with very tough bark, and more or less covered with star-like down. Their leaves are alternate or in clusters, and very variable in shape; and their small whitish flowers are borne in little racemes or clusters in the axils of the leaves, and are usually unisexual with the two sexes sometimes on separate plants, but occasionally perfect. The fruit consists of from one to five one-celled cocci, which ultimately burst irregularly and separate from the central column.

P. betulinus (*P. urticinus*; also *Philippodendron*) when full-grown forms a tree seventy feet high, but it is more frequently a straggling bush of no great height. The inner bark of the young branches yields a very fine tough fibre, sometimes called New Zealand Cotton, though more like flax than cotton: it is the Akaroa of the New Zealanders. *P. albidus* is one of several plants with fibrous bark, which in Tasmania and New South Wales bear the native name Kurrajong or Currageong. The present, a shrub ten or twelve feet high, yields a tough fibre, of which good cordage and twine for fishing-nets are made. [A. S.]

PLAGIOCHILA. A charming genus of *Jungernmanniaceæ*, characterised by the free terminal herbaceous perianth, which is generally exserted but sometimes concealed by the involucre, though in that case distinct. The leaves, moreover, have their anterior margin concealed by the posterior margin of the next in succession. In *Plagiochitia* the perianth is two-lipped and laterally compressed. The species belong principally to warm countries, but we have a fine representative, *P. asplenoides*, in this country. Should *Jungernmannia* ever become objects of cultivation, the species of *Plagiochitia* must be in the first class. Some of them are very large and elegant, as, for example, the New Zealand *P. Stephensontana*, which attains a length of eight or nine inches, and is as beautiful in structure as the most delicate *Hymenophyllum*. [M. J. B.]

PLAGIOCHILUS. A genus of *Compositæ* of the tribe *Anthemideæ*, consisting of low herbs from the Andes of South America, mostly with the prostrate stems, much-cut leaves, and small flower-heads of *Soliva*, but remarkable for the external florets of each head being deeply and unequally three-lobed. There are several species, insignificant woody-looking plants of no special interest.

PLAGIOLOBIUM. A name given by Sweet to *Hovea chorazemaefolia* and its variety *ilicifolia*, which have broader leaves

than other *Hoveas*, often bordered by prickly teeth, and a broader and more oblique pod. They are natives of South-west Australia, and are to be met with in many of our collections of Australian papilionaceous plants. The flowers are of a deep purplish blue as in other *Hoveas*, and are rather ornamental.

PLAITED. Folded lengthwise, like the plaits of a closed fan; as in the leaves of the fan-palm.

PLANE. Flat or perfectly level; as in many leaves.

PLANE. (Fr.) *Acer platanoides*.

PLANERA. Trees, natives of Asia and North America, belonging to the *Ulmaceae*, and closely allied to the elms, from which they may be distinguished by their fruit, which is roundish, gibbous, pointed, two-celled, and two-seeded. *P. Richardi*, the Zelkova tree, attains in its native country a great size, growing to the height of seventy or eighty feet, with a trunk of the diameter of four feet. The bark resembles that of the hornbeam more than the elm, and instead of becoming rugged is shed in scales like that of the plane. The foliage strongly resembles that of the elm; the flowers are small, of a greenish-brown colour, and smell like those of elder. The fruit is about the size of a pea, and contains two seeds. The trunk is straight and upright, and is of equal circumference from the surface of the ground to a height of twenty-five or thirty feet, where it throws out its first branches. The timber is much prized. The sapwood, which is of a light colour and very elastic, is used for the purposes in which ash-timber is employed. The heartwood, which occupies two-thirds of the whole trunk, is reddish, heavy, and when dry exceedingly hard; hence it takes a good polish, and is valued for making domestic furniture. *P. Gmelini*, a native of the Southern States of America, is a small tree, to which no particular value is attached. Either of the above may be grafted on the elm. French: *Orme de Sibirie*. [C. A. J.]

PLANE-TREE. *Platanus*. —, **MOCK**, or **SCOTCH.** *Acer Pseudo-Platanus*.

PLANIUSCULUS. Nearly flat.

PLANK PLANT. *Bostima Scelopendrium*.

PLANTAGINACEÆ. (*Rhizocots*.) A natural order of corollifloral dicotyledons belonging to Lindley's cortical alliance of perigynous Exogens. They are herbs, often stemless, with radical ribbed leaves, and spiked hermaphrodite flowers, or solitary unisexual ones. Calyx four-parted, persistent; corolla monopetalous, scarious, with a four-parted limb; stamens four, alternate with the segments of the corolla; disk inconspicuous; ovary free, two to four-celled, with a simple style and hispid stigma. Fruit an operculate capsule. The species are chiefly found in temperate and cool regions. The three genera, of which

and *Littorella* are examples, comprise over 100 species. [J. H. B.]

PLANTAGO. A genus of stemless herbaceous plants giving name to the order *Plantaginaceae*, represented in Great Britain by several common species. *P. major*, the Greater Plantain, abundant by waysides and in the corners of fields, is known by its broad strongly ribbed leaves tapering towards each extremity, from the centre of which rise, to the height of two to six inches, several cylindrical leafless stalks bearing each a long spike of greenish flowers, succeeded by many-seeded capsules, which when ripe are much sought after by bird-fanciers as food for canary-birds. *P. media*, the Hoary Plantain, has the leaves similar but smaller, and they are remarkable for being pressed so closely to the ground as to injure seriously any crop among which it may be growing by stifling the young plants; hence it is a great pest in pastures and on lawns. *P. lanceolata*, the Rib-grass, has narrow strongly ribbed leaves, and bears brown spiked heads of flowers at the summit of a furrowed stalk; it is sometimes sown as an ingredient in a crop of meadow-grass, but with doubtful propriety. *P. Coronopus* grows in sandy places, and is distinguished by its pinnate toothed leaves, which radiate so as to resemble a star, whence it is sometimes called Star of the Earth. There are numerous foreign species, but none of particular interest. The name Plantain is frequently applied to the Banana of the tropics, *MUSA*: which see. French: *Plantain*; German: *Wegerich*. [C. A. J.]

PLANTAIN. *Musa paradisiaca*. —, **BASTARD.** *Heliconia Bihai*. —, **GREAT-ER.** *Plantago major*. —, **INDIAN.** An American name for *Cacalia*. —, **MUD.** *Heteranthera reniformis*. —, **RATTLESNAKE.** *Goodyera*. —, **ROBIN'S.** *Erigeron bellidifolium*. —, **WATER.** *Alisma*. —, of Jamaica. *Pontederia azurea*.

PLANTAIN. (Fr.) *Plantago*. — **AQUATIQUE.** *Damasonium Alisma*, alias *Actinocarpus Damasonium*. — **DEAU.** *Alisma Plantago*. — **EN ARBRE.** *Musa*.

PLANT D'AIX. (Fr.) A kind of olive.

PLANTIA. A genus of Irids, allied to *Sisyrinchium* and *Moræa*, consisting of a Cape species, *P. flava*, of which very little is known. It has a single narrow stem-clasping leaf, and a many-flowered stem bearing pretty yellow flowers. [A. S.]

PLAQUEMINIER. (Fr.) *Diospyros*. — **D'ORIENT.** *Diospyros Lotus*.

PLATANACEÆ. (*Planae*.) A natural order of monochlamydeous dicotyledons, referred to Lindley's ertical alliance of diclinous Exogens, and consisting only of the genus *PLATANUS*: which see. [J. H. B.]

PLATANIER. (Fr.) *Sparagantum*.

PLANTANTHERA. An extensive genus of orchids, belonging to the tribe *Ophrydeæ*, and closely allied to *Habenaria*, from which

it is distinguished by the absence of the two fleshy processes of the lower lip of the stigma, characteristic of that genus. The numerous species are nearly all natives of the temperate and cold regions of the northern hemisphere, in Europe, Asia, and America, very few extending to the warmer regions—the exceptions being one or two in Java, and as many in Ceylon. Two—viz. *P. bifolia* and *P. chlorantha*—are British, and are frequently referred to *Habenaria* in local floras. [A. S.]

PLATANUS. A genus bearing some resemblance to the ural and amentel families, but so different that it has been separated from them as distinct, under the name of *Platanaceæ*, placed by Lindley in the ural alliance. It consists of five or six species, nearly resembling each other, natives of Europe, Asia, North Africa, and the temperate parts of North America. Most of them are lofty trees, with dense foliage and massive trunks, the bark of which annually scales off, leaving the surface smooth. The leaves are alternate, with sheathing stipules, the lamina being pentagonal or palmate. The flowers are monœcious, in globular heads somewhat resembling catkins: the males usually consist of a mass of apparently irregular sepals and stamens, but when fully developed the flower is found to consist of four sepals and four stamens alternate with them; frequently, however, only three or two are present. The heads of female flowers also have commonly the same appearance of irregularity, from which the ovary has been regarded as consisting of a single carpel; but when they are perfect each flower proves to consist of four sepals, four barren stamens alternate with them like minute petals, and from four to eight distinct carpels—the latter character being more obvious in *P. occidentalis*. Each of the carpels contains one or two pendulous ovules, and becomes a single-seeded fruit. The embryo, which has an inferior radicle, is enclosed in a small quantity of albumen. For a further description of the flowers, and for figures, see *Ann. Nat. Hist.*, Third Series, l. p. 10 *et seq.*

Different opinions have been formed as to the position of this genus in the natural system; the ovary, however, together with the general appearance of the trees, brings it near *Aceraceæ*, 'Sycamore,' which is a species of *Acer*, being one of the names by which *P. occidentalis* is known in America.

P. orientalis, the Oriental Plane-tree, well-known in the parks and plantations of this country, is when fully grown from seventy to ninety feet high, forming when standing separately a majestic object. It is distinguished from *P. occidentalis* by the leaves being more deeply divided and indented, and by the absence of membranous bracts around the female flower. The wood is used in the Levant and in Asia, in carpentry, joinery, and cabinet-making, and is said to make beautiful furniture on account of the smoothness of its grain,

and its susceptibility of receiving a high polish. *P. acerifolia*, the tree commonly grown in and about London as *P. occidentalis*, is as large as the Oriental Plane, the trunk having been known to become upwards of thirteen feet in diameter. The wood in seasoning becomes of a dull red colour; it is used in carpentry, but is not much esteemed. It is well adapted for planting in towns.

P. racemosa, the Californian Plane—remarkable for its deeply five-lobed leaves, the under-surface of which, even when they become old, is copiously clad with woolly hairs—has a wood far preferable to that of *P. occidentalis*, being harder, more durable, and less liable to warp. [B. C.]

PLATEAU. (Fr.) *Euphar hœum*.

PLATENIA. A genus of *Palmaceæ* closely allied to *Cocos* and *Syagrus*, lately established upon a palm found upon the banks of the River Magdalena in New Grenada, and principally characterised by its flower-spikes being furnished with only one spathe, which splits lengthways along the back, by the female flowers not having barren stamens, and by the bony stone of the fruit being smooth or marked with three small channels. *P. Chiraguæ*, the palm in question, grows from fifty to seventy feet high, and has pinnate leaves measuring twelve feet in length, with very numerous narrow sharp-pointed smooth segments as much as two feet in length. Its flower-spikes are simply branched, and bear female flowers, with one or two males adjoining them on the lower and males alone on the upper part; the females producing fleshy orange fruits about the size of pigeons' eggs, and containing a single horny seed with a cavity in the centre. [A. S.]

PLATONIA insignis. A beautiful Brazilian tree forming, with another species, a genus of *Clusiaceæ* allied to *Moronebæ*, differing chiefly in the five bundles of stamens consisting of much more numerous filaments, not spirally twisted round the ovary. The tree is very large with a hard wood; the leaves coriaceous, elegantly marked with numerous parallel veins; the flowers large, of a light red colour, solitary at the ends of the small branches. The fruit, called Pacoury-ava in Brazil, is said to be very sweet and delicious, whilst the seeds have the flavour of almonds.

PLATYCARNOS. A genus of *Fumariaceæ*, native of the Mediterranean region, differing from *Fumaria* by the erect not climb-

PLATYCARPUM. A genus of doubtful affinity provisionally classed with *Bignoniaceæ*, but inclining strongly towards *Rubiaceæ* and *Leguminosæ*. Unlike most *Bignoniaceæ*, the five-cleft calyx is semi-inferior; the funnel-shaped corolla encloses five fertile stamens; the capsule is woody, flat, and at the top and base cordate, whilst two winged seeds are enclosed in each of

the two cells into which the fruit is divided by a very narrow partition. Only one species, *P. orinocoense*, is known; this grows on granitic rocks on the banks of the Orinoco, and is a tall timber tree, with simple oblong leaves, furnished with stipules, and terminal panicles bearing rose-coloured blossoms. Its nearest allies are the various species of *Henriquetia*, also inhabitants of the Orinoco region. [B. S.]

PLATYCARYA. *Fortunæa*.

PLATYCERIUM. A very distinct and remarkable genus of ferns commonly associated with the *Acrosticheæ*, but which it has been proposed to place in a separate section, from its producing its sori in large amorphous patches, not as in the true *Acrosticheæ* universal over the fertile portions. The species are few in number, chiefly Eastern or Australian, and for the most part tropical. They have heteromorphous coriaceous lacinate or lobate fronds, clothed with stellate hairs, and the fertile ones are



Platycerium Wallichii.

articulate. The broad fronds are traversed by several furcate ribs, between which there is a close network of finer buried veins. The large shapeless masses of spores are attached to a plexus of crowded veins, and are quite naked. In *P. biforme* they occupy a separate scutiform lobe, but in the other species they are variously situated near the margin. [T. M.]

PLATYODON. A genus of bellworts, having a funnel-shaped corolla, with a broad five-lobed border, and the filaments of the anthers broad at the base. The species are perennial shrubs, natives of Eastern Asia. Their leaves are alternate and sessile; and the flowers large and handsome. The name is from the Greek words signifying 'broad' and 'bell,' in allusion to the conspicuous corolla. [G. D.]

PLATYRATER. A genus of *Hydrangeæ*, growing on moist rocks in the north of Japan. It forms a small shrub, with procumbent or rooting branches, ob-

long acuminate serrate leaves, and a loose terminal branched corymb of flowers, of which the lower ones of each branch are sterile with an expanded coloured calyx, as in *Hydrangeæ*; but the fertile flowers have indefinite stamens inserted on an epigynous disk or ring. [J. T. S.]

PLATYLEPIS. A genus of cyperaceous plants belonging to the tribe *Hypolytreae*. The inflorescence is in solitary or compound many-spiked heads. It contains six species, which are either natives of South Africa or Brazil. [D. M.]

PLATYLOBIUM. A genus of *Leguminosæ* of the suborder *Papilionaceæ* and tribe *Genisteæ*, consisting of Australian shrubs with opposite simple leaves, and yellow pea-shaped flowers in the axils of the leaves. The calyx is remarkable for its two upper lobes uniting into a large rounded upper lip. The pod is very flat, bordered by a rather broad wing on the upper side, and contains several seeds. Two species, *P. triangulare* and *P. Murrayanum*, with acutely triangular leaves, both from Tasmania and South-eastern Australia, are occasionally to be seen in our greenhouses, and are handsome plants, while *P. formosum*, from the same country, has ovate leaves.

PLATYLOMA. A genus of polypodiaceous ferns, often erroneously associated with *Pteridea* or *Chelidonia*, but in reality very distinct, and now representing a separate group, the *Platylomeæ*. They are pinnate or bipinnate plants, with free venation, and furnished with marginal oblong sori the receptacles of which lie transversely, being formed of the parallel apices of the contiguous venules, the spore-cases becoming laterally confluent into a broadish continuous marginal band, quite different from the continuous linear receptacle of *Pteris*. They are spuriously indusiate; that is, the margin is somewhat infected over the outer portions of the band. Some of the species referred to *Pellaea* by authors belong here, the rest chiefly to *Pteris*. [T. M.]

PLATYMISCIUM. A genus of *Leguminosæ* of the tribe *Dalbergiææ*, consisting of South American trees or shrubs, with pinnate leaves always opposite—almost the only instance of this arrangement amongst trees of this order with compound leaves. The flowers are yellow, disposed in racemes either solitary in the leaf-axils, or clustered on the older branches. Their structure is nearly the same as in *Pterocarpus*, whilst the pod, broadly oblong and very thin and flat, is like that of some species of *Lonchocarpus*. There are about a dozen species, some of them probably supplying part of the hard woods used in re-exported from Brazil.

PLATYNEMA. A genus founded by Wight and Arnott, upon a specimen of a Malpighiaceous tree or shrub supposed to have been collected in Ceylon. Dr Arnott subsequently found the same plant in a collection made by Lobb in Malacca, and on further examination

referred it to *TINTELLETHA* (which see in Supplement), a conclusion which is supported by Bentham and Hooker. If it occurs in Ceylon, it is probably only cultivated there. *Gortaria laurifolia* of Wallich was originally referred to the same species, but it appears that *Hippoge parvifolia* was the plant intended under that name. [J. Br.]

PLATYPODIUM. A genus of *Leguminosae* of the tribe *Dalbergieae*, with the flowers nearly of *Pterocarpus* and of *Tiguania*, while the pod is samara-like as in the latter genus; but the wing, instead of being a dilatation of the style, and consequently placed above the seed-bearing part, is an expansion of the stalk and below the seed. It is like a *Tiguania* pod attached by the wrong end. The genus consists of two Brazilian trees, with pinnate leaves, and yellow flowers growing in handsome loose racemes in the axils of the upper leaves. They probably supply some of the hard woods used in Brazil.

PLATYS. In Greek compounds = broad.

PLATYSEMA. A little-known Brazilian bean, formerly proposed by Bentham as a distinct genus of the tribe *Phaseoleae*, but most probably a species of *Centrosema*.

PLATYSTEMMA. A somewhat dubious genus of *Gesneraceae* of the tribe *Cyrtandreeae*, represented by a single species, *P. violoides*, inhabiting Nepal, and having the habit of a violet. It is a low herb, the stem of which bears towards the apex one or two cordate and crenate leaves. The peduncle has from one to four flowers; the calyx is five-cleft; the corolla has a short tube and is bilabiate, the upper lobe being two-cleft, the lower three-cleft; there are four stamens; the style is filiform; the stigma acute; and the fruit a two-celled oblong capsule. [B. S.]

PLATYSTEMON. Annuals belonging to the *Papaveraceae*, among which they are distinguished by having three sepals, six petals, dilated filaments (whence the genus derives its name), and numerous distinct many-celled capsules. Two species have been described: *P. californicus*, a hairy spreading plant with lanceolate leaves arranged in threes, solitary stalked yellow flowers, and hairy capsules; and *P. leio-carpus*, a native of Siberia, distinguished by its yellowish-white flowers, and smooth capsules. [C. A. J.]

PLATYSTIGMA. A Californian annual belonging to the *Papaveraceae*, distinguished by its three sepals, four to five petals, thread-like filaments, three erect divergent stigmas, and its one-celled three-valved capsule opening from top to bottom. The stems, which are very short, are densely crowded with linear entire leaves, from among which rise on slender hairy stalks the solitary yellow flowers. The whole plant grows to the height of about six inches. [C. A. J.]

PLATTYTHECA. A genus of *Tremandraceae*, consisting of a single species which is found in

the sandy plains of South-west Australia. It is an elegant heath-like evergreen shrub, with linear leaves arranged in whorls somewhat resembling those of *Calamagrostis*. The pedicels bear one flower of a purplish-lilac colour, and only opening once on a bright day, but never when the sky is overcast or night is approaching; whilst in its ally, *Tetrastemon*, the flowers open and close repeatedly on bright days, closing on the approach of night or showers of rain, as Dr. Steetz has well observed. The calyx is five-cleft, the corolla five-petalled, the stamens ten in number, the capsule two-celled and two-valved. *P. galloides* (*Tremandra verticillata*) is an inmate of our greenhouses. [B. S.]

PLATYZOMA. The only species of this genus, *P. microphyllum*, is a curious dwarf linear-fronded fern of the Australian continent, with minute sessile suborbicular pinnae, having the margins so decidedly revolute that the sori, which are non-indusiate, consisting of from two to four sessile spore-cases, are with great difficulty discovered. These pinnae readily fall off, leaving the crowded rigid stipes and rachides standing like so many coarse bristles. The plant belongs to the *Gleichenieae*, and indeed its fronds most nearly resemble single branchlets of those small-pinnuled species of *Gleichenia* which have saccate or pouch-formed segments. [T. M.]

PLECOLEPIS. An involucre of composite, in which the bracts are united into a cup.

PLECOSTIGMA. A genus of *Liliaceae* from Siberia, founded upon *Gagea pauciflora*, which is separated from the others on account of the stigma being three-cleft, each lobe longitudinally folded within, and the seeds oblong-trigonal. The flowers are yellow, one to three in a raceme, with two bracts at the base. Bulb simple; root-leaves few, filiform, at length elongated; stem-leaves scattered linear. [J. T. S.]

PLETOCOMIA. A genus of palms, of which two species are confined to Malacca, Penang, Java, and Borneo, and three are found in Assam, Khasia, and the Himalayas. They are allied to the rattans (*Calamus*), and like them are inhabitants of forests. Their climbing stems, though stouter than the generality of *Calami*, require other trees for their support; and in order that they may take a firm hold among the branches, their large pinnate leaves are furnished with long whip-like tails, beset on the under-side with excessively strong compound spines shaped something like a mole's foot, with the claws directed downwards. The genus is best distinguished by the flower-spikes, which are produced from the axils of the leaves, and are divided into numerous very long tail-like branches, clothed with two opposite rows of overlapping spathe, each of which encloses a short spike of flowers—the two sexes being upon separate trees. The fruits, like those of all other *Calameae*, are densely covered with overlapping scales, but the

scales, instead of being highly polished as in most genera, and rough and fringed at the edges, and give the fruit a prickly appearance; they contain a single seed with hard even albumen and basilar embryo.

In Java the formidably armed tails of the leaves of *P. elongata* are used for catching rogues and vagabonds and run-a-muck Malays. For this purpose pieces of the tails are attached to the inside of a forked stick, which is thrust so as to include the body of the man and take firm hold of his clothes or flesh.

[A. S.]

PLEOTRANTHUS. The generic name of plants belonging to the order *Labiata*, having the long tube of the corolla with a dilatation or short spur below; the border has the upper lip three to four-cleft, the lower entire, concave. The species are herbs and shrubs, natives of the warmer parts of Africa, South America, and Asia. The name is from the Greek words signifying 'spur' and 'flower,' indicative of the character of the corolla.

[G. D.]

PLEEA. A genus of *Melanthaceae*, inhabiting the warmer parts of North America. The species have tufted rhizomes, throwing up rush-like stems; the leaves are chiefly radical, two-ranked, evergreen, very narrow and acute; and the racemes are simple, with spathaceous bracts similar to the uppermost leaves. Perianth coloured (brownish), with six segments united at the base, and spreading; stamens nine to twelve, the filaments subulate, and the anthers linear; ovary three-lobed, with three short styles; capsule leathery, ovate, three-lobed, three-celled.

[J. T. S.]

PLEIONE. A group of half a dozen spe-



Pleione maculata.

cies of *Orchidaceae*, which, instead of forming a separate genus, are now considered only as a section of *Caloglyphis*, distinguished more by habit than by constant or well-marked technical characters. They are dwarf epiphytal plants, with handsome large membranous and generally richly-coloured flowers, which appear either before the leaves or after very quickly deciduous leaves, so that the flowering plants

are leafless. All are alpine, being found growing at considerable elevations in the mountains of Northern and North-eastern India.

[A. S.]

PLEIOPHYLOUS. A name given to such nodes as have no manifest buds.

PLEIOS. In Greek compounds = more than one; several.

PLEISTOS. In Greek compounds = most; a great many.

PLENUS. Double, as in double flowers.

PLEOCNEMIA. A fern genus of the aspidioid group, in which it is known by its sori having reniform indusia affixed at the sinus, by its fronds being monomorphic or conformable, and by its veins being reticulated and arcuately anastomosing so as to form elongated costal areoles. It includes a few large much-divided tropical eastern species, some of which are said to have a subarborescous caudex. *P. Leuzsana* is the type. [T. M.]

PLEOPELTIS. A name originally proposed for a few ferns of the polypodioid type, in which the sori, not covered by any proper indusium, were invested with a few peltate stipitate scales, which grew up among the spore-cases. This group has not been maintained, and the name, as being the oldest available, has been transferred to a large group in which these scale-invested species are included, and to which the names *Phymatodes* and *Drynaria* have also been given. Thus extended, it forms the largest genus amongst the net-veined *Polypodiaceae*, distinguished by compoundly reticulated venation, in which the areoles contain divaricate free veinlets, by the fronds being free from a clothing of stellate hairs (present in *Niphotobolus*), by the sori being compital and polycarpous, and by the fronds being articulated with the rhizome, and monomorphic in character. *P. percussa*, *tycopodioides*, *trioides*, *crassifolia*, *Phymatodes*, *tridactyla*, and *juglandifolia* are types of so many subdivisions. The species are mostly tropical, a large number from India or the Eastern Archipelago, others from South America or the West Indies, extending to Chili, and a few from South Africa or New Zealand.

[T. M.]

PLEROMA. This genus of *Melastomaceae* is now generally made to contain all the *Lastandras*, and numerous species formerly referred to *Chaptaliastrum*, *Rhexia*, and some other genera, so that it numbers nearly one hundred species, natives of tropical South America, especially of Brazil. The principal part consists of shrubs or undershrubs, with large thick entire five-nerved leaves, and generally large terminal panicles, but sometimes solitary large purple violet or white flowers, with their floral envelopes in fives. They have a more or less oblong urceolate or campanulate calyx-tube and deciduous teeth or lobes; obovate, entire or retuse, often one-sided petals; ten unequal stamens, with smooth hairy

or bearded filaments and long narrow subulate curved anthers, opening by single pores, having the connective prolonged at the base, and furnished with a couple of knobs at its junction with the filament; and a five-celled hairy-topped ovary bearing a slender curved style. Several species are grown in hot-houses in this country on account of their beautiful large showy flowers. [A. S.]

PLEURACHNE. A genus of cyperaceous plants, belonging to the tribe *Scirpeæ*. *P. secunda*, the only species, is now referred to *Ficinia* by Steudel. [D. M.]

PLEURANDRA. A genus of *Dilleniaceæ*, usually distinguished from *Hibbertia* by the stamens being all inserted on one side of the ovaries; but as the relative arrangement of the stamens and ovaries in these genera and their immediate allies has now been found to be of a purely artificial character, separating species otherwise very similar, *Pleurandra* has been reduced to a section of *Hibbertia*. The species are all Australian, low shrubs or much-branched undershrubs, with yellow flowers.

PLEURENCHYMA. The woody tissue, consisting of tough slender tubes, out of which the woody parts are mainly formed.

PLEURISY-ROOT. *Asclepias tuberosa*.

PLEUROCARPI. One of the great divisions of true mosses, containing *Hypnum* and other genera which bear their fruit on the sides of the branches; the base of the peduncle, or rather the short portion of the axis which supports it, being rough, with a few leaves which differ generally from the others, and are called perichætal. The distinction is not, however, absolute, as acrocarpous and pleurocarpous species may occur in the same genus. [M. J. B.]

PLEURODISCOUS. Growing on the sides of the disk.

PLEUROGYNE. A genus of Arctic and mountain plants with herbaceous stems, leafless flowerstalks, and blue flowers. Corolla wheel-shaped, fringed at the throat; stamens five, inserted into the throat of the corolla; anthers not becoming twisted; ovary one-celled, the style wanting, and the stigmas two, prolonged downwards along the edges of the ovary valves; fruit capsular. The genus belongs to the *Gentianaceæ*. The generic name expresses the peculiarity of the stigma. [M. T. M.]

PLEUROGYRATE. A term employed for those ferns whose spore-case has a ring carried round the sides.

PLEUROPETALUM. A genus of *Amaranthaceæ*, from the Galapagos Islands. It comprises an erect glabrous somewhat shrubby plant, with alternate elliptical-lanceolate veiny leaves, and terminal and lateral racemes of flowers, each with three bracts, and a five-leaved deciduous perianth; stamens eight, united into a cup at the base, with subulate filaments, two-celled anthers, and no staminodes; ovary

one-celled, with numerous ovules; style short, with four stigmas. This genus was at first referred to *Portulacaceæ*, the bracts being supposed to be sepals, and the sepals petals. [J. T. S.]

PLEUROPHORA. A genus of *Lythraceæ*, consisting of annuals or undershrubs from Chili. They have four sided branches; opposite oblong-lanceolate or linear entire leaves, often sharp-pointed; and terminal flower-spikes with the bracts densely imbricated, each flower with bractlets, often spinescent. Calyx tubular, ten or fourteen-toothed, the inner ones ovate, mucronate, erect, or connivent—the outer apiny and spreading; petals five to seven; stamens generally as many as the petals; ovary stipitate, unequal-sided and excentric, one-celled, with few ovules. [J. T. S.]

PLEUROPHYLLUM. A genus of *Compositæ*, of the tribe *Asteroides*, consisting of two species from the Auckland and Campbell Islands in the Antarctic regions. They are both tall erect herbs, densely covered with a white or silvery shining silky wool. The leaves are alternate, the lower ones very large, and the flower-heads large and handsome, with purple florets, and growing in a close terminal raceme. The involuclral scales are numerous and narrow, the outer florets radiating, the disk ones tubular, the receptacle without chaff, and the pappus consisting of numerous stiff bristles.

PLEUROTHALLIS. One of the most extensive genera of orchids, comprising nearly three hundred species, the whole of which are confined to tropical America and the West Indies. By various authors it has been split up into a dozen smaller genera, but these have all been reunited. The species are epiphytes, and are very variable in habit: the majority have erect one-leaved stems, either nearly naked or closely sheathed, rising from a creeping rhizome; but in one section the stems are scarcely at all developed, and in another they bear numerous alternating leaves. Their flowers, which proceed from spathes and are solitary or racemose, have the lateral sepals usually coherent and enlarged at the base, the petals free, and the lip articulate with the prolonged base of the column, which is terete or chita-winged and truncate, or has the anther-bed thin-edged, and the lid-like anther either at the top or a little towards the back. The pollen-masses, of which there are two or rarely four, are free, waxy, and obovate or pyriform. [A. S.]

PLEUROTUS. A subgenus of *Agaveæ*, containing those white-spored species which have an excentric or lateral stem. In a few the stem is at length or from the beginning obsolete, and the plicæ is reniform; while in other cases it is at first cup-shaped, and the margin on one side at length turns over. The subgenus contains a few esculent species, as *A. ostryacæ*, which is so common in autumn on alburnums and other trees. A species is also raised on

coffee marc at Naples, allied to *A. lignatilis*, which is said to be excellent. *A. ostreatus* must be distinguished with care from the tarragon-scented *A. euosmus*, which has pale-pink spores, and is sometimes dangerous. [M. J. B.]

PLEXAURE *Himenocephalaz*. A very small terrestrial orchid, with about six narrow lanceolate equitant broad-based striped fleshy leaves, and a dense spike of extremely minute inconspicuous flowers, hardly so large as grains of millet. It was described as a new genus by Endlicher in his Flora of Norfolk Island, where alone it is found, but it has since been shown to belong to the older genus *Phreatia*. [A. S.]

PLEXEOBLASTUS. An embryo whose cotyledons are not developed in the form of true leaves, although they rise above the earth and become green.

PLICA. An excessive multiplication of small twigs, instead of branches.

PLIOZE. The lamellæ of certain fungals.

PLICATE, PLICATIVE. Platted lengthwise like a lady's fan. The term *pliate* is usually employed in speaking of aestivation.

PLICATILIS. Capable of being platted.

PLINTHUS. A genus of *Tetragonaceæ*, consisting of a small prostrate Cape of Good Hope shrub, with adpressed silky down, small imbricated ovate triquetrous leaves, and very small axillary sessile flowers. The calyx is tubular, five-cleft, with erect unequal lobes, coloured within; petals none; stamens five, with capillary filaments; style three-parted; capsule ovoid, membranous at the base, rounded and woody at the apex, papillose, three-celled, three-valved; seeds solitary in each cell, pear-shaped and shining. [J. T. S.]

PLOCCAMUM. A beautiful genus of rose-spored *Alga*, belonging to the *Rhodymenaceæ*, distinguished by its linear compressed fronds, which are pinnate with comb-like teeth, the branchlets being disposed alternately on either side in threes or fours. The nucleus of spores is compound, and formed of several more or less confluent nucleoli, the spore-bearing threads radiating in several tufts from a basal placenta; and the tetraspores are divided transversely, and contained in certain of the marginal divisions of the frond. The genus is widely diffused, as is the species *P. coccineum*, which is one of the best-known rose-coloured *Alga* on our coasts, and collected by every seaside wanderer, attracting attention by its brilliant colour and curious ramification. Though common on the Atlantic shores of Europe, and distributed freely in the Southern Ocean, it is a very rare inhabitant of the Atlantic coast of America. [M. J. B.]

PLOCCSTEMMA. A genus of *Asclepiadaceæ*, allied to *Hoya*, and inhabiting the forests of Borneo and Java. There are only two species, both twiners, with opposite coriaceous glabrous leaves, oblong or

ovate in shape, and umbellate flowers. The calyx and corolla are five-cleft, the corolla five-leaved, and the stigma apiculate. The fruit is unknown. [L. S.]

PLÖSSLEA. A Nubian tree described by Endlicher as a new genus of *Sapindaceæ*, but which on further examination has proved to be a species of *Bonellia*.

PLUKENETIA. A genus of *Euphorbiaceæ*, consisting of woody climbers with alternate cordate leaves, and small green flowers in axillary racemes, the lowest one of each raceme female, the others male. The perianth is four-cleft, with eight to sixteen stamens in the males; and in the females a four-celled ovary with a simple style and a four-lobed stigma, and one ovule in each cell of the ovary. There are very few species, all tropical, both in the New and the Old World. The leaves of *P. corniculata*, from tropical Asia, are said to be aromatic and to be used as a potherb.

PLUM. The well-known *Prunus domestica* and its varieties. —, **BLACK**, of Illawarra. *Cargillia australis*. —, **BLOOD**, of Sierra Leone. *Hæmatostaphys Barteri*. —, **BULLACE**. *Prunus institia*. —, **CHICSAW**. *Cerasus Chicasa*. —, **COCOFA**. *Chrysobalanus Icaco*. —, **DATE**. *Diospyrus Lotus*, and *D. virginiana*. —, **GINGER-BREAD**. *Parinarium macrophyllum*. —, **GREY**. *Cargillia arborea*; also *Parinarium excelsum*. —, **GUINEA**. *Parinarium excelsum*. —, **HOG**. The fruits of several species of *Spondias*, as *S. purpurea*, *S. Mombin*, *S. lutea*, &c. —, **JAMAICA**. *Spondias lutea*. —, **JAVA**. *Calyptranthes Jambolana*. —, **MAIDEN**. *Comocladia integrifolia*. —, **MALABAR**. *Eugenia Jambos*. —, **ORLEANS**. A cultivated variety of *Prunus domestica*. —, **QUEENSLAND**. *Ocokia venosa*. —, **PORT ARTHUR**. *Cenharthene nitida*. —, **ROUGH-SKINNED**, of Sierra Leone. *Parinarium excelsum*. —, **SAPODILLA**. *Achras Sapota* and allied species. —, **SEBESTEN**. The dried pulpy fruit of two species of *Cordia*, employed as pectoral medicines in India. —, **SPANISH**. *Spondias Mombin*. —, **SUGAR**. A Sierra Leone name for *Malpighia saccharina*. —, **SWIET**. *Ocokia cerasifera*. —, **TAMARIND**. *Dialium indicum*. —, **WILD**, of New South Wales. *Achras australis*.

PLUMBAGELLA. A genus of *Plumbaginaceæ*, containing a single species, a native of Siberia. It is an annual herb, with small flowers arranged in subcapitate spikes. The ovate calyx is five-ribbed and five-parted, with lanceolate acute segments, scarcely membranaceous at the margins, and increasing very little around the fruit; corolla tubular divided into five lanceolate lobes; stamens five included, the filaments dilated and united at the base; ovary oblong with a slender style, and five filiform stigmas. The utricle is oblong; the lower part, included in the calyx, is membranaceous, and the upper exposed part coriaceous and falling off like a calyptra in dehiscence. The capsule contains a single ovate acute seed. This genus differs from *Plum*

bago in the structure of the calyx, the form of the corolla, and the place of rupture in the capsule. [W. O.]

PLUMBAGINACEÆ. (*Plumbaginaceæ*, *Leadworts*.) A natural order of corollifloral dicotyledons belonging to Lindley's cortical alliance of perigynous Exogens. They are herbs or undershrubs, with alternate or fasciculate exstipulate leaves, and paniced or capitate flowers. Calyx tubular, persistent, sometimes coloured; corolla monopetalous or pentapetalous, regular; stamens five, hypogynous when the corolla is gamopetalous, attached to the base of the petals when they are separate; ovary free, one-celled, with a solitary pendulous ovule, and five styles. Fruit utricular. They inhabit sea-shores and salt-marshes, chiefly in temperate regions. There are eleven genera, and nearly two hundred and fifty species. Examples: *Plumbago*, *Statice*, *Armeria*. [J. H. B.]

PLUMBAGO. A genus of *Plumbaginaceæ*, containing several species of herbaceous



Plumbago europæa.

plants or shrubs, natives of Europe, Asia, and Africa. They have subsessile flowers in more or less elongated spikes. The herbaceous calyx is tubular and five-toothed; the corolla gamopetalous, with a rotate five-parted limb; there are five included hypogynous stamens, inserted opposite the corolla lobes. The ovary is one-celled, and contains a single anatropal ovule, pendulous from the point of an umbilical cord which rises from the bottom of the cell; the style is single, but has five filiform stigmas; and the five-sided one-celled capsule is included in the persistent calyx. Many of the plants of this genus are acrid and caustic in the highest degree. The root of *P. scandens*, the Herbe du Diable of San Domingo, is a most energetic blistering agent when fresh; so also is that of *P. rosea*. The beggars employ *P. europæa* to raise ulcers upon their body to excite pity, and used internally it is said to be an effectual emetic as *ipecacuanha*. [W. O.]

PLUMBEUS. Lead-coloured.

PLUMEAU. (Fr.) *Hottentia*.

PLUME-NUTMEGS. Lindley's name for the *Alnuspermaceæ*.

PLUMET. (Fr.) *Stipa*.

PLUMIERIA. The name of a genus of *Apocynaceæ*, having the corolla funnel-shaped, with a long slender tube, and the segments of its border unequal; and the style short, ending in a thick and notched stigma. The species are trees or shrubs, with fleshy leaves growing in tufts at the ends of the branches. They occur in Peru and other parts of South America. *P. rubra* has the flowers so deliciously scented that it is called Red Jasmine in the West Indies. The genus was named in honour of Plumier, a French traveller and writer on Botany. [G. D.]

PLUMOSE. The same as Feathery.

PLUMULE. The bud of a seed; the youngest bud in a plant—placed between the cotyledons if the plant has more than one, or on one side if the cotyledon be solitary.

PLURI. In composition = more than one; thus *plurilocularis* signifies containing more than one cell; *pluriceps* having more than one head, as the crown of many roots.

POA. A genus of grasses belonging to the tribe *Festuceæ*. The inflorescence is either in spreading or close panicles, the spikelets of which are for the most part several-flowered and without awns; outer glumes unequal and generally keeled, many-nerved; lower pales keeled, five-nerved, sometimes with three intermediate nerves; upper pales shorter and narrower, with inflexed membranous margins. This large genus contains, according to Steudel, 192 species, which range over most parts of the world. Some of those belonging to the British Flora are valuable for agricultural purposes, especially *P. trivialis* and *P. pratensis*. *P. nemoralis* is one of the few grasses which grow well under the shade of trees; and *P. distans*, *P. maritima*, and *P. procumbens* are the kinds which constitute the pasture grasses on salt-marshes near the sea. *P. lara* and *P. alpina* grow on the tops of the highest mountains in Britain. [D. M.]

POAYA, P. BRANCA, or P. DA PRAJA. *Ionidium Itubu*. — DO CAMPO. *Ionidium Poaya*.

POCAN-BUSH. *Phytolacca decandra*.

POCKWOOD-TREE. *Guaiacum officinale*.

POCOKKIA. A genus of *Leguminosæ*, closely allied to *Medicago* and *Trigonosia*, but differing in the pod, which is very thin and flat, rather broad, more or less falcate, and often fringed on the edge. There are three or four species, low decumbent herbs, natives of the Eastern Mediterranean region.

POCULIFORM. Cup-shaped, with a hemispherical base and an upright limb; nearly the same as Campanulate.

POD. The capsule or seed-case of leguminous and cruciferous plants, those of the former being called legumes, and those of the latter siliques, and silicles.

PODALYRE. (Fr.) *Baptisia australis*.

PODALYRIA. A genus of *Leguminosae* of the suborder *Papilionaceae* and tribe *Podalyrieae*, consisting of South African shrubs, more or less silky or silvery pubescent; with small simple alternate and entire leaves, and purple pink or bluish-white flowers, usually one or two on axillary peduncles. The calyx is widely campanulate, remarkably indented at its insertion on the stalk, the vexillum or upper petal broad, the stamens all free, and the pod turgid, with several seeds. There are seventeen species known, one or two of which are occasionally to be met with in our greenhouses in collections of Cape shrubs.

PODANTHES. A synonym for *Slapelia*, sometimes used in gardens.

PODAXINEI. A natural order of gasteromycetous *Fungi*, consisting of a few genera confined to warm countries, reaching the south of Europe in the northern and New Zealand in the southern hemisphere. All of them are stipitate with a distinct peridium, which often when ruptured forms a sort of volva at the base of the stem. The hymenium is sinuated and convolute, and in one genus only, *Montagnites*, gill-shaped. When old the spores form frequently a dusty mass, and in *Polyplocium* are mixed, as in the puffballs, with a few threads. The hymenium is, however, in general far more persistent. The genus *Secotium* contains one or two esculent species; one is highly prized at the Swan River. These, like *Lycoperdon giganteum*, must be used when quite young. *Podaxon carcinomalis* is employed for dressing ulcerous cancers. [M. J. B.]

PODAXON. The typical genus of the natural order *Podaxinet*. The head is more or less conical or clavate, traversed by the elongated stem, and covered by the distinct peridium, which breaks off from the base of the stem. The spores are mixed with fibres, which grow from the top of the stem. In *P. pistillaris* the threads have a spiral structure. The species grow on ant-hills, or on the naked soil, and are confined to hot countries. In *P. pistillaris* the colours are bright, approaching that of dried saffron; in *P. carcinomalis* the pili are dirty-white and the spores brown. No one has had an opportunity as yet of examining young specimens. [M. J. B.]

PODENNA. An Indian name for *Mentha viridis*.

PODETIA. A name applied in lichens to the erect branched or simple growths springing from the horizontal thallus, which bear the fruit. In *Cenomyces* the thallus and podetia are to a certain extent distinct,

though in some species thalloid horizontal processes are given out from the podetia. The term is applied, but less correctly, to all shrubby or erect growths. [M. J. B.]

PODICILLUM. A very short podetium.

PODISOMA. A genus of *Pucciniet*, distinguished by the clavate gelatinous masses into which the stalked uniseptate protospores which germinate at different points, are packed. They grow exclusively on species of juniper, on which they appear year after year till the plant is killed. In this country *P. fuscum* grows on the savin, and two other species on the common juniper. *P. macropus* forms on *Juniperus virginiana*, in Pennsylvania, curious gall-like tubercles, studded with scars from which the fungus has fallen. These excrescences are called Cedar Apples, and are esteemed, though apparently without any reason, as a remedy against worms. Those trees which have been clipped for garden purposes are the most subject to the parasite. *Gymnosporangium*, which is closely allied, differs in the still more gelatinous expanded tremeloid masses. [M. J. B.]

PODIUM, PODUS. A stalk, or receptacle, or torus; only used in Greek compounds.

PODOCARPUS. Under this name are grouped a number of trees, natives of various tropical countries, and especially of New Zealand and other extratropical parts of the southern hemisphere. They constitute a genus of *Taxaceae*, and have usually linear leaves arranged in two rows or sometimes overlapping. The male flowers are borne on terminal cylindrical catkins, with sessile overlapping anthers, the cells opening at the sides; the females axillary, solitary, the ovule inverted and placed upon a lobed disk. The fruit is succulent, borne on a thick fleshy stalk, whence the name of the genus.

Several of these trees furnish good timber. *P. cupressina* is noted as one of the best timber trees of Java; while *P. Totara*, a New Zealand species, having a light durable tough wood, has been frequently the subject of contention and strife among the natives; its bark is made use of for roofing purposes, and its fruits are eaten. Several species are grown in conservatories in this country, and one or two Japanese or Chinese kinds are sufficiently hardy to stand out of doors with slight protection from frost. [M. T. M.]

PODOGYNIUM (adj. **PODOGYNOUS**). An elevation in the centre of a flower, on the summit of which the ovary stands; it is in reality an internode.

PODOLEPIS. A genus of *Compositae* of the tribe *Gnaphaleae*, consisting of erect Australian herbs, mostly annuals, with entire narrow or stem-clasping leaves, and yellow or purple rather large and often showy flower-heads growing singly on terminal peduncles. The involucre is composed of numerous scarious or transparent bracts, the inner ones on slender claws.

The outer florets are ligulate and radiating; the inner ones tubular and hermaphrodite; the achenes have a pappus of simple bristles. Two species are in cultivation: *P. gracilis*, with purple flowers and stem-clasping leaves like those of a *Manglesia*; and *P. chrysantha*, with yellow flowers.

PODOLOBIUM. A genus of *Leguminosae* of the suborder *Papilionaceae* and tribe *Podalyriaceae*, with the general habit, opposite leaves, yellow flowers, and most of the characters of *Oxylobium*; but the leaves are divided into three or five prickly lobes, the axillary racemes are usually looser, and the pod is borne on a much longer stalk. Several species are described, all Australian, but they are now referred to *Chorizema*.

PODOPHYLLUM. A small genus of *Ranunculaceae*, comprising a United States and a Himalayan species, both herbaceous plants with thick creeping rootstocks which send up in spring a stem bearing two leaves, with a solitary flower between them. The leaves are large, deeply palmately-lobed, and petiolate; and the flowers are composed of six thin sepals which fall off before the flower expands; six or nine spreading petals; as many or double as many stamens; and an egg-shaped ovary crowned by a large thick-crested petalate stigma, and containing numerous ovules attached in several rows to a broad placenta down one side. The ovary ultimately becomes a fleshy berry, enclosing numerous seeds enveloped in pulp. *P. peltatum*, the American species, grows in damp shady places in woods, and is distinguished by the stamens being double the number of the petals. Its leaves are from five to nine-lobed; its flowers large white and nodding; and its fruits egg-shaped and yellowish, somewhat resembling a small lemon, and hence sometimes called Wild Lemon, but more generally May Apple. The plant is also known by the name of Mandrake. Its herbage is narcotic and poisonous, but the acid pulp of the fruit is eatable though of a mawkish flavour; and its rhizomes possess active medicinal properties, a resinous extract from them called *podophyllin* being much in use among American 'eclectic' practitioners as a substitute for mercurials; it has lately been introduced into this country as a cathartic. [A. S.]

PODOSPERM. The cord by which some seeds are connected with their placenta. The same as *Funiculus*.

PODOSPERMUM. A genus of *Compositae* nearly related to *Tragopogon*, but differing in the beakless achenes, as well as in the involucreal scales being in many instead of one series; and from all others in the achenes being each supported on a short hollow swollen stalk. There are about a dozen species known, chiefly natives of the Mediterranean region. One of the commonest is *P. lactinatum*, a perennial herb with a root like the dandelion, a tuft of pinnatisect (rarely entire) leaves close to the ground, and arising from their midst a simple or branching flower-stem

three inches to a foot high with a few leaves below, each branch terminating in a pale yellow flower-head. The achenes have a white feathery pappus; they have a very weedy appearance. The generic name refers to the stalked fruit. [A. A. B.]

PODOSTACHYS. A name given by Klotzsch to two Brazilian herbs belonging to the order *Euphorbiaceae*, and which other botanists consider as forming a section of *Ocrotus*.

PODOSTEMACEAE. (*Podostemadae*.) A natural order of monochlamydeous dicotyledons belonging to Lindley's rural alliance of hypogynous Exogens. They are herbaceous branched floating plants, furnished with capillary linear lacerated or minute and imbricated leaves; the flowers naked, or with an imperfect perianth, bursting through an irregularly lacerated spathe; stamens hypogynous, distinct or monadelphous; ovary free, two to three-celled; ovules numerous. Fruit slightly pedicellate, capsular, two to three-valved, the seeds indefinite. They are natives chiefly of South America, and of the islands to the east of Africa. There are a score of genera, including *Podostemon* and *Lactis*, and about a hundred species. [J. H. B.]

PODOSTEMON. A genus of herbs found in rivers and moist places in South America, Madagascar, and other warm climates. They attach themselves to rocks, the roots of trees, &c.; and have a rootstock varying in shape, linear or finely divided leaves which clasp the stem at their base, and solitary terminal axillary flowers. These have a tubular involucre, two stamens, and a ribbed capsule with two unequal valves. The genus gives its name to the order *Podostemaceae*. [M. T. M.]

PODOTHECA. A genus of *Compositae* of the tribe *Gnaphaliceae*, consisting of erect glabrous or nearly glabrous annuals, with alternate entire decurrent or stem-clasping leaves, and solitary terminal heads of yellow florets. The genus is allied to *Helichrysus*, but remarkable for the long green cylindrical imbricate involucre, and for the florets being all tubular and hermaphrodite. There are two species known, natives of South-west Australia, not nearly so handsome as most of the allied plants.

POË. The Sandwich Island name for the fermented corms of *Oleocasia secunda*, which are eaten.

PECILANDRA. A handsome Guiana shrub, with alternate oblong smooth and shining evergreen leaves, and bright yellow flowers in a terminal panicle. It constitutes a genus of *Ochnaceae*, distinguished amongst its allies chiefly by having two rows of staminodia outside the stamens, those of the outer row short and spatulate, the inner ones long and filiform.

PECILOCHROMA. A genus of Peruvian shrubs of the order *Solanaceae*. The flowers are axillary solitary or in pairs, the flower-stalks dilated at the top and coloured. The

calyx is persistent, and as the fruit ripens it bursts irregularly in two or three places; its tube is leathery, coloured, deeply contracted at the throat, and its limb divided into five very short teeth; corolla thick, bell-shaped with a short tube, the limb plaited, five-lobed; stamens five, within the corolla, the anthers opening lengthwise; ovary two-celled; stigma club-shaped, two-lobed on the end of the style, which equals the stamens in length. The fruit is pea-shaped, succulent, and of a red colour. The generic name is derived from the Greek words *poikilos* and *chroma*, signifying varied or spotted colour; and alludes to the corolla, which is described as handsome, of an orange-colour with reddish spots. So showy a plant is not likely long to be absent from our greenhouses. [M. T. M.]

PCECLOPTERIS. A genus of tropical mostly Eastern ferns of the tribe *Acrosticheae*. They have pinnate often viviparous fronds, and the usual dimorphous character of the group, in which they are principally distinguished by their venules being arcuato-angularly united between the pinnate primary veins, and furnished with excurrent veinlets. It is the same as *Cyrtogonium* and *Heteroneuron*. [T. M.]

POEROU. The Tahitian name for *Hibiscus tiliaceus*.

POGON. A beard; in Greek compounds = any collection of long hairs.

POGONETES. A South-west Australian genus of *Goodeniaceae*, founded upon the *Scaevola spinescens*. The plant is shrubby, spinescent, with quite entire oval or obovate leaves, and solitary-flowered axillary peduncles. [H. H.]

POGONIA. Terrestrial orchids with spherical tubers, and either having one or a few sessile leaves upon an erect stem at the period of flowering, or leafless till after flowering, and then producing a solitary stalked leaf from an underground stem. Their flowers are solitary or loosely racemose, and have free conniving or somewhat rugent sepals and petals, either all nearly equal or the petals smaller; a free erect undivided or lobed lip, with its disk created papillose or bearded; a long semiterete clavate column, eared or winged at the top; and a sessile or very shortly stalked two-celled anther, containing two furrowed pollen-masses. The genus belongs to the *Arethuseae* tribe, and contains about fifteen or twenty species, widely spread throughout America and Asia. [A. S.]

POGESTEMON. A rather numerous genus of *Labiatae*, consisting of tall herbs found in various parts of tropical Asia, but principally in India and Ceylon. They have opposite stalked leaves, and flowers collected into dense clusters or whorls forming terminal interrupted spikes or close panicles. The flowers have an unequally five-toothed calyx; a somewhat two-lipped corolla, with the upper lip three-lobed and the lower entire and rather longer; and four nearly equal stamens longer than the

corolla, and sometimes slightly bent downwards, the filaments usually covered with long hairs, and the anthers one-celled.

P. Patchouly affords the celebrated Patchouli perfume or Pucha-pat of the Hindoos. It is a shrubby herb about two feet high, a native of Sylhet, Penang, and Malacca; and has broadly egg-shaped stalked leaves between three and four inches in length, with the margins slightly lobed and round-toothed; and both terminal and axillary dense spikes of small whitish flow-



Pogostemon Patchouly.

ers tinged with purple. Although the odour of Patchouli is certainly peculiar, and even disagreeable to some people, it is highly popular not only in Europe but in India, where it is one of the commonest perfumes found in the bazaars. The odoriferous part of the plant is the leaves and young tops, and by distillation these yield a volatile oil from which essence of Patchouli is prepared; sachets of Patchouli, however, are made of the coarsely-powdered leaves. Genuine Indian shawls and Indian ink were formerly distinguished by their odour of Patchouli, but since the perfume has become common in Europe the test does not hold good. Ill effects, such as loss of appetite and sleep, nervous attacks, &c., have been ascribed to the excessive employment of Patchouli as a perfume. [A. S.]

POHUTU-KAWA. A useful New Zealand timber tree, *Metrosideros tomentosa*.

POIL DE LOUP. (Fr.) *Poa rigida*; also *Festuca ovina*.

POINCIANA. A genus of *Leguminosae* of the suborder *Cassipintia*, closely allied to *Cassipintia* itself, and originally distinguished from it by the great length to which the stamens project from the corolla. It is now, however, more properly confined to three trees, including *P. elata* from India and Africa, and *P. regia* from Madagascar, in which the calyx is valvate in the bud, whilst in the true *Cassipintia* it is much imbricated. Both the above trees are very

handsome, with twice-pinnate leaves bearing numerous small leaflets, and showy orange or yellowish flowers in terminal racemes with longrichly coloured stamens. *P. pulcherrima* of Linnaeus, a prickly shrub, so much planted for hedges as well as for its great beauty in most tropical countries, is now considered as a species of *Cassalpinia*, as is also *P. Gilliesii*, from South America, often to be seen in our greenhouses, and which some botanists have proposed to establish as a genus by itself, to which they have given the name of *Erythrostemma*, derived from the rich crimson stamens, which are longer than in any other species.

POINCILLADE. (Fr.) *Poinciana*. — **FAUSSE.** *Adenanthera*.

POINSETTIA. A name given by Graham to a South American euphorbiaceous shrub, frequently to be seen in our stove collections, and still more common in the gardens of the south of Spain, where it is known by the name of Flor de Pasqua. The large richly-coloured red bracts which surround the small green flower-heads are very showy, and were made use of to characterise the genus. It is now found, however, that there is nothing else to distinguish it from *Euphorbia* itself, and that many other species of that genus have similar bracts, although less conspicuous; and *Poinsettia* has therefore been recently reunited with *Euphorbia*.

POINTE DE FLÈCHE. (Fr.) *Pontederia*.

POINTLETTE. The same as *Apiculate*.

POIRE. (Fr.) The fruit of the Pear-tree. — **D'AIL.** *Crataeva*. — **D'ANCHOIS.** *Gruus*. — **D'AVOCAT.** *Persea gratissima*. — **DE TERRE.** The tubers of *Helianthus tuberosus*.

POIREAU, or POREAU. (Fr.) *Allium Porrum*. — **D'ÉTÉ, or DU LEVANT.** *Allium Ampeloprasum*.

POIRÉE, or PORÉE. (Fr.) *Beta Cycla*.

POIRETIA. A genus of *Leguminosae* of the suborder *Papilionaceae* and tribe *Hedysareae*, consisting of half-a-dozen South American herbaceous twiners or perennials, with pinnate leaves of four or rarely three leaflets, and yellow flowers in axillary racemes or terminal panicles. The stamens are strictly monadelphous, and the flat pod consists of several joints either square or oblong. The whole plant is always dotted with small resinous glands. Some species might be ornamental, but are not in cultivation, and no other interest is attached to them.

POIRIER. (Fr.) *Pyrus*. — **D'AIL.** *Crataeva*. — **D'AVOCAT.** *Persea gratissima*. — **DES ANTILLES, or DE LA MARTINIQUE.** *Tecoma pentaphylla*. — **DES INDES.** *Psidium*.

POIS. (Fr.) *Pisum*. — **À BOUQUETS.** *Lathyrus latifolius*; also *Pisum sativum*

umbellatum. — **À FLEURS.** *Lathyrus odoratus*. — **AGNEAU.** *Pisum arvense*. — **À GRATTER.** *Mucuna pruriens*. — **BRETON.** *Lathyrus Cicera*. — **CAFÉ.** *Tetragonolobus purpureus*. — **CARRÉ.** *Pisum sativum quadratum*. — **CICHE.** *Cicer arietinum*. — **COIRNU.** *Lathyrus Cicera*. — **D'ANGOLE.** *Cajanus indicus*. — **DE BREBIS.** *Lathyrus sativus*; also *Pisum arvense*. — **DE CHINE.** *Lathyrus latifolius*. — **DE ŒUR, or DE MERVEILLE.** *Cardiospermum Halicacabum*. — **DE PIGEON.** *Pisum arvense*; also *Ervum*. — **DE SENTEUIL.** *Lathyrus odoratus*. — **DE SERPENT.** *Lathyrus Aphaca*. — **DOUX.** *Inga Burgoni*. — **GOLUS, or MANGE-TOUT.** *Pisum sativum saccharatum*. — **MABONIA.** *Capparis cynophallophora*. — **MUSQUÉ, or ODORANT.** *Lathyrus odoratus*. — **PATATE.** *Pachyrhizus tuberosus*. — **QUENIQUES.** The seeds of *Moringa pterygosperma*. — **SABIE.** *Canavalia ensiformis*. — **SANS PARCHEMIN, or SUCRES.** *Pisum sativum saccharatum*.

POISON, ARROW. The juice of *Euphorbia heptagona*, viscid, and cereformous in Africa, and of *E. coriifolia* in Brazil. Also the Wourai Ourari, or Carana poison, derived from *Strychnos toxifera* by the savages of Gufiana; and the Tienté Tjeteh or Tachtitch poison, prepared by the Javanese from *Strychnos Tieuti*. Also the poisonous juice of *Hippomane Mancinella*.

POISON-BERRY. A West Indian name for *Cestrum*.

POISON-BULB. *Euphonia toxicaria*. — **ASIATIC.** *Crinum asiaticum*.

POISON-WOOD. An American name for *Rhus venenata*.

POITEA. A genus of *Leguminosae* of the suborder *Papilionaceae* and tribe *Galegeae*, consisting of two or three shrubs from San Domingo, having the habit of *Robinia*. They are also nearly allied to that genus, but the long narrow petals, with the upper one or vexillum shorter than the wings, give the flower an oblong shape very different from that of *Robinia*. The leaves are pinnate the flowers purple or pink in axillary racemes.

POITRON. (Fr.) A kind of yellow plam.

POIVRE. (Fr.) The fruit of the Pepper. — **D'AFRIQUE.** *Habesha ethiopica*. — **D'AMÉRIQUE.** *Schinus Molla*. — **D'EAU.** *Polygonum Hydropiper*. — **DE GUINÉE.** *Capiscum annuum*. — **DE LA JAMAÏQUE.** *Eugenia Pimenta*. — **DE MURAILLE.** *Sedum acre*. — **D'OSEAU, or DE POULE.** *Capiscum baccatum*. — **DU COMMERCE.** *Piper nigrum*. — **INDIEN.** *Habesha ethiopica*. — **LONG.** *Capiscum annuum*.

POIVREA. Climbing shrubs of the order *Combretaceae*, natives of the tropics of both hemispheres. They have opposite or alternate entire leaves, and spiked axillary and terminal inflorescence. Their flowers have a funnel-shaped five-lobed deciduous calyx, five petals, ten protruded stamens, and a

two or three-ovuled ovary bearing a slender protruded style; and their fruit is oval or oblong or five-winged, and contains a solitary pendulous five-angled seed with irregularly convolute cotyledons, the latter character and the quinary division of its flowers distinguishing it from *Combretum*, with which it is frequently combined. [A. S.]

POIVRETTE. (Fr.) *Nigella sativa*.

POIVRIER. (Fr.) *Piper*. — D'AMÉRIQUE, or DU PÉROU. *Schinus Molle*.

POIVRON. (Fr.) *Capsicum annuum*.

POKE, INDIAN. *Veratrum viride*. — VIRGINIAN. *Phytolacca decandra*.

POKE-ROOT. *Veratrum viride*.

POKEWEED. *Phytolacca decandra*.

POLANISIA. This name, applied to a genus of *Capparidaceæ*, is compounded of the Greek words *polus* 'many,' and *anisos* 'unequal,' in allusion to the stamens. The species are herbaceous plants, natives of the warmer parts of Asia and America, with palmate leaves, and terminal clusters of flowers. Sepals and petals four; stamens eight or more, unequal in length, some of them occasionally destitute of anthers, all inserted on a short hemispherical receptacle; ovary sessile or shortly stalked; style as long as the ovary; stigmas blunt; fruit a two-valved pod, the valves separating from a persistent replum or partition.

Some of the species are pungent and acrid, so as to be used in India, Cochlin China, and the United States as an irritant application, and as a vermifuge. The leaves of *P. icocandria* are eaten by the natives with other herbs as a salad; they have an acrid pungent taste. The leaves of *P. fedina* are esteemed in India as tonic and expectorant; their juice mixed with oil is used as a remedy in ear-ache. [M. T. M.]

POLAO. A Chilian name for a kind of Mint.

POLAR PLANT. *Silphium laciniatum*.

POLBA. A Russian name for Spelt Wheat.

POLOHÉ. (Fr.) *Hibiscus populneus*.

POLEMONIACEÆ. (*Polemonidææ*, *Cobæaceæ*, *Phloxæ*, *Phloxæ*.) A natural order of corollifloral dicotyledons belonging to Lindley's solanai alliance of perigynous Exogens. They consist of herbaceous or climbing plants, with opposite or alternate simple or compound leaves. Calyx inferior, in five divisions, persistent; corolla regular, five-lobed; stamens five, free, alternate with the segments of the corolla, the pollen often blue; disk lobed; ovary free, three-lobed, with axile placentæ; style simple; stigma trifid. Fruit a three-celled three-valved capsule; seeds angular or oval, or winged; embryo straight in the axis of a fleshy or horny albumen; cotyledons foliaceous. They inhabit temperate countries chiefly, and abound in the north-western parts of America. Many of them have showy flowers. The mucous covering of

the epispem of various species of *Collomia* contains numerous spiral cells, which, when the seeds are moistened with water, become uncoiled. *Polemonium*, *Phlox*, and *Cobæa* are examples of the genera, of which about seventeen are known, comprising upwards of one hundred species. [J. H. B.]

POLEMONIUM. A genus of erect herbaceous perennials, with alternate pinnate leaves, and terminal panicles of handsome blue or white flowers, giving name to the order *Polemoniaceæ*. The characters of the genus are:—calyx bell-shaped, five-cleft; corolla with a very short tube and erect limb; stamens inserted in the throat of the corolla; capsule many-seeded. *P. caruleum*, the Greek Valerian, or Jacob's Ladder, is to be found in most cottage gardens, growing about a foot and a half high, with stiff erect scarcely branched angular stems, bright-green smooth leaves, pinnate with an odd leaflet, and terminal corymbs of pretty blue or white flowers. It is a native of England from Stafford and Derby northwards, but not truly wild in the south, nor in Scotland or Ireland. French: *Valériane græque*; German: *Speerkraut*. [C. A. J.]

POLE-REED, or FULL-REED. *Phragmites communis*.

POLE-RUSH. The Bulrush.

POLIANTHES. The Tuberose, a favourite conservatory plant belonging to the order *Liliaceæ*. The leaves are linear lanceolate; the flower-stalk, which is two to three feet long, bears towards its summit numerous creamy-white very fragrant flowers, which are funnel-shaped and incurved; the stamens are inserted in the throat of the tube. The species most commonly cultivated, *P. tuberosa*, is a native of the East Indies, but the plants grown in England are for the most part annually imported from Italy, those with double flowers being the most prized. The English name, often but improperly pronounced as a word of two syllables, is no doubt a corruption of the Latin adjective *tuberosa*, and has reference to the form of the root. This plant has been observed in a sultry evening after thunder, when the atmosphere was highly charged with electric fluid, to dart sparks of lucid flame in abundance from each of its flowers as were fading. The plant is largely cultivated in the South of France for perfumery purposes. [C. A. J.]

POLITUS. Having a polished appearance; as the testa of many seeds.

POLLEN. The powdery or other matter usually contained in the cells of an anther, by whose action on the stigma the fertilisation of the ovules is accomplished. Pollen-cells are the cavities of an anther, in which the pollen is formed; pollen-grains or granules the separate particles of pollen; and pollen-tubes membranous tubes emitted by pollen, and conducting the fluid which the pollen secretes down the style.

POLLEX (adj. POLLICARIS). The first joint of the thumb; an inch.

POLY. *Teucrium Polium*. —, MOUNTAIN. *Bartsia alpina*.

POLY. In Greek compounds = numerous.

POLYACTIS. A genus of filamentous moulds characterised by their threads being partially of a dark hue as if scorched, and by their naked hyaline spores situated at the tops of the ramifications which are confined to the upper part of the plant. *P. vulgaris* with one or two others are amongst the commonest moulds on all sorts of decaying phænogams, and recognisable by their sparkling white spores and dark grey-brown threads. [M. J. B.]

POLYADELPHOUS. Having many parcels of stamens.

POLYANTHUS. An umbellate-flowered variety of *Primula vulgaris*, cultivated as a garden flower.

POLYBOTRYA. A genus of tropical ferns of the tribe *Acrosticheæ*, occurring both in the eastern and western hemispheres. It is known by the dimorphous pinnate or bi-tripinnate fronds, the fertile ones having linear contracted segments, with one or both surfaces covered by spore-cases; the veins are simple or forked, or pinnate from a central costa. *Rhipidopteris* differs in its subelately-forked veins, and *Elaphoglossum* and *Lomariopsis* in the parallel forked veins: these with *Polybotrya* being the only free-veined genera of the tribe *Acrosticheæ*. [T. M.]

POLYCARPON. A small genus of *Illecebraceæ* found in the warmer parts of the temperate zone in both hemispheres. They are small plants (usually annual), with opposite or verticillate oblong obovate leaves, and extremely numerous minute flowers in dense corymbose very compound cymes; the stipules and bracts small and scarious. *P. tetraphyllum*, which has three stamens, and the lower leaves four in a whorl, occurs in the south-western counties of England. [J. T. S.]

POLYCARPOUS. Having the power of bearing fruit many times without perishing; also, and more properly, bearing many distinct fruits or carpels in each flower.

POLYCHORION. A polycarpous fruit like that of *Ranunculus*.

POLYCHROA. A name given by Loureiro to a procumbent herb found wild in China and Cochin China, and also cultivated there for its dense variegated spikes of flowers. It has been referred to *Amaranthus*, but as the leaves are said in Loureiro's imperfect description to be stipulate, it should perhaps be placed in *Paronychiaceæ*. [J. Br.]

POLYCLADIA. The same as *Phlca*.

POLYCNEMUM. A small genus of *Amaranthaceæ*, found in Europe and temperate Asia. They are procumbent branched pubescent annuals, with sessile somewhat imbricated awl-shaped mucronate leaves,

scarious at the margin; and axillary nearly sessile flowers, with two bracts at the base; calyx of five sepals; stamens three (rarely one to five); styles two; ovary one-celled; capsule oval-compressed, indehiscent, one-seeded. [J. T. S.]

POLYCOTYLEDONOUS. Having more cotyledons than two.

POLYFLOUS. A barbarism for Multiflorous.

POLYGALACEÆ. (*Polygalææ*, *Krameriacææ*, *Soulameææ*, *Trigonaceææ*, *Milkwortææ*.) A natural order of thalamifloral dicotyledons belonging to Lindley's sapindal alliance of hypogynous Erogenæa. Shrubs or herbs with alternate or opposite exstipulate leaves; sepals five, very irregular, three exterior of which one is superior, two interior usually petaloid, lateral; petals unequal, usually three, of which one is anterior and larger, and two alternate with the upper and lateral sepals, the anterior petal, called the keel, is often created; stamens eight, monadelphous or diadelphous; anthers clavate, usually one-celled, opening by pores; ovary mostly two-celled, the ovules solitary, rarely two; seeds pendulous, strophiole at the hilum. They are found in all quarters of the globe. The flowers have a resemblance to *Papilionaceæ*; they are distinguished, however, by the odd petal being inferior, and the sepal superior. They are generally bitter, and their roots yield a milky juice. There are about a score of genera, and over 800 species. Examples: *Polygala*, *Securidaca*, *Trigonia*; see also *KRAMERIA*. [J. H. B.]

POLYGALA. A well-known and extensive genus of plants constituting the type of the *Polygalaceæ*. The technical name, signifying 'much milk,' was applied from the fact that the lacteal secretion of animals that feed on these plants is increased thereby. Some of the Milkworts, moreover, possess milky juice in their roots. The species are distributed widely over most parts of the globe, and occur as herbaceous plants or shrubs, with entire leaves, and very irregular flowers arranged in racemes. Sepals five, persistent, the two lateral ones (sometimes called wings) larger than the others, and frequently petal-like; petals three to five, the lowest keel-shaped, all united below to the tube of the stamens; stamens eight, united below, dividing above into two parcels, each bearing four anthers opening by pores; ovary and capsule flat, two-celled, with a single seed in each compartment. The seeds are downy, and have a small wart-like process at one end.

Many of the species have medicinal properties. Thus *P. vulgaris*, *P. amara*, *P. glandulosa*, *P. Poaya*, *P. sanguinea*, and many others, are mentioned as having more or less powerful emetic properties. *P. rubella* is esteemed as an excellent bitter tonic and diaphoretic. *P. amara* and *P. vulgaris* have been used in cases of long-standing catarrh. *P. Chamaedrys* is stimulant, tonic, and expectorant. *P. tinctoria* is so called from its yielding a purple dye like

indigo; its seeds are a vermifuge. The root of *P. thetioides* has diuretic properties. *P. venenata*, a Javanese plant, is reported to be intensely poisonous; merely touching a leaf of this plant is sufficient to produce violent sneezing and faintness, according to Commerson.

Of all the species, however, which are used medicinally, that best known in this country is *P. Senega*, the root of which is used as a stimulant diaphoretic and expectorant, especially in cases of chronic bronchitis. In large doses it produces symptoms of acid poisoning. The root, as met with in commerce, is remarkable for having a prominent ridge extending along its whole length on one side. The active properties appear to depend upon an acid substance found principally in the rind of the root, and called polygalic acid, or sometimes *senegia*. This root was introduced

in almost all parts of the world, more especially in the temperate regions of the northern hemisphere. They grow in fields, waste grounds, ditches, mountains, &c., and have astringent and acid properties—some being purgative, and a few acid. Their astringency depends on the presence of tannin, and their acidity chiefly on oxalic acid. The fruit of *Polygonum aviculare* is emetic and purgative. The fruit of *Fagopyrum esculentum*, and other species of buckwheat, is used as food; the plant is cultivated in some northern countries. The leaves of *Rumex Acetosa*, sorrel, and of *R. Acetosella*, field sorrel, are acid and astringent. The roots of *Rumex aquaticus*, and *R. Hydrolapathum*, the water docks, and of other species, are used as astringents and alteratives; those of *R. alpinus*, under the name of Monk's Rhubarb, were formerly employed as purgatives.

as a remedy for snake-bites. Several other species, besides many of those already mentioned, are described as having similar virtues as antidotes to snake-bites. They seem to act as stimulant emetics, purgatives, and diaphoretics, and relieve the embarrassed breathing which occurs in such cases.

Several species are in cultivation as greenhouse plants, *P. cordifolia*, *P. latifolia*, and *P. oppositifolia*, all Cape species, being among the handsomest. The purple petal-like sepals and fringed keel-like petal give these plants a singular and elegant appearance. *P. Chamabazum* is a dwarf-growing evergreen shrubby species, with comparatively large yellow flowers. It grows wild in Central Europe, and is frequently met with in the borders of shrubberies, &c. *P. vulgare* is a common British plant, especially on chalky or limestone soil. Its branches are numerous, slender, ascending, clothed with more or less linear leaves, the lowermost obovate or even roundish, and bearing flowers of a bright blue or sometimes pink or white. Another species, *P. calcareum*, is found on dry limestone soil in the south and south-east of England, and may be recognised by the flowering shoots being always axillary from the lower leaves, giving the plant a somewhat umbellate appearance. [M. T. M.]

POLYGAMOUS. Having, on the same plant, some flowers male, others female, and others hermaphrodite. Its sign is ♂-♀-♀.

POLYGONACEÆ. (*Buckwheats*.) A natural order of monocotyledonous dicotyledons, belonging to Lindley's sileneal alliance of hypogynous Exogena. They are herbaceous, rarely shrubby plants, with alternate stipulate or exstipulate leaves, and often unisexual flowers. Perianth inferior, often coloured; stamens definite, inserted into the bottom of the perianth; ovary free, usually formed by three carpels; ovule solitary, orthotropical; styles and stigmas equal to the carpels in number. Fruit a nut, usually triangular, naked or covered by the persistent perianth; seed erect, with farinaceous albumen. They are found

POLYGONATUM. The Solomon's Seal; a genus of liliaceous but not bulbous plants, with axillary cylindrical six-cleft flowers, the stamens inserted in the top of the tube, and the fruit a globose three-celled berry with two seeds in each cell. *P. multiflorum*, the most frequent species in England, grows profusely in certain situations where it has taken possession of the soil, but cannot be called a common plant. It sends up, to the height of about two feet, stoutish simple green stems, of which the lower half is bare of leaves, the upper curved towards a horizontal direction, and bearing numerous broad sessile leaves; and from their axils slender flowerstalks with drooping green and white flowers in clusters of two to four. These are succeeded by small bluish-black berries. Less frequent species are *P. verticillatum*, found in Scotland, which bears its leaves in whorls; and *P. officinale*, resembling the first in habit but smaller, and bearing solitary fragrant flowers. Several foreign species are described. French; *Sceau de Solomon*; German; *Weisswurz*. [C. A. J.]

POLYGONELLA. A genus of *Polygonaceæ*, inhabiting dry plains in the warmer parts of North America. Small branched smooth shrubs, with short ocreæ, small thick-linear or spatulate subsessile leaves, and small perfect or polygamous white or rose-colour spicately racemose flowers, adpressed to the rachis. Perianth coloured, five-leaved, the two outer segments unchanging, at length reflexed, the three inner enlarging and enclosing the fruit. [J. T. S.]

POLYGONUM. A very extensive and generally distributed genus of *Polygonaceæ*, consisting of annual or perennial herbs, more rarely undershrubs, found throughout the whole world but rare within the tropics. They have alternate leaves, with ochreate stipules; and the flowers are usually in spikes or racemes, sometimes contracted into heads, sometimes so lax that they may be regarded as axillary. The

perianth is funnel-shaped or bell-shaped, usually pink white or red, five-cleft, the segments somewhat unequal, persistent, and usually increasing in size after flowering; stamens five six or eight (very rarely four or nine); styles two to three; nut lenticular in the species with two, and three-angled in those with three styles. Several of the species are astringent, as *Bistorta*, *P. Bistorta*, which is occasionally used in medicine; others are acrid, as the Water-pepper, *P. Hydropiper*; and some furnish a blue dye, as the Chinese *P. tinctorum*. The genus is divided into the following sections:—*Bistorta*, the British species of which are *P. Bistorta* and *P. viviparum*; *Amblygonum*, of which the garden Persicaria, *P. orientale*, is a good example; *Persicaria*, represented by *P. amphibium*, *lapathifolium*, *lazum*, *Persicaria*, *mile*, *Hydropiper*, and *minus*; *Echinocaulon* and *Cephalophylon*, both extra-European; *Aconogonon*, of which one species, *P. alpinum*, occurs in Europe; *Tunaria*, comprising the British *P. Convolvulus* and *dumetorum*; and *Avicularia*, of which three species occur in Britain, *P. aviculare*, *latu*, and *maritimum*. [J. T. S.]

P. Convolvulus, the Climbing Buckwheat, is often a great weed-pest, as it twists around the stems of the crop, and not only strangles it, but keeps away sun and air by reason of its large leaves. *P. aviculare*, the Knot-grass, and *P. Persicaria* and *lapathifolium*, *Persicaria*, are three very troublesome agrarian weeds, and more especially where manure is much employed. These species, indeed, will always be found growing on exposed dung-heaps, where they seed freely, and from which these plants are doubtless for the most part spread over our fields. *P. Hydropiper*, the Biting Persicaria, derives its trivial name from its acrid and biting taste. It has been employed in medicine as a diuretic, for which purpose the green herb is used, as its properties are lost in drying.

The Skakeweed, *P. Bistorta*, is a pretty species which is not uncommon in old-fashioned gardens, where it was probably grown not only as a flower, but as a medicine. It occurs frequently growing in large circular patches in meadows, and especially those near villages, from which it may be inferred that it has become naturalised as a British plant. We are informed by Mr. Robert Holland, that the green tops are eaten in Cumberland under the name of Easter Man Giants (! Easter-eating—Fr. *mangeant*). The roots were formerly much used in medicine: as they are highly astringent, their decoction in water is found useful as an astringent injection, and as a gargle in sore-throats. See also FAGOPYRUM. [J. B.]

POLYGYNIA. Having many distinct styles.

POLYIDES. A genus of rose-spored *Alga*, consisting of a single species which is so like *Puccellaria fastigiata* that it is not easy to distinguish it except when in fruit. This forms a spongy mass composed of

vertical articulate threads containing numerous globose compound nuclei, the spores of which are large and obconical and radiate from a central point, and is so singular that the genus is referred to a distinct natural order, *Spongocarpeae*. *P. rotundus*, not uncommon on our coasts, occurs also in the United States. [M. J. B.]

POLYLEPIDOUS. Having many scales.

POLYMERIA. A small genus of Eastern Australian *Convolvulaceae*, distinguished from *Convolvulus* by its four to six acute stigmas, and by having only one ovule in each of the two ovary-cells. [A. S.]

POLYMEROUS. Consisting of many parts.

POLYMNIA. A genus of *Compositae* of the tribe *Heliantheae*, consisting of erect herbs with alternate or opposite leaves, often large or deeply lobed, and terminal corymbose flower-heads with a yellow ray and usually a dark-purple disk. The involucre has five outer spreading leafy bracts and several inner smaller ones embracing the achenes. The ray-florets are female, producing obovate achenes without any pappus; the disk-florets all male with linear abortive achenes. *P. Uvedalia* and *P. canadensis* are common in some of the hilly districts of North America, and about half a dozen more species are South American.

POLYPETALOUS. Having the petals perfectly distinct from each other.

POLYPHORE. A receptacle which bears many distinct carpels, as in Crowfoots.

POLYPODE, or P. DE CRÈNE. (Fr.) *Polypodium vulgare*.

POLYPODIACEÆ. A natural order of ferns, comprising nearly all that are known, the other orders, *Marattiaceae* and *Ophioglossaceae*, being of very limited extent. The chief distinguishing feature consists in the presence of an elastic jointed ring nearly surrounding the spore-cases. By this peculiarity they may at once be recognised in all cases, except in the genera *Osmunda* and *Todea* in which the ring is always, and in *Ceratopteris* in which it is sometimes, more rudimentary. In all these cases, however, the ring is present; and hence the *Polypodiaceae* are called annulate ferns, while the *Marattiaceae* and *Ophioglossaceae*, in which the ring is absolutely wanting, are called exannulate. See FILICES. [T. M.]

POLYPODIUM. The typical genus of the *Polypodiaceae*, and known at once by having its fronds plane not induriform at the edge, its veins free, and its sori globose and naked. It is an extensive genus, of the most varied aspect, and distributed all over the world, presenting itself in some half-dozen distinctive forms: as, for example, with terminal sori and articulated fronds, as in *P. vulgare*; with terminal sori and articulated fronds and pinnæ, as in *P. tenellum*; with terminal sori on obovate receptacles and adherent fronds, as in

P. hymenophylloides; with terminal sori on punctiform receptacles and adherent fronds, as in *P. suspensum*; with medial sori and adherent fronds, as in *P. Phlegopleris*; and with basal sori and adherent fronds, as in *P. tenuisectum*. The fronds vary from simple to decomposed in form, and from membranaceous to coriaceous in texture; while their size is equally varied. [T. M.]

POLYPODY. *Polypodium*. — of the Oak. *Polypodium vulgare*. — COMMON. *Polypodium vulgare*. — FEMALE. *Athyrium Filix-femina*. — MALE. *Lastrea Filix-mas*.

POLYPOGON. A genus of grasses belonging to the tribe *Agrostideae*. The inflorescence is in densely contracted panicles; glumes unequal, more or less hairy and compressed, with bristles or very sharp points; pales shorter than the glumes, the lower with a bristle under the apex. There are twenty-four species described by Steudel, which have a considerable geographical range; extending from Western France to Central Asia. *P. monspeliensis* and *P. littoralis*, the only species belonging to the British Flora, are confined to England. There are several handsome grasses among them, though mostly worthless for agricultural purposes. [D. M.]

POLYPORUS. An enormous genus of pore-bearing *Fungi* distinguished from *Boletus* by the tubes not separating from each other or from the pileus. The species vary much in point of subsistence, a few being so soft as to be esculent, and others hard and woody or corky. Our European species are numerous, but while the tropics have many species in common with other zones, they have hosts of species which require a high temperature. *Polypori* are frequently resupinate, and glued down to the matrix; the margin alone in others becomes free; then the whole is free but sessile; then the pileus contracts behind, acquires a short stem, by easy gradation becomes central, and finally is borne like an umbrella on a tall well-formed stem. One of the finest, *P. sacer*, is an object of worship in Guinea. Some of the species are of a brilliant scarlet, others lilac, yellow, orange, &c., but the predominant colours are tints of brown. The pores vary much in size, being sometimes almost invisible to the naked eye. A few, as *P. ovinus*, afford a grateful food; but in general, like *P. squamosus*, they are not only coarse, but tough and indigestible. *P. tuberaster*, which springs from the Fungus Stone (see *PINTRA FUNGARIA*), is esteemed in Italy, and a species is raised from pollard-hazels by roasting them gently before the fire and then keeping them properly irrigated. *P. foeniculatus* supplies the best Amadou of commerce, though inferior kinds are produced from other species. *P. officinalis* was once a celebrated drug, but it is now little used, though still to be obtained in the herb-shops; it grows almost exclusively on Larch. *P. destructor* and some others are the pest of wooden struc-

tures, while the spawn of *P. hybricus* is the dry-rot fungus of oak-built ships. *P. betulinus*, when cut into strips, forms excellent razor-strops. [M. J. B.]

POLYSACCUM. A genus of puffballs remarkable for containing a multitude of small partial peridia within the common irregularly bursting envelope. These in an early stage are pulpy, but they are soon indurated and ultimately contain a mass of threads and spores, the latter of which are larger than in most *Lycoperdinet*: the mature plant is extremely rigid and brittle. The species are divisible into two sections—the first of which includes the larger kinds which have a stout stem, divided and rooting at the base, with a clavate or rounded head; the second those with a short abrupt stem, giving off a few roots only. Fries gives a third section consisting of ill-known species in which there are neither stems nor roots. The species inhabit sandy tracts in warm countries, a single specimen only having occurred on common soil in the neighbourhood of London. In Italy one species at least is said to produce a yellow dye. [M. J. B.]

POLYSARCIA. An excess of sap, giving rise to unnatural growth, &c.

POLYSIPHONIA. A large genus of rose-spored *Algae* belonging to the natural order *Rhodomelaceae*, characterised by its thread-shaped articulated fronds with the surface-cells arranged in transverse rows so as to produce a pretty striated appearance. The species occur in all parts of the world from the polar seas to the equator, and are abundant on our coasts. Sections of the stem are pretty objects under the microscope, resembling wheels with a nave and radiating spokes. *P. fastigiata* is perhaps the most familiar species, forming brown bushy tufts on *Fucus nodosus* in America as well as in this country. A section of the stem has the peculiarity of showing a dark endochrome in the midst of the nave. [M. J. B.]

POLYSPOROUS. Containing a great many spores.

POLYSTACHYA. Chiefly an African genus of orchids, the main exceptions being two West Indian and tropical American species, one of which is also found in Ceylon. It belongs to the *Maxillariæ* group of *Vandæ*, and is characterised by having its lateral sepals broader than the other and adnate to the prolonged foot of the short semiterete column, its lip three-lobed, cushioned on its disk, and articulate with the column, and its four collateral pollen-masses attached by a setaceous caudicle to a minute gland. The species are epiphytes, usually of small size, with or without pseudobulbs, and small not showy flowers in simple or compound terminal spikes. [A. B.]

POLYSTEMMA *viridiflora* is the sole representative of a genus of *Acletoleptodaceae* inhabiting the mountains near Orizaba, in Mexico. It is a twiner, with densely

tomentose branches, cordate hirtellous leaves, and umbels bearing rather large green flowers. The calyx is five-cleft, the corolla bell-shaped, and the corona consists of twenty-five leaves. The fruit is unknown. [B. S.]

POLYSTEMONOUS. Having a much larger number of stamens than petals.

POLYSTICHUM. One of the principal genera into which the old genus *Aspidium* is broken up by modern pteridologists. It is separated from the rest by its free veins, globose sori, and peltate indusia, no other ferns having these peculiarities combined. The fronds are in general rigid and coriaceous, with the margins mucronato-serrate; and hence they have a distinct aspect, which serves to distinguish them almost as clearly as their technical characters. They are included in *Aspidium* by those who do not admit the genera founded on diversity of venation. The species are numerous and widely dispersed, some few occurring in Britain. [T. M.]

POLYTENIA. A genus of umbellifers, having an oval and smooth fruit, each half of which has five obscure ribs, with two oil-cells in each furrow, and six on the line of junction. *P. Nuttallii* is the only species, a native of Arkansas in the United States; it is an herb with yellow flowers. The name was given in allusion to the numerous oil receptacles of the fruit. [G. D.]

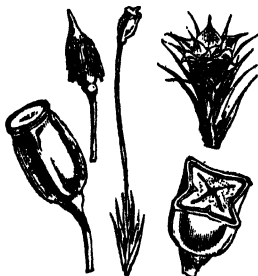
POLYTOMOUS. Pinnate, but without having the divisions articulated with the common petiole.

POLYTRICH OFFICINAL. (Fr.) *Asplenium Trichomanes*.

POLYTRICHEI. A natural order of acrocarpous mosses, characterised by the mouth of the capsule being closed by a flat membrane formed by the top of the columella and confluent with the tips of the teeth, and a calyptra rough with dependent silky hairs which were originally a sort of paraphyses, though distinct from the true attendants on the archegonia. The order is remarkable for containing some of the finest genera among mosses, as *Dawsonia*, *Lyellia*, &c.: the former an Australian genus extending to New Zealand, with an oblique capsule, and an indefinite number of concentric teeth in the peristome, which are either quite free or partly connected with the top of the columella; and the latter a Nepalese genus with a similarly shaped capsule whose mouth is entirely closed with a membrane, from which a central orbicular portion separates, together with the columella which contracts within the capsule. *Polytrichum*, the typical genus, contains many common British species, known at once from all other mosses by their peculiar habit and veil. *Trichum andulatum*, which is common in grassy shady places, is distinguished from the rest by the absence of hairs on the veil. [M. J. B.]

POLYTRICHUM. A fine genus of acro-

carpous mosses with a peculiar rigid habit, a veil rough with dependent hairs, and the mouth of the capsule closed with a flat membrane continued from the tips of the teeth. The capsule is angular, and furnished with a little apophysis below. The spore-sac is sometimes separated from the columella as well as from the walls of the capsule. The species are numerous, and occur in all parts of the world. In *P. dendroides* the stem is highly developed, and shows scalariform markings in some of its tissue, accompanied by lighter-coloured cells which con-



Polytrichum commune.

tain starch-grains. *P. commune*, though attaining its largest size in marshy heaths, is not confined to them; it is sometimes formed into brushes or plaited into mats for the feet. [M. J. B.]

POLYXENA. A genus of *Elliaceae* from the Cape of Good Hope, allied to *Mossonia*, but differing in the funnel-shaped perianth with the stamens inserted in the tube (not a prolongation of it upwards), and by the perianth being circumscissilely deciduous; seeds one or two in each of the three cells; leaves lanceolate, somewhat fleshy; flowers racemed, pale violet or rose. [J. T. S.]

POLYZONE. A South-west Australian genus of *Chamaeliaceae*, consisting of shrubs with whorled branches, needle-shaped three-angled leaves, and flowers in sessile terminal heads surrounded by a many-leaved coloured involucre. This with *Genyilis* and *Hedaronia* are now referred to *Darwinia*. [R. H.]

POMACEÆ. (*Aplesmooria*.) A natural order of calycifloral dicotyledons belonging to Lindley's roseal alliance of perigenous Exogena. The plants are often considered as a suborder of *Rosaceae*. They are trees or shrubs with alternate stipulate leaves, and solitary or cymose regular flowers; calyx superior, five-toothed, the odd segment superior; petals five, the odd one inferior; stamens numerous; disk lining tube of calyx; ovaries one to five; ovules anatropal; styles one to five. Fruit a one to five-celled pome; seeds exalbuminous. Com-

mon in temperate climates in Europe, North America, and Northern Asia. The apple, pear, medlar, quince, and several other edible fruits belong to the group, of which there are sixteen genera and about two hundred species. Examples: *Pyrus*, *Mespilus*, *Crataegus*. [J. H. B.]

POMADERRIS. A genus of *Rhamnaceae*, of which about twenty species are known, all of them found in Eastern extratropical Australia and Tasmania, or in New Zealand. It is distinguished from *Cryptandra* and other allied genera, by the flowers being destitute of bracts, by the stamens being longer than the petals, and by the three one-seeded pieces into which the fruit separates not splitting in halves, but having a large opening on the inner face. The plants are erect branching shrubs, or rarely small trees, woolly with star-like hairs, and have alternate entire or toothed leaves, and small flowers possessing a hairy calyx with a short tube and five spreading lobes, five small stalked petals with as many stamens opposite them, and a trifold style. The fruits are loosely invested by the tube of the calyx; hence the generic name, which is derived from the Greek words *poma*, 'a covering,' and *derris*, 'skin.'

Several species, such as *P. apetala*, *P. discolor*, *P. betulina*, *P. elliptica* (the Kumahou of the New-Zealanders), and others, are occasionally met with in greenhouses in this country; they produce a profusion of small yellowish-brown or whitish flowers. *P. apetala* forms a small tree in New South Wales, and yields a hard close-grained wood, there called Cooper's wood. [A. S.]

POMARIA. A little-known South American shrub, described as constituting a genus of *Leguminosae* of the suborder *Casalpiniæ*, differing from *Casalpintia* itself chiefly in its short two-seeded very glandular pod, and the glandular hairs with which the whole plant is covered. If really a good genus, it should probably include five or six South Brazilian or Chilean species which have been published under the names of *Cladotrichum* and *Euccognia*, all low rigid undershrubs or shrubs with twice-pinnate leaves, very small rigid and not very numerous leaflets, and yellow flowers in terminal racemes.

POMAROSA. A Central American name for *Jambosa vulgaris*.

POMAX. A genus of *Onchocaceae*, consisting of a small shrub or undershrub endemic in Australia. The leaves are opposite, with leaf-like stipules, and the flowers umbellate surrounded by floral leaves and their stipules as by an involucre. There are about three flowers in each head, all conjoined by the fusion of their respective calyx-tubes; between them passes a central axis dilated above into a flat disk common to all the flowers, and surmounting the ovary. The corollas have each a three to five-lobed limb, and are attached below to the disk; stamens one to five, generally protruding beyond the corolla; ovaries combined within the united

calyx-tubes, each one-celled with a single ovule; style very short; stigmas two, elongated. The flowers are usually crowned by the common calyx, three-celled with three erect seeds. The epigynous disk before mentioned separates from the axis supporting it like a little lid, whence the name of the genus from the Greek *poma*, 'a lid,' or operculum. *P. umbellata* is in cultivation as a greenhouse plant. This genus, with its near ally *Opercularia*, is very curious in a botanical point of view, as the nature of their inflorescence shows an affinity to that of *Umbelliferae* or *Compositæ*; with *Valerianaceae* they are connected by their variable number of stamens, single ovules, and other characters, while they resemble some species of *Lomera* in the fusion of their flowers by means of the calyx-tube. [M. T. M.]

POME. An inferior fleshy many-celled fruit, like that of the Apple.

POMEGRANATE. *Punica Granatum*.

POMELLE, or PAMELLE. (Fr.) *Hordeum distichum*.

POMELLOES. A name under which Forbidden-fruit, the smaller-sized Shaddocks, are sometimes sold in this country.

POMERANGE. A German name for the Orange.

POMERIDIAN. Occurring in the afternoon.

POMME. (Fr.) The fruit of the Apple, *Pyrus Malus*. — **D'ADAM.** A variety of *Citrus Limetta*. — **D'AMOUR.** *Lycopersum esculentum*. — **DE CANNELLE.** *Anona muricata*. — **DE FLAN.** *Anona*. — **DE LIANE.** *Passiflora laurifolia*. — **DE MAI.** *Podophyllum peltatum*. — **DE MERVEILLE.** *Momordica Balsamita*. — **DE PIN.** The Cone of the Pine-tree. — **DE TERRE.** *Solanum tuberosum*. — **ÉPI-NEUSE.** *Datura Stramonium*. — **ÉTOILE.** *Chrysophyllum*. — **ROSE.** *Jambosa vulgaris*.

POMMETTE DE DOUX-CLOSES. (Fr.) *Crataegus Asarolus*.

POMMIER. (Fr.) The Apple, *Pyrus Malus*. — **DE LA CHINE.** *Pyrus spectabilis*. — **PORTE-BAIES.** *Pyrus baccata*.

POMPADOURA. (Fr.) *Calycanthus floridus*.

POMPELMOUSE, or PAMPELMOUSE, (Fr.) The Shaddock, *Citrus decumana*; especially applied to the larger-sized fruits.

POMPION. The Pumpkin, *Cucurbita Pepo*.

POMPOLEON. The larger-sized fruits of the Shaddock, *Citrus decumana*.

PONCEAU. (Fr.) *Papaver Rhoeas*.

PONCELETIA. An apocryphous genus containing a single species, *P. sprengeloides*, which has a five-leaved calyx surrounded by small bracts; a short campanulate five-cleft smooth corolla; short

included within the corolla, with beardless anthers, petalate beneath the middle; and a five-celled capsule. A dense shrub, with solitary erect flowers, the leaves cucullate at the base and sharp-pointed. It is a native of New South Wales. [R. H.]

PONGIRADE. (F.) *Melissa*.

PONGIRE. (Fr.) A large variety of Lemon.

PONDEUSE. (Fr.) *Solanum ovigerum*.

PONDWEED. *Potamogeton*; also *Lemna*.

—, HORNED. *Zannichellia*. —, TASSEL. *Ruppia*.

PONERA. From the Greek *poneros*, 'unhappy,' in allusion to the thin appearance of the plants of this genus of orchids. All the species have simple slender lanky stems, very narrow grass-like leaves, and small axillary flowers in tufts upon the young leafy or the old leafless stems. They have erect fleshy sepals, the lateral ones largest and connate with the elongated foot of the column; free petals; a naked two-lobed wedge-shaped lip articulate with the foot of the column, which is short and terete; and a membranous four-celled anther, containing four pollen-masses adhering in pairs by means of two powdery caudicles. The species are natives of Central America and the West Indies. [A. S.]

PONGAMIA. Several species have from time to time been included in this genus of leguminous plants, but they are now referred to *Derris* and other genera, and only the original species (*P. glabra*) upon which it was established, remains. As a genus, however, it is scarcely distinguishable from the tropical American and African *Lonchocarpus*, its flowers agreeing perfectly with those of that genus, and of *Derris*, *Piscidia*, and *Mullera*; but its pods are somewhat different, being of an oblong form, from an inch and a half to two inches long, and an inch broad, flattened but thick and hard, and with rounded not winged edges; and they contain only one seed, which is thick and kidney-shaped.

P. glabra is a tree extensively diffused throughout Southern India, Pegu, Malacca, and the Indian Archipelago, and also found in Southern China, North Australia, and the Feejee Islands. It has smooth pinnate leaves, composed of five or seven egg-shaped or broadly elliptical leaflets, arranged in pairs with a terminal odd one; and loose axillary racemes of flowers. In India an oil, called Kurunj, or Poonga oil, is expressed from the seeds, and greatly used for mixing with lamp-oil, or by the poorer classes for burning without any admixture. It is of a deep-yellow colour inclining to reddish-brown, and is fluid at temperatures above 60° Fahr., but below that it becomes solid. The tree has been recommended as suitable for forming avenues in the south of France. [A. S.]

PONOPILINO. *Pedilanthus tithymaloides* and *P. padifolius*.

PONTEDERACEÆ. (*Pontederaceæ*). A

natural order of monocotyledons belonging to Lindley's liliac alliance of Endogens. They are aquatic or marsh plants, with sheathing parallel-veined leaves, which are sometimes cordate or sagittate, and have inflated petioles, and spathaceous flowers. Perianth tubular, coloured, six-parted, circinate in aestivation; stamens three to six, the anthers introrse; ovary free, or slightly adherent, three-celled; style one; stigma simple. Fruit a three-celled three-valved capsule, with loculicidal dehiscence; seeds indefinite, attached to a central axis. They are natives of North and South America, the East Indies, and Africa, and are unimportant in regard to properties. There are six genera, including *Pontederia* and *Leptanthus*, and about thirty species. [J. H. B.]

PONTEDERIA. A genus of *Pontederaceæ*, now restricted to those species which have two of the cells of the ovary barren, and a one-celled utricular fruit with a single seed. They are stout American herbs, growing in shallow water, with creeping rhizomes, long-stalked leaves (generally heart-shaped at the base), and a one-leaved stem, terminated by a raceme of purplish-blue flowers which are two-lipped, the upper three segments united to form the three-lobed upper lip, and the three lower spreading; stamens six, the three upper shorter and often sterile. *P. cordata*, the Pickerel-weed, is a common North American aquatic, with the leaves somewhat arrow-shaped, and a dense spike of blue flowers. [J. T. S.]

PONTHIEVA. Of the two species of this genus of the *Neottie* tribe of orchids, one is exclusively West Indian, and the other West Indian and American, from Carolina to Ecuador. They are both terrestrial plants with tufted roots, broad veiny radical leaves, and many-flowered terminal scapes clothed with glandular pubescence. Their flowers have the lip posterior and adnate to the column together with the petals, a beaked column, and a dorsal oblong linear stalked anther, containing two bilobed pollen-masses. [A. S.]

PONY. *Tecoma serratifolia*.

POOAH, or PUYA. An Indian name for *Boehmeria Puya*, from which a valuable fibre is obtained.

POODINA. An Indian name for *Mentha sativa*.

POOL-REED. *Phragmites communis*.

POOL-RUSH. *Typha*.

POON-WOOD. An Indian wood, the produce of one or two species of *Calophyllum*.

POOR-MAN'S PARMACETTY. *Capsella Bursa Pastoris*.

POOR-MAN'S TREACLE. *Allium*.

POOR-MAN'S WEATHERGLASS. *Anagallis arvensis*.

POP. A United States name for some varieties of Maize.

POPE'S-HEAD. *Molocactus communis*.

POPLAR. *Populus*. —, **YELLOW**, of North America. *Liriodendron tulipifera*.

PÖPPIGIA. A tall tree, a native of the West Indies and tropical South America, with simply pinnate leaves, having many leaflets like those of a *Robinia*, and numerous yellow flowers in terminal panicles. It forms a genus of *Leguminosae* of the sub-order *Cesalpiniaceae*, and is chiefly characterised by five nearly equal narrow petals, ten nearly equal free stamens, and a long thin flat and rather narrow pod, with a narrow wing along the upper suture, much like the pod of a *Robinia*.

POPPY. *Papaver*. —, **CALIFORNIAN** *Eschscholzia californica*. —, **CELANDINE** *Stylophorum*. —, **CORN.** *Papaver Rhæas*.

—, **GARDEN.** *Papaver somniferum*. —, **HORNED.** *Glaucium luteum*. —, **OPIUM.**

Papaver somniferum. —, **PRICKLY.** *Argemone mexicana*. —, **RED.** *Papaver Rhæas*.

—, **SEA.** *Glaucium luteum*. —, **SPATLING.** *Silene inflata*. —, **WELSH.** *Monopetala cambrica*.

POPPYA. A name synonymous with *Luffa*, a genus of the *Cucurbitaceae* embracing the Towel-gourda. *P. Fabiana* of gardens is *Luffa cylindrica*. [A. A. B.]

POPPY-SEED. The seed of *Papaver somniferum*.

POPPYWORTS. Lindley's name for the *Papaveraceae*.

POPULAGE. (Fr.) *Callia*.

POPULUS. The Poplar: a genus of deciduous trees, often attaining a considerable height, natives of temperate climates in both hemispheres. They belong to the *Salicaceae*, and are botanically distinguished by bearing both barren and fertile flowers in catkins, the scales of which are jagged. There are no nectariferous glands as in *Salix*; the number of stamens varies from four to thirty, and these organs, as is also the case with the style in the fertile flower, are contained in a cup-shaped perianth.

The Poplars are trees of rapid growth; consequently their timber is soft, light, and of a loose texture: they are remarkable for a greater or less amount of tremulous motion in the leaves, occasioned by the length and slenderness of the leafstalk, which instead of being flattened horizontally, or in the same plane with the leaf, as is the case with the generality of trees, is compressed vertically, so that the plane of the leaf and that of the stalk form a right angle with each other. The barren catkins are conspicuous in early spring by their length, and the red tint of the numerous stamens, and, a little later in the season, the fertile catkins become remarkable from the quantity of white cottony down which envelops the seeds.

P. fastigiata, the Lombardy Poplar, is the formal cypress-shaped tree with perpen-

dicular slender branches so common in suburban gardens, but scarcely ornamental except when its taper head rises above a mass of round-headed trees and breaks or relieves a too continuous horizontal line. It is indigenous in Lombardy, Persia, and the Himalayas, and attains a height of from 100 to 180 feet. Its timber is of little use, except for packing-cases. *P. monitifera*, the Black Italian Poplar, is a native of North America, though now common in Italy and Switzerland and extensively planted in England. It is the fastest-growing of all the Poplars, and sends up a remarkably straight stem; but the branches are far more diffuse than those of the Lombardy Poplar, with which, however, it is closely allied. *P. alba*, or Abele, the White Poplar, and *P. canescens*, the Grey Poplar, are allied species: the former having four yellow stigmas and the fertile catkins oval; and the latter eight purple stigmas, and the fertile catkins cylindrical. These trees are thought to be natives of Britain, France, and Germany, as well as the Caucasus, Barbary, and Persia. They often attain a large size, and are remarkable for their roundish deeply toothed leaves, which are downy and white beneath. The Abele is the badge of the Fergusons. The timber of *P. alba* is of little value; that of the Grey Poplar, a tree of slower growth, is used by the carpenter, turner, and millwright for many purposes. *P. tremula*, the Aspen, is a native of most parts of Britain in wet soils. This is also a fast-growing tree, with a smoothish grey bark and spreading branches, which in age become pendulous; the leaves are nearly circular, almost smooth on both sides, and are especially liable to the tremulous motion peculiar to the family. *P. nigra*, the Black Poplar, so called apparently in contradistinction from the White Poplar, is considered by Sir W. J. Hooker to be merely a variety of the Lombardy Poplar. *P. balsamifera*, the Tacamahac, a native of North America, is remarkable for its fine foliage in early summer and the pleasant balsamic odour of its buds and leaves. For other species and varieties see Loudon's *Arboretum*. French: *Peuplier*. German: *Pappel*. [*P. euphratica* is supposed to be the willow of Psalm 137.] [C. A. J.]

PORANTHERA. A genus of *Euphorbiaceae*, of the tribe *Phyllanthæ*, consisting of small Australian shrubs, usually glabrous and much-branched, with alternate entire narrow often heath-like leaves, and small flowers in dense clusters surrounded by a few involucrel leaves. The calyx is coloured and five-cleft, with five minute petals; the male flowers have five stamens remarkable for their four-celled anthers, and the females a three-celled ovary with two ovules in each cell, and three two-cleft styles. There are not many species, and none of any special interest.

PORCUL. A large plum grown in Spain.

PORCELLE. (Fr.) *Hypochaeris*.

PORCUPINE-WOOD. The hard outer portion of the trunk of *Coccoloba nucifera*.

POREWORTH. Lindley's name for the *Tremandrææ*.

PORI (adj. **POROSE**). Apertures in the covering of anything; as in the anthers for the emission of pollen (hence *porandrous*), or in the skin, when they are also called stomates. Also, appendages of the pileus among fungi in the form of cylindrical or angular tubes, placed side by side, open at one end, and containing in their cavity the organs of reproduction.

PORILLON. (Fr.) *Narcissus poeticus*.

PORION. (Fr.) *Narcissus poeticus* and *N. pseudo-Narcissus*.

PORLIERIA. A genus of shrubs of the *Zygophyllaceæ*, named in honour of a Spanish botanist. The species are met with in Peru and Chili. Their pinnate leaves are provided with small spray stipules; the flowers grow in tufts, and have a four-parted calyx, four petals, eight stamens inserted below into a little scale, and a four-lobed ovary placed on a short stalk, with four ovules in each of the four compartments; fruit fleshy, four-lobed, each compartment containing but a single seed, owing to the suppression of the remaining three. *P. hygrometrica* is grown in this country as a stove shrub. Its specific name is given in allusion to the power that the linear leaflets have of expanding in fine and closing in wet weather. [M. T. M.]

POROPHYLLUM. A genus of *Compositæ* of the tribe *Heliantheæ*, allied in many respects to *Tagetes* and *Pectis*. It consists of from twelve to fifteen South American herbs or undershrubs, all glabrous and more or less glaucous, with entire or toothed leaves almost always marked with pellucid oblong glands. The flower-heads, always without rays, are singly pedunculate, with tubular involucre of five often united bracts. The florets are tubular, the style-branches linear nearly as in *Vernoniaceæ*, and the achenes elongated as in *Tagetes*, with a pappus of simple bristles.

PORPHYRA. A genus of *Ulvaceæ*, with a membranous flat frond, and dark-purple spores arranged in fours, though its natural affinities are clearly with the green-spored *Algae*. The species have undoubtedly been multiplied needlessly, and *P. vulgaris* and *P. laciniosa*, which supply the Laver of commerce, run manifestly into each other, though extreme forms seem distinct. When very young they closely resemble *Dangia*. The tint varies from a clear rose to a livid purple, but though occasionally slightly olivaceous is never green. [M. J. B.]

PORPHYREUS. Brown, mixed with red; a warm red.

PORPHYROCOMA. A genus of *Acanthaceæ*, containing a single species, a shrubby plant, with opposite lanceolate almost sessile leaves, and sessile flowers in terminal aggregate spikes, which have a very showy appearance from their large crowded purple bracts. The small calyx consists

of five subulate sepals, placed within three bracts, the outer one being very large; the corolla is tubular and two-lipped, the upper lip erect and two-lobed, the lower reflexed and three-lobed; there are two stamens, with anthers having two diverging cells; and the ovary is surrounded by a disk, and bears a long slender style and obtuse stigma. The fruit, concealed by the large persistent bracts, is unguiculate two-celled and two-valved. There are four flattened seeds on hooked retinacula. [W. C.]

PORTE-BANDEAU. (Fr.) *Sparganium herus Vauillantii*.

PORTE-CHAPEAU. (Fr.) *Palturus aculeatus*.

PORTE-COLLIER. (Fr.) *Ostiospermum montiferum*.

PORTE-FEUILLE. (Fr.) *Asperugo procumbens*.

PORTE-NOIX. (Fr.) *Caryocar*.

PORTE-SUIF. (Fr.) *Stillingia*.

PORTLANDIA. The Duchess of Portland, a great lover of Botany, is commemorated by this very handsome genus of cinchonaceous shrubs. The species are West Indian, and have elliptical leaves with broad triangular stipules; and very large whitish flowers, borne on axillary flower-stalks, in groups of two or three. The limb of the calyx is divided into five persistent leafy segments; corolla funnel-shaped, with a five-angled tube, and a limb divided into five blunt lobes; stamens attached to the throat of the corolla; style thread-like, as long or longer than the tube of the corolla; stigma undivided; capsule ribbed, surmounted by the limb of the calyx and bursting from above downwards, through the middle of the valves; seeds numerous, rough. Some of the species possess properties similar to those of the true cinchona. The bark of *P. hexandra* is used instead of cinchona in French Guiana; and that of *P. grandiflora* is exceedingly bitter. Two or three species are in cultivation as hothouse plants, and their splendid flowers are very ornamental; *P. grandiflora* is the one commonly met with. *P. platantha*, a species of more recent introduction, flowers in a dwarf state, and is almost always in bloom—two great recommendations. [M. T. M.]

PORTLAND-POWDER. A medicine consisting of equal parts of the roots of *Aristolochia rotunda* and *Gentiana lutea*.

POTULACACEÆ. (*Purslanaceæ*). A natural order of calycifloral dicotyledons belonging to Lindley's sileneal alliance of hypogynous Exogens. They are succulent shrubs or herbs, with alternate seldom opposite exstipulate leaves; sepals two, cohering; petals usually five, rarely wanting; stamens usually perigynous, ovary free or partially adherent, formed by three united carpels; stigmas several. Fruit capsular, one-celled, opening by circumscissile dehiscence, or by three valves, occasionally monospermous

and indehiscent. They are found in various parts of the world—chiefly, however, in South America and at the Cape of Good Hope—and always inhabit dry parched places. They have a great affinity to *Caryophyllaceæ*, from which they are chiefly distinguished by their bisepalous calyx, perigynous stamens, and transversely dehiscent capsule. Genera eighteen; species 193. Examples: *Portulaca*, *Talinum*, *Claytonia*. [J. H. B.]

PORTULACA. The typical genus of *Portulacaceæ*. It contains between thirty and forty species, fully two-thirds of which belong to the tropics and subtropics of the western hemisphere, and the remainder to tropical Africa, India, Australia, and the Sandwich Islands; while the Common Purslane, *P. oleracea*, is naturalised in most warm parts of the world. All are low succulent herbs, with alternate or irregularly opposite flat or nearly cylindrical leaves, often with tufts of bristles in their axils, and the upper ones forming an involucre around the solitary or clustered flowers; the latter being yellow purple or rose-coloured and very ephemeral, expanding only once, and that only in direct sunshine during the forenoon.

P. oleracea, the Common Purslane, is a prostrate annual seldom more than six inches high, glabrous, with small oblong wedge-shaped leaves destitute of bristles in their axils, and small stalkless clustered or solitary yellow flowers above the last leaves on the branches. Purslane has been cultivated from very ancient times, and is now spread over the tropics and both temperate zones. It possesses antiscorbutic properties, but is not much employed in this country, though its young shoots are sometimes put in salads, and the older ones used as a potherb or for pickling. Three varieties, the Common Green, the Golden, and the large-leaved Golden, are grown in gardens. [A. E.]

POSO. A sort of beer made of the fermented seeds of *Zea Mays*.

POSOQUERIA. A genus of shrubs or small trees, natives of Guiana, the West Indies, &c., and included among the *Cinchonaceæ*. They are remarkable for their very long white hanging flowers, the corolla of which is funnel-shaped, with a very long tube, a hairy throat, and a five-parted limb; stamens five, protruding from the corolla and attached to its throat, the filaments wavy; style thread-like, concealed within the tube of the corolla; stigma with two slender lobes. Fruit succulent, crowned by the limb of the calyx, two-celled. Some of the species with long white flowers are cultivated as stove plants in this country. The generic name is a modification of the native name applied to *P. longiflora* in Guiana. [M. T. M.]

POSTICIOUS. Turned away from the axis of a flower, as some anthers whose dehiscence takes place next the petals; also, stationed on that side of a flower which is next the axis.

POTALIA. A genus of *Loganiaceæ* allied to *Fagraea*, but well characterised by the great number (usually ten) of the lobes of the corolla and of the stamens, whilst that of the lobes of the calyx is four only. There is probably but one South American species, a weak shrub or undershrub, quite glabrous, with long opposite rather thick leaves, and axillary flowers. The juice is bitter and acrid, as in *Gentianaceæ*; and an infusion of the leaves, slightly mucilaginous and astringent, is used in North Brazil as a lotion for the eyes. The tropical African *Anthocleista* differs in so few essential points that it might be considered as a second species of *Potalia*.

POTAMOGETONÆ. The same as *Juncaginaceæ*.

POTAMOGETON. The Pondweed: a genus of submersed or partially floating aquatic plants belonging to the order *Juncaginaceæ*, of which the characters are:—Flowers perfect, four-cleft; stamens and styles four; seed-vessels four, sessile. There are nearly twenty species of Pondweed indigenous in our lakes, ponds, and rivers, all having very cellular stems and leaves, and unattractive greenish flowers often collected into a spike. One group is represented by *P. natans*, of which the lower leaves when present are submersed very long and narrow; the upper broadly elliptical, of a coriaceous texture distinctly marked with longitudinal veins, of a glossy green hue, and furnished with long flaccid stalks by means of which they accommodate themselves to a varying depth of water, and are always in a floating position. *P. crispus*, *P. densus*, *P. perfoliatus*, &c., have only submersed leaves which are alternate and pellucid, resembling when artificially dried a thin animal membrane. *P. zosterifolius* and *P. gramineus* have only submersed leaves, which are very long and narrow and of a texture resembling that of *Zostera*. *P. pusillus* and others bear also submersed leaves of an olive-brown hue, and so narrow as to present scarcely any plane surface. Some of these species are less common than others, but there is scarcely a pond, canal, or any large body of still water, which does not contain some of them. In canals they sometimes grow so profusely as to impede navigation; and in autumn, when they shed their leaves, the latter are liable to be carried away by the current, and choke the sluices of mills. The herbage and seeds afford food to many water-birds and myriads of aquatic insects. French: *Potamo*; German: *Saamkraut*. [C. A. J.]

POTATO. The esculent tuber of *Solanum tuberosum*. — CANADA. *Heliopsis tuberosa*. — MADAGASCAR. *Solanum Anquini*. — MIC-MAC. *Apios tuberosa*. — NATIVE, of Tasmania. *Gastrodia tenuimoides*. — SEASIDE. *Ipomoea pes capre*. — SPANISH, or SWEET. *Batatas edulis*. — TELINGA. *Amorphophallus campanulatus*, much cultivated in India as an esculent. — WILD. The West Indian name for *Ipomoea fastigiata*.

POTATO MURRAIN. A formidable disease in potatoes, which appeared first in this country in the year 1845, but was previously known in America. It is characterised by the rapid putrescence of the leaves and haulm, which is first indicated by the presence of a little mould, *Peronospora infestans*, which preys upon the tissues, spreading rapidly in every direction. The tubers also exhibit brown spots on their surface and within their tissue, and, according to circumstances, decay with greater or less rapidity. It is now admitted by most persons that the mould is the primary cause, but as it attacks the tissues before it appears externally it is almost impossible to apply a remedy. Many plans have been adopted, but the two most important, though far from infallible, are powdering the sets well with flower of sulphur; and early planting, with the removal of the haulm as soon as the mould appears. The disease has been equally bad in the wettest and hottest seasons, and has baffled the researches of all practical and scientific men. It was in many districts as bad in 1860 as it was on its first appearance—the worst year perhaps being 1846, when its sudden invadement produced a fearful famine in Ireland, which resulted in the loss by death of thousands; and, as good often comes out of evil, it also led to the repeal of the Corn Laws.

German authors distinguish two forms, the wet and dry rot. It is, however, to be observed that these diseases, which are characterised not only by the peculiar condition of the tubers, but by the presence of *Fusisporium Solani tuberosi*, were prevalent in this country before 1845; the brown mottled appearance of the tubers, and the presence of *Peronospora* on the leaves and the exposed tissues, being previously unknown. [M. J. B.]

POTELÉE. (Fr.) *Hyoscyamus niger*.

POTENTILLA. A genus of shrubby or herbaceous plants belonging to the *Rosaceæ*, and allied to the Strawberry, from which they are mainly distinguished by having their seeds in a dry not pulpy receptacle. The British species of most frequent occurrence are *P. Fragariastrum*, a humble hedge plant, with ternate leaves made conspicuous in early spring by its small white flowers, which are often mistaken for those of the Wild Strawberry; *P. anserina*, the Silver Weed, a roadside plant well marked by its pinnate leaves, glossy with white silky down, and large yellow flowers; *P. reptans*, distinguished by its slender creeping 'runners,' quinate leaves, and large yellow flowers; and *P. Tormentilla*, a humble slender trailing plant, of which the lower leaves are quinate, the upper ternate, and the flowers, which are yellow, have four or five petals. *P. fruticosa* has pinnate leaves and yellow flowers; it grows in bushy places in the North, but is rare. Many species are cultivated, of which *P. nepalensis*, *atro-sanguinea*, *Thomasi*, and *hematochrous* have furnished varieties of all shades of purple

and crimson. French: *Quintefeuille*; German: *Fünfingerkraut*. [C. A. J.]

POTERIUM. A genus of *Rosaceæ* named from the Latin *poterium*, a 'drinking cup,' as its herbage, which has much the flavour of cucumber, was employed in the old English drink known as a cool tankard. Its flowers are mono-cious, its separated male and female florets being compounded into more or less compact heads, from which depend little tassel-like bunches of bright-pink stamens. Of this plant the botanist recognises two forms, probably only varieties:—*P. Sanguisorba*, the Lesser Burnet, which has an angular stem about a foot high, pinnate leaves with serrated leaflets, and seeds somewhat acutely quadrangular: this occurs in calcareous soil; and *P. muricatum*, the whole plant of which is much larger than the preceding, the seeds four-winged, and more or less pitted with raised tooth-like elevations. The latter seems to be apparently wild in districts where sainfoin has been cultivated, and is probably a foreign plant introduced with continental seed; or else, from agrarian cultivation, burnet may have become the coarse plant which farmers have lately had so much reason to complain of from its being sown with their sainfoin. At first this evil was overlooked, as the intended crop only afforded a sample of the burnet here and there; and as both possessed pinnate leaves, the farmer scarcely distinguished them, though in the burnet the leaflets are serrated, while in the sainfoin they are entire at the edges. In order to distinguish the seeds of these two plants, reference should be made to the particulars given in treating of Sainfoin. [See ONO-BRYCHIS.] The colour of the seeds is a light brown, and the wrinkled aspect of both is so much alike that the pest is often overlooked by the buyer of sainfoin-seed, or we should hardly find what should be sainfoin turn out as much as fifty per cent. of burnet. To prevent this the best plan is to sow only decorticated seed. [J. B.]

POTHERB, WHITE. *Valerianella oltoria*.

POTHOMORPHE. A genus of *Piperaceæ*, consisting of undershrubs having somewhat the appearance of some of the species of *Pothos*, whence the name. They are natives of the tropics of the Old and New World, delighting in damp shady situations. They are studded with pellucid glands, and have large membranous heart-shaped sometimes pellate leaves. The spikes emerge from the axils of the leaves, above one or two branches, that proceed from the same spot. The stipules are small, opposite to the leaves; the flowers perfect; the fruit very small. [M. T. M.]

POTHOS. The name of a genus of climbing shrubs of the family *Orontiacæ*. They are natives of India, China, Madagascar, New Holland, &c.; and have for the most part cord-like stems, sending out false roots here and there, and attaching themselves to trees. The leaves are in the

adult state stalked, provided below with a permanent sheath; the blade of the leaf varies in shape in the different species, being sometimes entire, at other times palmately lobed, sometimes perforated. The spathe is persistent, and ultimately bent backwards. The spadix is clothed with perfect flowers, each of which has a six-leaved perianth, short filaments, and a sessile stigma. Several kinds are grown in stove-houses for the sake of their foliage. The generic title is an adaptation of the Cingalese name. [M. T. M.]

POTIRON. (Fr.) *Cucurbita maxima* or *C. Pepo*; also sometimes applied to the esculent *Solani*.

POT-PLANT. *Leucythis Ollaria*.

POTTERY-TREE. *Mogulea utilis*.

POTTIACEI. A natural order of acrocarpous mosses, with pedunculate straight oval capsules, which are generally without any peristome, and large-celled leaves. *Pottia* comprises several of the old *Gymnostomas*. *P. truncata* grows on almost every mud-wall, and *P. Heimid*, which is found at the Cape, and is widely distributed elsewhere, is not uncommon on old ant-hills. *Gymnostoma* has the reticulation of the leaves much more compact. [M. J. B.]

POTTSIA. A genus of the dogbane order, distinguished from its allies chiefly by the style and stigma, the former of which is broad at the base, and narrower upwards; and the latter is somewhat round and five-angled. The only species is a Chinese shrub, with hairy branches, oval stalked smooth leaves, and few small flowers. [G. D.]

POUCHBELL. *Glossocomia*.

POUCH-SHAPED. Hollow, and resembling a little double bag; as the spur of many orchids.

POUDRE À VERS. (Fr.) *Artemisia judaica*. — DE CHYPRE. A cosmetic wash-powder prepared from the starch of *Arum maculatum*.

POUKENEL, or POWKE-NEEDLE. *Scandix Pecten-Veneris*.

POULARD. (Fr.) *Triticum turgidum*.

POULE QUI POND. (Fr.) *Solanum Melongena*. — GRASSE, or MÂCHE. *Valerianella*.

POULIOT. (Fr.) *Mentha Pulegium*. — DE MONTAGNE. *Teucrium Polium*. — THYM. *Mentha arvensis*.

POUPARTIA. A genus of *Anacardiaceae*, two of the species formerly included in which have been referred to *Eria* and *Dracontomelum*, so that it is now restricted to the solitary species upon which it was founded. This, *P. borbontea*, is a middle-sized tree a native of the island of Bourbon, where it is called Bois de Poupart by the French, whence the generic name. It has unequally pinnate or sometimes simple leaves; and axillary and terminal racemes of dark-purple flowers, which are

distinguished from those of allied genera by being unisexual, and by having their petals overlapping in the bud, and afterwards spread very wide open. The fruit has a hard bony stone divided into two cells, each of which contains a single seed. [A. S.]

POUROUMA. A genus of *Artocarpaceae*, consisting of tropical American trees marked with circular scars, indicating the position of the stipules. The leaves are entire or palmately lobed, smooth or rough, sometimes woolly; flowers dioecious, in corymb-like cymes or clusters at the extremities of the branched flower-stalks. In the females the stigma is peltate, and the ovule partially inverted. [M. T. M.]

POURPIER. (Fr.) *Portulaca*. — DUMER. *Atriplex Halimna*. — MARRON. A Madagascar name for several species of pepper-bearing succulent fruits.

POURPIÈRE. (Fr.) *Pepitis Portula*.

POURRETIA. A genus of *Bromeliaceae* named in honour of the Abbé Pourret, a French botanist. The habit and general appearance of these plants do not materially differ from those of the other genera of this order. Perianth six-parted, the outer three segments equal, the inner three convolute at the base, spreading above, rolling up spirally when withered; stamens six, the filaments awl-shaped; ovary three-cornered, with a thread-like style, and three linear spirally-twisted stigmas; fruit capsular, cartilaginous, three-valved. The species are natives of South America. Some are in cultivation, and have blue or red flowers. [M. T. M.]

POUZOLZIA. A genus of *Urticaceae*, consisting of herbs shrubs or small trees, with the characters of *Bahmnia*, except that the stigmas are deciduous, but frequently in habit approaching *Parietaria*. The leaves are alternate, sometimes opposite or ternate, three-nerved and entire; the flowers small, monocious, in axillary or spicate clusters, the males and females usually intermingled; the former with a three to five-cleft perianth and three to five stamens; the females with a tubular perianth enclosing the fruit, and often winged. There are rather more than twenty species known, natives of both worlds within the tropics. Amongst them *P. indica* is a common herb in waste places in India, where it replaces our common *Parietaria*, which it much resembles in aspect. A considerable number of species formerly included in *Pouzolzia* now constitute the genus *Memorialis*.

POWDERY. Covered with a fine bloom or powdery matter, as the leaves of *Primula farinosa*.

POW-ITCH. An Indian name for the fruit of *Pyrus rivularis*.

POZOA. A genus of the order *Umbelliferae*, distinguished by having the fruit four-angled, each half with five ribs, the three middle of which are close together and remote from the other two; there are no oil-cells. The only species is a smooth

herbaceous plant, a native of Chili, with stalked and wedge-shaped radical leaves; the flowers in dense umbels, surrounded by large bracts. The genus was named after Pozo, a Spanish botanist. [G. D.]

PRÆCOCITAS. A constitutional condition in peculiar individuals or varieties of plants, in consequence of which the natural time of flowering or fruiting is anticipated, as in the Glastonbury Thorn. Such varieties are often extremely valuable to gardeners. Most trees when raised from seed are many years before they yield perfect seed, though they may produce flowers at an early period. The Scotch Fir and Larch, for instance, bear fruit about the sixteenth year, the Spruce about the fortieth, the Silver Fir and the Beech scarcely before the fiftieth. We do not know what the usual age of seeding is in the *Wellingtonia*, but we have seen two three-year-old seedlings out of a great quantity with a single cone on each. [M. J. B.]

PRÆCOX. Appearing early in the year, or earlier than others related to it.

PRÆFLORATION. The arrangement of the parts of the flower when unexpanded. See **ÆSTIVATION**.

PRÆFOLIATION. The arrangement of leaves in a leaf-bud.

PRÆMORSE. The same as *Truncate*, except that the termination is ragged and irregular, as if bitten off.

PRÆUSTUS. Looking as if burnt, owing to the formation of a brown matter in the interior.

PRANGOS. The greater number of species forming this genus of umbellifers are found in Persia and Asia Minor, and extend from thence into Northern India, Africa, and Southern Europe. They are perennial herbs, with round tapering stems, and much-divided compound leaves, having very narrow segments; and they bear numerous umbels of yellowish flowers, which have a five-toothed calyx, entire egg-shaped petals rolled inwards at the point, and the style-bearing disk depressed. The fruits are scarcely at all flattened, being nearly of a taper form; the face by which the half-fruits cohere is broad, the half-fruits themselves each having five longitudinal ridges at the back, which are thick at the base but decrease to a thin wing; and the seeds are covered with numerous oil-cells.

The Hay-plant of Tibet, or the Prangos Hay plant, *P. pabularia*, was some twenty or more years ago greatly lauded as a forage plant, and various attempts were made to introduce it among the agricultural plants of this country, but without success. Its high reputation appears to have been undeserved; for although extremely valuable in the cold and arid regions of Tibet, where it is indigenous and where forage of a better quality is not obtainable, it is not so much esteemed in Kashmir and other more fertile countries,

where grass-pasture exists. It was first discovered by Mr. Moorcroft during his travels in Tibet, and was spoken of by him as being extensively employed as winter fodder for sheep, goats, and frequently for neat-cattle, producing fatness in a very short space of time, and proving very destructive to the liver-fluke so fatal to sheep. The late Dr. Royle was of the opinion that this plant was probably the kind of *Silphium* mentioned by Arrian in his account of the wars of Alexander: 'In this part of the Caucasus' (the modern Hindoo Kush) 'nothing grows except pines and silphium; but the country was populous, and fed many sheep and cattle, for the sheep are very fond of the silphium. If a sheep should perceive the silphium from a distance, it runs to it and feeds on the flower, and digs up the root and eats that also.' The other kinds of *Silphium* mentioned by Greek writers have been referred to plants of the same natural order. [A. S.]

PRASINUS. Grass-green.

PRASIOTA. A rather pretty genus of *Urticæ*, comprising the species which grow on rocks or on the naked soil, whether impregnated more or less with salt, or quite saltless. They form exquisite objects under the microscope, from the symmetry of the cells of which the frond is composed, these being disposed in fours or multiples of four. Some of them when young are very narrow, and, like the cognate *Porphyra*, look like *Bangie*. They are all natives of cold regions. *P. crispa*, which is not uncommon in Europe, occurs in Cockburn Island in lat. 60° S. [M. J. B.]

PRASITUM. A genus of *Labiata*, having the calyx bell-shaped, with the border two-lipped; the upper lip short, three-cleft, the lower deeply two-cleft, and all ovate and leaf-like; and corolla with a short tube, its upper lip ovate and entire, and the lower three-cleft, the middle piece largest and entire. *P. majus*, the only species, is an evergreen shrub, native of Europe and Northern Africa. The name is adopted from the Prasion of Dioscorides, a plant like horehound or marjoram. [G. D.]

PRATENSIS. Growing in meadows.

PRATIA. A small genus of *Lobeliaceæ*, natives of the southern parts of South America, Australia, Tasmania, New Zealand, and India. They form little creeping herbaceous plants, growing usually in marshy places; and having prostrate stems, small rounded or oblong sinuate or toothed leaves, and axillary single-flowered peduncles. It is distinguished from *Lobelia* by its fleshy indehiscent fruits. [A. S.]

PRATLING PARNELL. *Saxifraga umbrosa*.

PRAYER-BEADS. The seeds of *Abrus precatorius*.

PRËLE. (Fr.) *Equisetum*. — **DES TOURNEURS.** *Equisetum hyemale*.

PREMNA. A large genus of *Verbenæ*

cae, limited to the tropical and subtropical regions of the Old World, extending to Northern Australia and the Pacific Islands. They are shrubs or trees, with small flowers in terminal trichotomous panicles, or in opposite cymes or clusters forming a spike-like thyrses. The calyx is truncate or sinuately toothed; the corolla tube is short, and the limb spreading, with four or rarely five lobes which are nearly equal or slightly two-lipped; there are four stamens, usually shorter than the corolla; and the ovary is four-celled, with pendulous or laterally attached ovules, the style having two acute stigmatic lobes. The fruit is a drupe. [W. C.]

PRENANTHES. A genus of *Compositae* of the suborder *Cichraceae*, nearly allied to *Crepis*, and with a similar sessile pappus, but the slender cylindrical involucre has only four to six nearly equal bracts or scales surrounded by a few small ones at their base, and contains only three to five florets. The genus is now restricted to a very few European or Asiatic herbs. Amongst them *P. purpurea*, common in mountainous or hilly woods in Central and Southern Europe, is a tall erect herb with oblong-lanceolate stem-clasping leaves; and a large loose terminal panicle of elegantly drooping purple flower-heads.

PREPUSA. A genus of the family *Gentianaceae*, represented by a Brazilian shrub, with handsome flowers arranged in terminal leafy clusters. The calyx is bell-shaped, coloured, six-cleft, and winged; the corolla bell-shaped, with a short tube, deciduous; stamens six, inserted into the throat of the corolla; ovary one-celled, surrounded at the base by a fleshy disk; fruit two-valved. *P. Hookeriana* bears fine crimson and whitish flowers. The generic name is derived from the Greek word *prepo*, 'I am handsome.' [M. T. M.]

PRESCOTTIA. A small tropical American and West Indian genus of the *Neoticeae* tribe of orchids, the species of which are terrestrial, and have tufted roots, rosulate or single leaves, and a terminal sheathed scape bearing a dense cylindrical spike of green flowers, which have the lateral sepals connate with the lip into a sac, the lip being fleshy cuculate and entire, with a couple of ears at its base. [A. S.]

PRESLIA. A genus of *Labiatae*, having the calyx ovate equal and four-toothed, and the border of the corolla of four entire and equal lobes. The only species is a prostrate herbaceous plant, growing in marshy places in the southern parts of Europe, having sessile narrow leaves, and whorls of pale-purple flowers. The genus was named after C. B. and J. S. Presl, botanists of Prague. [G. D.]

PRETREA. A genus of *Pedallaceae*, consisting of only one species, *P. sanzibarica*, inhabiting the sandy shores of Eastern Africa. It is a procumbent herb, with opposite sinuato-planatifid leaves, the

lobes of which terminate in spines, and axillary peduncles producing one flower of a pink colour; a five-cleft calyx, a nearly campanulate corolla, four stamens, and a nut-like fruit with two horns, and one or two seeds. [B. S.]

PRIAPÉE. (Fr.) *Nicotiana rustica*.

PRICKET, or **PRICK-MADAM**. *Sedum acre*, *album*, and *reflexum*.

PRICKLES. Hard conical sharp elevations of the epidermis or epiphloeum; hence *prickly*, furnished with prickles, as the stem of a rose.

PRICKLE-YELLOW. The *Xanthorylon Clava Herculis*.

PRICKLY-PEAR. *Opuntia Tuna*, and *vulgaris*.

PRICKLY-POLE. A West Indian name for *Bactris Plumieriana*.

PRICKLY-WITHE. *Cereus triangularis*.

PRICK-TIMBER, or **PRICKWOOD**. The wood of *Euonymus europæus*.

PRIDE OF INDIA. *Melia Azedarach*.

PRIESTLEYA. A genus of *Leguminosae* of the suborder *Papilionaceae* and tribe *Genisteae*, consisting of South African shrubs, with alternate simple and entire leaves without stipules, and yellow flowers in terminal heads or racemes, or rarely scattered in the axils of the leaves. They have a five-lobed calyx; a rounded vexillum and curved carina; the stamens are diadelphous, the upper one free, the others united in a sheath; and the pod is flat, with several seeds. There are fifteen species known, none of them of any special interest, although some are rather showy.

PRIESTLEY'S GREEN MATTER. A name given to the green organised crust which occurs at the base of walls or shaded trees and leaves, or in other situations where the direct sunlight does not penetrate. It consists either of the infant condition of certain lichens and algae, or of minute species of *Palmellæ*. It has been considered by the advocates of spontaneous generation as mere organisable gelatine, waiting for conditions favourable to its development into plants or animals, or into germs capable of mutations from one kingdom, genus, or species into another. Such notions, however, depend for the most part either on imperfect observations or on imperfect knowledge. [M. J. B.]

PRIEST'S-CROWN. *Taraxacum Dens-leonis*.

PRIEST'S-PINTLE. *Arum maculatum*.

PRIMARIUS. The first part developed; or the principal division of any organ.

PRIMEROLE, or **PRIMET**. *Primula vulgaris*.

PRIMEROLLE. (Fr.) *Primula vulgaris*.

PRIMEVÈRE. (Fr.) *Primula*. — CAN-

—**ÉTABRE.** *Primula sinensis* or *granitensis*.
—**EN ARBRE.** *Oenothera*.

PRIMIGENIUS, PRIMORDIAL. The earliest part developed in a plant. Primordial leaves are the first leaves produced by the plumula.

PRIMINE. The exterior integument of the ovule.

PRIMORDIAL UTRICLE. The first layer of protoplasm thrown down over the interior of a cell.

PRIMPRINT, or PRIM. *Ligustrum vulgare*.

PRIMROSE. *Primula*: specially, the popular name of *P. vulgaris*. —, **BIRD'S-EYE.** *Primula farinosa*. —, **EVENING, or NIGHT.** *Oenothera*. —, **PEERLESS.** *Narcissus biflorus*.

PRIMULACEÆ. (*Lysimachia*, *Prim-worts*.) A natural order of corollifloral dicotyledons belonging to Lindley's cortical alliance of perigynous Exogens. They consist of herbaceous plants, with usually opposite, frequently radical, exstipulate leaves, and flowers on simple or umbellate scapes. Calyx five rarely four-cleft, regular, persistent; corolla monopetalous; stamens inserted on the corolla, and opposite its segments; ovary free, one-celled; style one. Fruit a capsula; seeds numerous, attached to a free central placenta. They are natives chiefly of temperate and cold regions in the northern hemisphere; in the tropics occupying lofty situations. *Primula*, *Androsace*, *Glauz*, *Tridentalis*, *Anagallis*, and *Samoilus* occur amongst the genera, which are over thirty in number, and comprise about 250 species. Few of them have any important medicinal properties, though acridity is more or less present. They are cultivated as showy garden annuals and perennials. [J. H. B.]

PRIMULA. A genus of primworts, having the calyx tubular or bell-shaped, and five-toothed; the corolla salver-shaped, its tube cylindrical, and the mouth open; and the seed-vessel splitting into ten teeth at the end. The species are herbaceous, and natives of Europe and Asia, some being alpine; they are rare in North America. The leaves are usually clustered below, and the flowers are in umbels. The name is from the Latin *primus*, 'first.'

Primroses are deservedly favourites, as many of them are among the finest of our garden plants. In their native localities they fail not to attract special notice, from the little *P. scotica* of our own northern shores, to the more prominent *P. sikkimensis* of the Himalayas, which latter forms a notable feature of the vegetation at from 12,000 to 17,000 feet elevation, and has leaves a foot long, and a tall scape of yellow flowers.

The fine forms of Auricula are derived from the yellow *P. auricula*, a native of the Swiss Alps. The Cowslip, *P. veris*, the flowers of which are said to be narcotic; the Oxlip, *P. elatior*; the Primrose; *P. vulgaris*, with *P. farinosa* and

P. scotica, are British species. *P. japonica*, a recent introduction to our gardens, has been aptly called the Queen of the Primroses. [G. L.]

PRIMWORTS. Lindley's name for the *Primulaceæ*.

PRINCE'S FEATHER. *Amaranthus hypochondriacus*; also an American name for *Polygonum orientale*.

PRINCEWOOD. A light-veined brown West Indian wood, the produce of *Cordia gerascanthoides* and *Hamelia ventricosa*.

PRINGLEA. The sole representative of this genus of *Cruciferae* is *P. antiscorbutica*, a remarkable cabbage-like plant confined to insular Kerguelen's land, and hence often called the Kerguelen's-land Cabbage. The genus is characterised by its oblong seed-pods being composed of two convex or boat-shaped valves without a partition between them, and by the seeds, which are numerous and in two rows, being heart-shaped at the bottom, but prolonged into a short beak at the top, and having accumbent cotyledons.

The plant has a thick round root, often three or four feet long, and two inches in diameter, which lies along the ground and bears at its extremity a large cabbage, closely resembling the common cabbage of this country, having a dense white heart and loose green outer leaves; its flower-stems grow out from below the principal leaves, and are from two to three feet high, with their lower part more or less leafy. The whole plant abounds with essential oil, and when cooked the cabbage tastes like tough mustard and cress. Being a powerful antiscorbutic, it is invaluable to the crews of ships touching at Kerguelen's land. Dr. Hooker says: 'During the whole stay of the Erebus and Terror in Christmas Harbour, daily use was made of this vegetable, either cooked by itself or boiled with the ship's beef, pork, or pea-soup. The essential oil gives a peculiar flavour, which the majority of the officers and the crew did not dislike, and which rendered the herb even more wholesome than the common cabbage; for it never caused heartburn, nor any of the unpleasant symptoms which that plant sometimes produces.' [A. S.]

PRINOS. The Greek word applied to the holly has been employed to designate a genus of shrubs closely allied thereto. Its flowers are four or six-cleft, with six stamens, usually diœcious or polygamous; and the fruit is succulent, with six to eight stones. The species are natives of North America, the West Indies, and the warmer parts of Asia. Some of them are evergreen, while others are deciduous; and some have scarlet berries, while in others they are purple or black. Several are in cultivation in English shrubberies.

The bark of *P. verticillatus* is bitter, and has been employed in the treatment of fever, and, in the form of lotion, as an application in cases of gangrene, &c. The berries are tonic, and sometimes emetic.

The leaves of *P. glaber* are stated to be used in place of those of *Hesperis matronalis* for the preparation of Mate or Paraguay [M. T. M.]

the *Chrysobalanaceæ*, because as the fruit enlarges it does so very unequally, and the seed of the style remains at the base as in the true genera of that group; but at the time of flowering the style is terminal, and the genus is in fact nearly allied to *Prunus*. The leaves are small, serrate; the flowers very abundant, growing three or four together in the upper axils, and not unlike those of our blackthorn: the berries are usually very numerous, small, and purple. They are not edible, but the seeds yield a useful oil.

PRIONIUM. A very remarkable South African plant, the Palmiet or Fan-palm of the Dutch colonists, *P. Palmata* of botanists, is the only representative of this genus of *Juncaceæ*. In its botanical characters it is scarcely distinguishable from *Juncus*, to which, indeed, the plant was once referred. The principal differences consist in the three stigmas being sessile upon the three-celled ovary, in the ovules being confined to the lower half of the cells, and in the seed having a very large club-shaped embryo; but in habit and general aspect it presents more the appearance of one of the *Bromelaceæ*, having a tuft of sword-shaped channelled leaves, between two and three feet long, about an inch broad at the base, and tapering upwards to a point, with the margins sharply serrated. In South Africa it grows in the beds of rivers, and often increases to such an extent as to choke them. It has a trunk-like partially submerged stem, from five to ten feet in length and about the thickness of a man's arm, principally composed of the remains of the sheathing bases of the leaves; and the branching panicle of flowers is produced from the centre of the tuft of leaves. The leaf-sheaths contain a network of strong black fibre suitable for brush-making, or, when curled, as a substitute for horsehair; the leaves themselves are useful for plaiting and thatching, and also yield very good fibre; while the heart, or cabbage, is eatable. [A. S.]

PRIONOTES. A genus of *Epacridaceæ*, having a five-parted calyx without bracts; a tubular corolla, with an open throat and a five-parted smooth limb; five stamens, the filaments adhering by half their length to the tube; and a five-celled seed-vessel. They are smooth much-branched shrubs, with oval serrated leaves, and single-flowered axillary peduncles. The genus contains only two species—*P. cerinthoides*, a native of Tasmania, and *P. americana*, found in Staten Island. This latter species has also been described under the names of *Lobelia* and *Aloupa*. [R. H.]

PRIORIA. A large and handsome tree from Central America and some of the West Indian Islands, with pinnate leaves and large terminal panicles of small flowers. It forms a genus of *Leguminosæ* of the

PRISCO. The Spanish name for a kind of Peach.

PRISMATIC. Prism-shaped; having several longitudinal angles and intermediate flat faces, as the calyx of *Frankenia pulverulenta*.

PRISMATOCARPUS. Pretty little annuals formerly arranged with *Campnula*, but distinguished by having a rotate corolla, and an elongated prismatic capsule. *P. hybrida*, a plant from six to twelve inches high, has a slightly-branched erect stem, oblong roughish leaves which are wavy and toothed at the edges, and a few terminal solitary flowers which expand only in fine weather. It occurs occasionally in cornfields. [U. A. J.]

PRISMENCHYMA. Prismatic cellular tissue.

PRITZELIA. A genus of *Umbellifera*, now united with *Trachymene*, having five unequal petals, the two smaller in pairs, the fifth larger and radiant, all ovate acute and entire; and one half of the fruit usually abortive, the fertile half with ribs, not winged, and no oil-vessels. The only species is an herb, native of the Swan River district in Australia; it is erect, with scattered bristles; the umbels simple. The genus was named in honour of Pritzel, who wrote on the genus *Asemum*. [The same name has been given to a genus of *Legontaceæ*.] [G. B.]

PRIVA. A genus of *Verbenaceæ*, containing a few species, natives of America, Africa, and India. They are perennial herbs, with a woody or tuberous rhizome, opposite serrate leaves, and subsessile flowers in axillary and terminal spikes; the calyx is tubular, ventricose, and five-toothed; the corolla tube cylindrical, and the limb unequally quinquefid; stamens four included didynamous, with erect two-celled anthers bifid at the base; and the ovary four-celled with an ovule in each cell. The capsule is surrounded by the enlarged calyx; when mature it dehisces into two cocci which are two-celled, or one-celled by abortion. [W. C.]

PRIVET. *Ligustrum*. —, BARREN. *Rhamnus Alaternus*. —, EGYPTIAN. *Lumnitzera alba*. —, GARDEN. *Ligustrum vulgare*.

PROBOSCIDEOUS. Having a hard terminal horn, as the fruit of *Martynia*.

PROCRUS. Very tall.

PROCESS, PROCESSUS. Any extension of the surface.

PROCESSION-FLOWER. *Polygala vulgaris*.

PROCKIA (including *Kelletia*). A genus of tropical shrubs sometimes erroneously placed in *Flacourtiaceae*, but belonging really to the *Tiliaceae*. *P. Cructa* (*Kelletia odorata*), a native of the West Indies and the Isthmus of Panama, may be regarded as the type of the genus; and has sweet-scented flowers, reminding one of the odour of linden-blossoms. The plants have a three to five-cleft calyx, no corolla, an indefinite number of stamens, and a dry berry enclosing from four to six nearly round seeds. The leaves are alternate, quite entire or toothed; and the flowers appear in small racemes, and are occasionally unisexual. [U. S.]

PROCRASSULA. A name applied to some species of *Crassula*, e.g. *C. rubens*, but not generally adopted. [B. S.]

PROCHIS. A genus of *Urticaceae*, consisting of undershrubs or shrubs remarkable for their foliage. The leaves are distichous, that is to say, arranged in pairs on opposite sides of the branch and in the same place, but not quite opposite, those of each pair being very unequal in size, the small one inserted a little higher up than the large one. The flowers are small green and axillary, the males in small clusters or cymes, with a five-cleft perianth and five stamens, the females crowded on a globular or club-shaped fleshy receptacle in a small head, which as it ripens assumes somewhat the aspect of a strawberry. There are about half a dozen species known, natives of the East Indies, and of the islands of the Indian and Pacific Oceans.

PROCUMBENT. Lying flat upon the ground.

PROEMBRYO. The reproductive part of a spore; the youngest thallus of a lichen.

PROLIFERATIO. The production of one organ by a very different one: as that of cup-like appendages by leaves, or of branches by flowers.

PROMENEA. The five species of this genus of orchids were formerly included in *Muzillaria*; but on the revision of that genus some years ago, they were separated under the above name, and characterised as follows:—Sepals spreading; lip three-lobed, crested or much tuberculated at its middle; column short, semiterete; pollen-masses four, sessile in two pairs on an ovate gland. Reichenbach considers it a section of *Zygopetalum*. They are small plants with one or two-leaved pseudobulbs, and radical one or rarely two-flowered peduncles. [A. S.]

PRONAYA. A West Australian genus of *Pittosporaceae*, containing only one species, *P. elegans*, which has a five-leaved calyx with acuminate sepals; five obovate petals, their apices slightly revolute; five crooked stamens with arrow-headed anthers;

and a short round style and acute stigma; the fruit being a cylindrical many-seeded berry. They are climbing or erect shrubs, with alternate oblong-linear leaves, and blue flowers in racemes at the ends of the branches. [R. H.]

PROPAGINES. Deciduous axillary bulbs formed on the stem of some plants.

PROPAGO. The branch that is bent down in the operation of layering.

PROPAGULA. The powder-like grains which constitute the soredia of lichens.

PROPAGULUM. A runner or slender branch proceeding from the surface of the ground, ending in an expanded leaf-bud, and capable of propagation, as in the house-leek. See **OFFSET**.

PROPHETS-FLOWER. The name given by Indian Mussulmans to *Arnebia echinodes*.

PROPHYSES. The abortive plastidilia of the muscal alliance.

PROSARTES. A genus of *Melanthaceae*, consisting of downy herbs, inhabiting North America, with the stems divergently branched above, and having sessile ovate leaves, and drooping greenish-yellow flowers on terminal peduncles, solitary or a few in a simple umbel. The perianth is bell-shaped, with six equal deciduous leaves; filaments long; style undivided, with three short stigmas; berry ovoid or oblong, red with three to six seeds. [J. T. S.]

PROSCOLLA. A viscid gland on the upper side of the stigma of orchids, to which the pollen-masses become attached.

PROSENCHYMA. Short cellular tissue, having acute extremities.

PROSERPINACA. A small genus of perennial aquatic plants belonging to the *Haloragaceae*, inhabiting North America. Stems creeping at the base, with alternate serrate or pectinate leaves, and axillary flowers, solitary or two or three together; tube of calyx three-sided, the limb three-parted; petals none; stamens three; stigmas three; fruit bony, three-angled, three-celled, three-seeded. [J. T. S.]

PROSOPIS. A genus of *Leguminosae*, of the suborder *Mimosae*, consisting of trees or shrubs often armed with hooked prickles or with stout axillary spines, or with both. The small green or yellowish flowers are closely sessile in little heads or spikes, and have the valvular corolla and ten stamens with glandular anthers of *Eutada*; but the pod, more or less thickened, and either straight or variously twisted, is indehiscent, with a thick endocarp, and filled in between the seeds with a pulpy succulent or sometimes mealy or pithy substance. The leaves are twice-pinnate, generally rigid and of a glaucous hue, with only one or two pairs of pinnae, but with a considerable number of leaflets.

There are several species scattered over the warmer regions of America, Asia, and Africa. Amongst them *P. dulcis*, with so-

veral varieties often described as distinct species, is widely spread over Central and Southern America, and is sometimes planted for its sweetish succulent pods, used for cattle-feeding, called Algarobo after the Spanish Algarobo or *Ceratonia*, which it resembles in flavour. The *P. spicijera*, in the East Indies, has also a sweet pod there compared to the Algarobo. *P. Stephaniana*, sometimes separated as a distinct genus under the name of *Lagonychium*, is a scrubby prickly bush, common in Syria and Northern Persia, with an irregularly curled or twisted pod. *P. torquata*, and some other South American shrubby species, have a very curious spirally twisted pod like a corkscrew. The pods of several species supply a large quantity of tannin.

P. glandulosa, the Mesquit of Texas and the regions to the west, in some situations forms a tree thirty feet high, and yields excessively hard and durable timber, and likewise affords a large quantity of gum resembling gum-arabic. *P. pubescens*, also a native of Texas, New Mexico, and California, is the Screw-bean or Screw Mesquit of the Americans, and the Tornillo of the Sonora Mexicans, and is so called from the screw-like form of its pods.

PROSTANTHERA. A genus of *Labiata*, having the corolla somewhat bell-shaped, the upper lip bifid, the lower three-lobed, the middle lobe largest; and the anthers furnished with spurs beneath. The species are Australian shrubs, with a powerful odour. *P. lasianthus* has been long known in cultivation, having been one of the earliest of the species introduced; its leaves are lanceolate and serrate, the corolla hairy. The name is from the Greek for 'append-
> a prior
ment character of the genus. [G. D.]

PROSTEA. A large tree from tropical Africa, proposed by Cambessedes as a genus of *Sapindaceae*, but now considered as a species of *Deinbollia*.

PROTEACEÆ. (Proteads.) A natural order of monochlamydeous dicotyledons belonging to Lindley's daphnial alliance of perigynous Exogena. Perianth four-parted, valvate; stamens four (one sometimes sterile), opposite the segments of the perianth, the anthers bursting lengthwise; ovary superior, one-celled; ovules erect, the style simple, and the stigma undivided; seed exalbuminous. They form shrubs or small trees, with hard dry opposite or alternate exstipulate leaves; and are natives principally of Australia and the Cape of Good Hope. In general they occur in land unfit for cultivation, and seldom attain to a considerable size. In the section *Nucumetaceæ* the fruit is nucumetaceous and indehiscent; and in *Folliculares* it is follicular and dehiscent. *Protea*, *Persoonia*, *Grevillea*, *Hakea*, *Bankia*, and *Dryandra* are examples of the genera, some forty-six in number, comprising over 600 species.

They have no medicinal properties of importance, but present great diversity of appearance—hence the name of the order;

and they are cultivated for their handsome habit, and the peculiarity of their flowers. The clustered cone-like heads of the flowers of *Bankia* are very remarkable. In *Grevillea* the style is at first bent downwards, and the discoid stigma is enclosed within the upper part of the perianth where the anthers are placed; but after the pollen has been scattered the stigma is emancipated, and the style rises upwards. The fruit and seeds of a few plants of the order are eaten, and the wood is used for economical purposes. *Gueveia Avellana* yields nuts, which are sold in Chili under the name Avellano. *Protea melifera* is called Sugar-bush, on account of the honey furnished by its flowers. *Leucadendron argenteum* is the Witteboom of the Cape. [J. H. B.]

PROTEA. A large chiefly South African genus of *Proteaceæ*, one species, *P. abyssinica*, being a native of Abyssinia. The genus is distinguished by having an elongated unequally divided two-parted calyx, the broader lip bearing three nearly sessile stamens, the narrower lip one; and by the awl-shaped style having a cylindrical acuminate stigma. Fruit a hairy nut containing a single seed. The flowers are terminal or axillary, in large heads six to eight inches in diameter, surrounded in some species by coloured bracts four inches in length and half an inch broad, their apices crowned with long silky hairs. The plants themselves form small trees or shrubs with very variable foliage. In *P. speciosa*, *P. melifera*, *P. longifolia*, *P. coccinea*, *P. verticillata*, the leaves are oblong with a narrow base; in *P. cordata*, *P. latifolia*, *P. spectabilis*, &c. they are heart-shaped; in *P. capra*, *P. abyssinica*, *P. penicillata*, &c., they are lanceolate; and in *P. pulchella*, *P. formosa*, *P. acerosa*, *P. scabra*, &c., they are linear and sharp-pointed. [R. H.]

PROTERANTHOUS. Having leaves which appear before the flowers.

PROTHALLUS. A term intended to indicate the first results of the germination of the spores in the higher cryptogams. In ferns it is a little kidney-shaped or rounded membrane; in adder's-tongues a little bulb-like body; in horsetails a number of adnate threads; in *Selaginella*, *Isoteles*, and *Marsileaceæ*, a cellular expansion confluent with the spore. In all these cases the new plant springs from the impregnation of a cell in peculiar organs called archegonia. The term Prothallus is not applied to the germinating threads in mosses and liverworts, which produce the plant at once without impregnation, that process resulting in the formation of a capsule, and not of a new plant. [M. J. B.]

PROTOCOCCUS. A genus of chloro-spermous *Algae*, consisting of plants composed of a single cell propagated by the organisation of the endochrome, which is repeatedly divided into four, the individual spores for a time moving about by means of flagelliform appendages. The species collected under the name do not probably pre-

sent the same structure as the Red Snow, and one or two allied *Algae*. [M. J. B.]

PROTOPHYLLUM. The first leaf of a cryptogamic plant after germination.

PROTOPHYTA. A name given by Perleb to the simpler cryptogams, as being the most imperfect plants, and the first efforts of nature in the production of the vegetable kingdom. [M. J. B.]

PROTOPHYTOLOGY. That part of Botany which treats of fossil plants.

PROTOPLASM. The matter which is deposited over the inside walls of a cell subsequent to the formation of the cell itself.

PROTOSPORE. As the apparent spores in *Puccinellia* are not the true reproductive bodies, but merely preparatory organs analogous to a prothallus, and as the name of prothallus cannot conveniently be applied to them, the term protospore is proposed as a convenient name. [M. J. B.]

PRUD'HOMME. (Fr.) *Salvia verbenaca*.

PRUINA (adj. **PRUINOSE**). A coarse granular secretion found on the surface of some plants.

PRUMNOPITYS. A name proposed by Philippi for the *Podocarpus andina* from Chili, but not founded on characters of sufficient importance to justify its separation as a distinct genus.

PRUNE. The dried fruits of certain varieties of the Plum, *Prunus domestica*. — **WILD.** A Cape of Good Hope name for *Supindus Pappae*.

PRUNEATIER. (Fr.) *Prunus insititia*.

PRUNELET. A liquor made from Sloes or Wild Plums.

PRUNELLA. A genus of herbaceous plants belonging to the *Labiatae*, distinguished by a two-lipped calyx, the upper lip truncate three-toothed, the lower bifid; stamens ascending; style bifid. The species are common wayside weeds throughout the temperate zone in both hemispheres. *P. vulgaris*, or Common Selfheal, is a plant of frequent occurrence in the British Isles, growing to the height of a few inches, of a straggling habit, and bearing stalked ovate leaves, and dense spiked heads of deep purple flowers, with a pair of leaves at the base of each head. Selfheal was highly commended by the old herbalists for its vulnerary properties, but is now held in no repute. French, *Brunelle*; German, *Prunella*. [C. A. J.]

PRUNELLIER. (Fr.) *Prunus spinosa*.

PRUNES. (Fr.) The fruits of the Plum-tree. — **NOIRES D'AMÉRIQUE.** *Spondias*. — **VIERGES.** *Comocladia*.

PRUNE-TREE of the West Indies. *Prunus occidentalis*.

PRUNIER. (Fr.) *Prunus*. — **ÉPINEUX D'AMÉRIQUE.** *Ximelia*. — **ICAQUE.** *Chrysobalanus*. — **JAUNE D'ŒUF.** *Lucuma*.

PRUNUS. A Latin epithet borrowed from the Greek word signifying Plum, and used to designate the genus whose species furnish that fruit. It is included in the *Drupaceae*, and consists of trees and shrubs, natives of temperate regions in both hemispheres, many of them spiny in the wild condition, but losing their thorns when cultivated. The flowers are in umbel-like clusters, or sometimes solitary, produced before or after the leaves; and the margins of the young leaves are rolled inwards. The fruit is covered with mealy bloom or velvet-like down; the stone is pointed at one or both ends, and furrowed along the edge.

P. spinosa is the Common Sloe or Blackthorn, whose white blossoms are the ornament of our hedges in March and April. The leaves are elliptical, produced after the flowers, and the branches dark-purple in colour (whence the name Blackthorn), and terminating in a sharp spine. The roots are creeping, and throw up numerous suckers, on which account it is ill-adapted for a hedge-plant; these suckers, however, grow into upright branches, much sought after for walking-sticks. The wood is of no great value, but the bark has been used as a febrifuge. The leaves are used extensively to adulterate tea; the fruits are globose, dark purple in colour, and very sour and rough in taste. It is said that they are employed in the manufacture of a fictitious portwine; by the poor they are made into a palatable preserve. This shrub is the badge of the clan M'Quarrie.

P. insititia, the Bullace, is sometimes distinguished from the foregoing by its narrower leaves, more downy on the under-surface; the flowers not solitary, but produced in pairs; and the fruits larger and less rough to the palate. They are extensively used in this country. A variety occurs with yellowish fruit, which latter are sold in London as White Damsons.

P. Cocomilia, a native of Calabria, yields a bark which is considered a specific remedy in the fevers of that country. The kernel of *P. brigantica* yields an oil known in France as Huile des Marmottes, which is used instead of almond or olive oil. The fruit of *P. myrobolana* is used in India to dye black. The fruits of some of the cultivated varieties of *P. domestica*, dried in the sun or by artificial means, are known as Prunes. Those for table-use are from the St. Catherine or Reine Claude varieties. Another esteemed sort takes its name from Gualmaraca, a village of Portugal, where they are principally prepared. Those intended for medicinal purposes are obtained from the St. Julien Plum. Prunes are used as mild laxatives; the fresh fruit when ripe is also slightly laxative, but eaten in moderation it is not so injurious as is usually supposed. The fruit of the Apricot, *P. Armeniaca*, is used in the East as a remedy in fevers. *P. sibirica* is like the common Apricot tree, but smaller. It blooms earlier, and when in flower is highly ornamental. Among the species of *Prunus* in cultivation for ornamental pur-

poes, there is a small greenhouse shrub, which bears in spring a profusion of double white blossoms. This (*P. sinensis*) is deservedly a great favourite. [M. T. M.]

The Apricot, *P. Armeniaca*, forms a tree twenty to thirty feet high, with a round head, heart-shaped or ovate glossy leaves, and sessile flowers, with roundish white petals, appearing before the leaves. The fruit is roundish, pubescent, orange or brownish-orange, with a more or less deep orange-coloured flesh; the kernel in some is bitter, as in the well-known variety called Moorpark; in others, like the Breda, it is as sweet as a nut. The Apricot, sometimes considered as the type of a distinct genus *Armeniaca*, obtained its name from having been considered indigenous to Armenia; but it also grows wild in the north but more especially in the middle of that chain (Pallas, *Fl. Ross.*) Keyser found it in the oases of Upper Egypt, and Munby in Algeria, both wild and cultivated; but Alph. Decandolle remarks that the trees in these cases were probably naturalisations from cultivated varieties.

The Apricot was the *Mela armenitaka* of the Greeks, the *Malum armeniacum* and the *Præcocia* of the Romans. It does not appear to have been known to the Greeks in the time of Theophrastus, for according to him the only tree which put forth its flowers before the leaves was the almond; therefore he could have known neither the peach nor the apricot, for both of them do so. Dioscorides, 800 years later, in the beginning of the first century, mentions the Apricot under the name of *Armeniaca*, and which the Romans call *Præcocia*. Pliny, writing about the same time, states that the *Præcocia* ripens in summer, and had been introduced into Italy about thirty years. The modern Greeks named the Apricot *prichochchia* and *berichochchia*; the Italians generally *albicocca* or *albicocco*, according to Alph. Decandolle, who observes that 'all these and other modern names have certainly the appearance of being derived from *Armeniacum*, from *Præcocia*, or sometimes from *Arbor præcox*.' The French name *abricot*, the German *Aprikose*, and our Apricot are doubtless corruptions of the classical appellation. By our early authors on Horticulture, it was formerly written *a-præcox*, which is closer to the original than our present name for this fruit. The Apricot tree is said to have been introduced from Italy into England in 1524, by Woolf, gardener to Henry VIII. The varieties are somewhat numerous; but those most worthy of cultivation may be comprised in a dozen sorts. These may include the Largo Early, Royal, Moorpark, and Turkey for walls, and the Breda for standards; from which, although not large, the fruit is rich and excellent for the confectioner, forming, in the opinion of many, the richest of all preserves. Its kernels are sweet, as are likewise those of the Musch-Musch, a variety grown in the oases of Upper Egypt, where the fruit is dried and forms an article of commerce. Various sweet-kernelled varieties have also

been obtained of late years from Syria; and their kernels, like those of the Breda or Amande Aveline, may be eaten like almonds.

The cultivated Plum-tree, *P. domestica*, grows to the height of fifteen to twenty feet, its branches generally spineless, but by no means uniformly so; therefore there is no real distinction between this and the *P. insititia* of some botanists. In *P. domestica* the leaves are simple ovate or lanceolate, alternate stipulate deciduous, convolute when unfolding; and the flowers are solitary or in pairs, white, appearing generally before the leaves. The fruit is round oblong or obovate, fleshy, glabrous, and covered with a glaucous bloom; the stone compressed, acute at both ends.

The Plum is a native of the Caucasus and Asia Minor, naturalised at least in Greece, and in most temperate regions of Europe. The various common names which it anciently had indicate, says Alph. Decandolle, that it had a very extended primitive existence in Europe and in Western Asia. The great majority of the Latin and Germanic names are derived from *prunus* of the Greeks; the Slavonian languages have derived the name from quite a different root; in Bohemia it is called *Slava*, and *Sivonik* in Russia; by the Tartars and Turks, *Erik* and *Urnik*; the Celtic words *Eran* and *Eiriu* are employed by the Welsh, and these are not very different from the Turkish and Tartarian. The Greek name *kokkumelea* appears to have left no trace in modern languages. Cultivated varieties, according to Pliny, were brought from Syria into Greece, and thence into Italy. 'Several varieties of the garden plum,' says Professor Targioni, 'were introduced from the East since the days of Cato, who was born 232 years before the Christian era. Such was, for instance, the Damson or Damascene Plum, which came from Damascus in Syria, and was very early cultivated by the Romans. Muratori says that the Italian name for the plum, *Susina*, was derived from Susa, in Persia, whence it had been introduced into Italy. But the most ancient Latin name was *Prunus*, and with the Greeks *Coccyneia*.' From all these statements it may be certainly inferred that the cultivated plum existed at a very early period in Western Europe, where it had sown itself abundantly, as it does at the present day. Even in Britain seedling plums are frequently met with in our hedges, and occasionally some of them are found worthy of cultivation. Formerly, however, our finest varieties were introduced from France and Italy, and among them one the quality of which has not been excelled—the well known Green Gage. In France this is known by the name of *Raine Claude*, from having been introduced to that country by the queen of Francis I. It was brought to this country by one of the Gage family, after whom it was called, the name by which it was obtained from the Chartreuse at Paris having been lost. This excellent variety occasionally reproduces itself from the stone. Many

varieties appear to have been introduced from France centuries ago. The Orleans Plum is supposed to have been brought over when the English held possession of that French city *temp.* Henry V. There are now more than 300 sorts, and their number is still increasing.

A few of the finest for dessert are the Green Gage, Purple Gage or Reine Claude Violette, Jefferson, Kirke's, Royal Hâtive, Washington, and Coe's Golden Drop. Many others, however, possess great excellence. Some are employed for making preserves, and others dried form the Prunes of the shops. The Prunes which come from Brignoles, in the south of France, are prepared from a variety called the *Perdrigon*. The neighbourhood of Tours is celebrated for the quantity of Prunes which it furnishes. The German Prunes are prepared from an oblong purple variety called *Zwetsche*, or *Quetsche*, a Slavonian name originally, which is spelled variously on the Continent. Damsons are plums well-known and much used in this country for preserves, and so are the small round nearly wild sorts called *Bullaces*.

P. myrobolana, which is named Cherry Plum, probably from its colour, is a species from Canada. It flowers very early, and bears a medium-sized heart-shaped fruit, in great abundance and of tolerably good quality, but not equal to the European varieties. [R. T.]

PRURIENS. Causing an itching sensation.

PSALLIOTA. A subgenus of *Agaricus*, belonging to the series with purple-black spores, amongst which it is distinguished by the presence of a ring, which adheres to the stem. It contains many of our best esculent *Fungi*, especially *Agaricus campestris* and the allied mushrooms. Though capable of enduring cold, some of the species flourish where the temperature is high, provided there is sufficient moisture in the air. [M. J. B.]

PSAMMA. A genus of grasses belonging to the tribe *Arundineæ*, described by Steudel under *Calamagrostis*, and by other authors under *Ammophila*. It is the well-known Bent-grass of the sandhills near the sea-shores of Britain. [D. M.]

PSAMMISIA. The species of this genus of *Vacciniaceæ* are American shrubs with large leathery ribbed leaves, and axillary inflorescence in the form of stout corymb-like racemes, the podicels of which are thickened in the upper part, jointed, and provided with a small scale-like bract. The limb of the calyx is leathery and cup-shaped; the corolla tubular; and the upper part of the anthers attached at the back to the filaments. *P. Hookeriana* is in cultivation under the name of *Thibaudia pichinchensis*. Most authors consider the species of the present genus to form part of the genus *Thibaudia*. The name is derived from Psammia, King of Egypt! [M. T. M.]

PSEUDANTHUS. A name which has

been applied both to a genus of *Amaranthaceæ*, and to one of *Euphorbiaceæ*.

PSEUDATHYRIUM. A name proposed for *Polypodium alpestre* on account of its close resemblance to the *Athyrium* or *Lady Fern*. [T. M.]

PSEUDEPIDENDRUM spectabile. A Central American orchid, erected into a genus by Reichenbach, but afterwards abandoned and now called *Epidendrum pseudopseudendrum* by the same author. The genus was characterised by having two-edged somewhat falcate pollen-masses, the two outer much larger than the two inner, with a deeply three-toothed caudicle turned back upon them. It is a tall erect-stemmed plant, with sheathed leaves, and a panicle bearing a very few large green flowers with a scarlet lip. [A. S.]

PSEUDERIOPSIS. One of the many genera of orchids proposed and afterwards abandoned by Reichenbach. The sole species referred to it is a British Guiana plant, which is now said to be identical with *Eriopsis biloba* of Lindley. [A. S.]

PSEUDIOSMA. A scarcely known Rutaceous tree from Cochín China, which appears to be a species of *Eodius* or *Xanthoxylon*. The leaves are alternate, entire; the flowers yellow, in terminal panicles. Sepals five, spreading; petals five, larger than the sepals; anthers five, sessile; ovary five-lobed, girt by a thick disk; style as long as the anthers; stigma simple; follicles five, stalked, one-seeded. [M. T. M.]

PSEUDO. In Greek compounds = spurious.

PSEUDOBULB. A stem having the appearance of a bulb, but not its structure, seen in the thickened above-ground stem of many orchids.

PSEUDOCENTRUM macrostachyum. A Peruvian terrestrial orchid, forming a genus allied to *Pelexia* in *Neottia*; but nothing is at present known of it except the flowers, which are borne in a dense cylindrical spike, and have the front sepal small lanceolate and spreading, and the two lateral ones large triangular and excessively produced at their base, forming a long curved sheath, within which lies the sessile hastate three-lobed lip, the middle lobe of which is as long as the sheath, narrow and channelled. [A. S.]

PSEUDOCOSTATE. Having the curved and external veins, both or either, in a reticulated leaf, confluent into a line parallel with the margin, as in many *Myrtaceæ*.

PSEUDOCOTYLEDONEÆ. A name applied to some of the higher cryptogams, from a notion that there is some analogy between the results of germination and cotyledons. It is essential to cotyledons that they should exist in the embryo ready formed. False cotyledons must be after-growths on the axis, and it is clear that the organs in question are of such a different

character that the name is wholly inapplicable. [M. J. B.]

PSEUDOGYRATE. Falsely ringed; when an elastic ring is confined to the vertex of the spore-cases of *Ferns*.

PSEUDOHYMENIUM. A covering of sporidia resembling the hymenium of fungi.

PSEUDOMONOCOTYLEDONOUS. Having two or more cotyledons consolidated into one mass, as in Horse Chestnut.

PSEUDOPARASITE. A false parasite, that is, a plant which only attacks dead tissues, as many Fungi. See *EXTRAXTES*.

PSEUDOPERIDIUM, PSEUDOPERITHECIUM. A covering of sporidia, resembling the peridium. What is called a Pseudoperidium, in *Ascidium* and its allies, is by no means a transformation of the cellular tissue of the matrix, a notion from which, in fact, the name was originally derived. [M. J. B.]

PSEUDOPYRENIUM. The perithecium of certain fungi.

PSEUDOSCORDUM. A genus of *Liliaceæ* sometimes called *Nothoscord.* *sc.*, differing from *Allium* in having the style terminal, not contained in a central canal, and the ovules several in each cell. [J. T. S.]

PSEUDOSTROMA. The receptacle or perithecium of certain fungi.

PSIADIA. A genus of *Compositæ* of the tribe *Asteroidæ*, consisting of a small number of species natives of Mauritius or of Madagascar, all shrubby and mostly glutinous, with alternate coarsely toothed or entire leaves, and small flower-heads in compound corymb. The involucrel bracts are imbricate, and the ray-florets ligulate and numerous, but usually so small as to make the head appear discoid. The pappus consists of simple bristles. *P. glutinosa* is frequently cultivated in Continental botanic gardens.

PSIDIUM. A most extensive but exclusively tropical American genus of *Myrtaceæ*, consisting of trees or shrubs with opposite entire feather-veined leaves, and large white flowers, growing either singly or a few together on axillary stalks, and producing fleshy berries crowned with the remains of the calyx-lobes, and containing numerous small hard kidney or horse-shoe-shaped seeds nestling in pulp. The flowers have an egg-shaped calyx, with the lower part cohering with the ovary, and the upper free part entire and closed in the bud, and at length coming off entire or bursting into five or rarely four lobes; four or five free petals; numerous stamens; and a two or more celled ovary with many ovules in each cell.

P. Guatava, the Guava tree, produces the well-known Guava fruits of tropical countries. It is a small tree, seldom more than fifteen or twenty feet in height, and has downy four-sided branchlets; egg-shaped or oblong short-stalked leaves, covered with soft down underneath, and with the principal veins very prominent; and axillary short stalks bearing one or

three flowers, each about an inch in diameter. Several varieties of this species are known, the two most common, distinguished by the shape of the fruit, being sometimes described as distinct species. They are: 1, *pomiferum*, with a round apple-shaped fruit; and 2, *pyriferum*, with pear-shaped fruit. Both are natives of tropical America and the West Indies, from whence they have been introduced into and become naturalised in India and other Eastern countries; and they also flourish and produce very good fruit in hothouses in this country. Their fruits have a thin bright-yellow rind, and are filled with a pulpy yellowish or red flesh, which has a pleasantly acid-sweet flavour; but the pear-shaped variety is sweeter and more agreeable in a raw state than the apple-shaped, though both make a very good jelly or preserve. Guavas are of too perishable a nature to permit of their being brought to this country in their natural state; but considerable quantities of guava-jelly and guava-cheese are brought by the West India mail-steamers. The wood of the Guava-tree has a fine close grain, and has been experimented upon as a substitute for boxwood for engraving purposes; but it proved too soft to stand the pressure of printing, especially when engraved with fine lines.

P. Cattleyanum, the Purple Guava, though originally brought to Europe from China, is most probably a native of Brazil. It has smooth round branchlets, smooth leathery leaves, and short one-flowered stalks. The fruits—which are produced in great abun-



Psidium Cattleyanum.

dance, and are readily distinguished from the common Guavas by their deep claret-coloured pitted rind—are filled with a juicy pale flesh of a very agreeable acid-sweet flavour. [A. S.]

PSILOCARYA. A genus of cyperaceous plants belonging to the tribe *Elynochopeæ*. The inflorescence is in many-flowered spikelets; scales all fertile, imbricated on every side, membranaceous or papery; stamens two, with long persistent fila-

ments; styles cleft in two. Steudel describes thirteen species, which are all American. [D. M.]

PSILOS. In Greek compounds = thin.

PSILOTUM. A genus of clubmosses with a three-sided stem, three-celled axillary capsules, and small bristle-pointed leaves. The stem is erect and dichotomous. The only species, *P. triquetrum*, grows on the trunks of trees in tropical or equable climates, and extends through Brazil and Central America to the Southern United States. It bears cultivation well, and is not uncommon in hothouses. The spores burst when placed in water, and emit a cloud of microscopic particles. [M. J. B.]

PSILURUS. A genus of grasses belonging to the tribe *Rottboellieæ*. The inflorescence is in rounded slender spikes; spikelets two-flowered, the lowest flower sessile and hermaphrodite, the upper stalked and minute; glume one, very small, oval, and membranous; pales two, membranaceous, the lowest one-nerved with a short awn at the point, the upper a little longer, and two-keeled, stamens one; stigmas two. Only one species is described, *P. nardodes*, which is an annual grass, native of the south of Europe. [D. M.]

PSOPHOCARPUS. A genus of *Leguminosæ*, founded upon an East Indian and Mauritius plant previously referred to *Dolichos*; another species from Tropical Africa has since been added to it. They are tuberous-rooted herbs, with herbaceous twining stems, trifoliate leaves, and racemes with a few flowers at the end. These have an unequally two-lipped calyx, with the upper lip two-lobed and rather larger than the lower, which is three-parted; a papilionaceous corolla, with a roundish reflexed upper petal spurred at the base but destitute of callosities; and ten stamens, nine of which are united and one free. The pods are furnished with four thin longitudinal wings at the angles, and contain from four to eight roundish seeds. *P. tetragonolobus*, also called *Dolichos tetragonolobus*, is grown in India for the sake of its eatable seeds; the pods are also used in Indian pickles. [A. S.]

PSORALEA. A genus of *Leguminosæ*, consisting of nearly a hundred species, spread over most parts of the American continent, and also found in great abundance at the Cape, more sparingly in Australia, and still more so in Asia and Tropical Africa. The genus is named from the Greek word *psoraleos*, 'scurfy,' in reference to the plants belonging to it being for the most part sprinkled all over or roughened with glandular dots or wart-like points. They are chiefly small shrubs or perennial herbaceous plants, sometimes with tuberous farinaceous roots, and usually have compound leaves composed of from three to five leaflets with the stipules adhering to the stalk, though occasionally the leaves are simple; and their blue white or purple flowers are borne in short spikes or racemes. The

calyx is five-cleft and persistent, the tube covered with glands, and the lowest lobe longer than the others; and nine of the ten stamens are joined together, the tenth being generally free but sometimes joined to the others at the bottom, and the five alternate anthers often imperfect. The one-seeded pods are seldom longer than the calyx, thick and often wrinkled, and do not split open at maturity.

P. corylifolia is an East Indian erect herbaceous plant growing about two feet in height, having simple egg-shaped leaves, slightly heart-shaped at the base, and pale bluish flowers in dense short spike-like racemes on long axillary stalks. The pods, which are very small, flat and oval or kidney-shaped, have an aromatic taste, and are employed medicinally by the native doctors in India; they also yield an oil, and under the name of Bawchan-seeds have been sent to this country for pressing.

P. esculenta is a native of Wisconsin, Missouri, and other parts of North-west America, where its tuberous roots, known as Indian or Prairie turnips (*Pomme Blanche* or *Pomme de Prairie*), form a great part of the food of the indigenous population, but when boiled are rather insipid. It is a hairy herbaceous plant about a foot high, with leaves composed of five leaflets disposed in a palmate manner, and roundish heads of blue flowers.

In Chili the leaves of *P. glandulosa*, there called Culen, are used as a substitute for tea under the name of Jesuit's Tea; but their infusion is not very aromatic, and appears to be valued more for its medicinal properties than as an agreeable beverage, being a powerful vermifuge and likewise a stomachic; they are also used by the Chilians for making poultices to apply to wounds, and an infusion of the root is emetic and purgative. The plant has been introduced into the Mauritius, and has there lately acquired a reputation as a remedy for diseases of the respiratory organs. It forms a dwarfish shrub, with trifoliate leaves, and long-stalked racemes of striped bluish and white flowers. [A. S.]

PSYCHINE. A genus of *Cruciferae*, from Mediterranean Africa, containing a hispid annual, with oblong toothed leaves, those of the stem amplexicaul, and racemes of white violet-veined flowers opposite the leaves, with leaf-like bracts. The pod is triangular, laterally compressed, with a very narrow septum and a beak formed by the persistent style, which is four-sided at the base, and filiform at the tip; valves keeled, winged at the apex; seeds numerous, with folded cotyledons. [J. T. B.]

PSYCHOTRIA. The etymology of this name is somewhat obscure; the generally received opinion is, that it is derived from Greek *psyche*, 'the soul,' 'life,' in allusion to the active properties possessed by some of the species. Botanically it is applied to a genus of *Cinchonaceæ*, consisting of shrubs found in tropical countries, especially in America. The more important characters of the genus are: a nearly entire

or slightly five-toothed calyx limb; a funnel-shaped corolla with a regular tube, and a spreading or reflected five-lobed limb; five stamens, concealed within the corolla or slightly protruding; and a fleshy fruit surmounted by the calyx, and having two smooth or ribbed stones. The flowers are mostly in terminal panicles. Several species are in cultivation; the flowers of most of them are white or yellowish, and of no great beauty. One is said to grow upon trees as an epiphyte. Emetic properties are assigned to the roots of some of the species, especially to those of *P. emetica*, a Peruvian plant, which furnishes what is called Striated Ipecacuanha, a substance less valuable than the true Ipecacuanha. The roots of *P. tinctoria* and *P. sulphurea* have been used as dyes. [M. T. M.]

PTEROXYLON *utile*, a small timber tree about thirty feet high, a native of the Cape of Good Hope, is the only plant belonging to this genus of *Sapindaceæ*. It has pinnate leaves, composed of five or seven pairs of thick unequal-sided entire leaflets, with or without a terminal one; and axillary bunches of flowers, which are unisexual by abortion, and have a calyx of four sepals, four petals without appendages, four free smooth stamens, and a two-celled flattened ovary, bearing two distinct or united styles, and two round-headed stigmas; and its ripe fruit contains two winged seeds, one in each cell. The timber of *Pteroxylon* is handsome, durable, and takes a good polish, and is used at the Cape for making articles of furniture and agricultural utensils. It is called Nieshout or Sneezewood by the Dutch colonists, from its possessing the property of causing the sawyers to sneeze violently when employed upon it. On account of its not being much affected by moisture, it is used for mill-work and bridges; and it is said to burn readily, even when green. [A. S.]

PTARMICA. A genus proposed for the *Achillea Ptarmica*, and some other large-flowered chiefly alpine species, which differ from the others in some very trifling characters.

PTELEA. The Greek name for the elm, and applied by Linnæus to a genus of shrubs or small trees, natives of North America and Asia, and included in *Xanthoxylaceæ*. It may be briefly characterised by its monoclous flowers, which have a four to five-parted calyx, four to five petals, and in the male flowers as many stamens; in the female flowers, the two to three-celled ovary is placed on a short stalk. The fruit is turgid in the centre, and surrounded by a broad membranous wing, like that of the fruits of the elm.

P. trifoliata, the Shrubby Trefoli of North America, is frequently grown in shrubberies in this country. Its leaves are of a rich green colour, with three unequal leaflets. In autumn these leaves assume a fine yellow tinge. The flowers are greenish, arranged in corymbs less conspicuous than the curious winged fruits, which ripen in

October. In Canada the young green shoots are used as an anthelmintic in the form of infusion. The fruits are bitter and aromatic, and have been used as a substitute for hops. [M. T. M.]

PIERANDRA. A genus of *Meliphiaceæ*, consisting of a single Brazilian shrub, with large stipules in the axils of the leaves. Flowers pink, variously disposed towards the end of the branches, the stalks jointed and provided with two small bracts, five-parted; petals nearly regular, stamens ten, all fertile, one or sometimes both sides of the anthers expanded into a crest-like appendage—whence the name of the genus; ovaries three, slightly adherent; styles three. [M. T. M.]

PTERIDOGRAFIA. That part of Botany which treats of Ferns.

PTERIDOPHYLLUM. A genus of *Farnariaceæ*, comprising a stemless herb from Japan, with a thick pramose rhizome, pectinate-pinnatisect stalked leaves with scaly petioles and numerous linear-oblong subulate segments (the terminal one three-lobed), and racemose flowers. Calyx two-sepaled, deciduous; petals four, the two outer ones folded, the inner plain; stamens four; ovary obicular, compressed, one-celled; style filiform, with a capitate two-lobed stigma. [J. T. S.]

PTERIS. A genus of polypodiaceous ferns typical of the *Pterides*. It is known by having linear marginal sori, on a continuous linear receptacle, and covered by a membranaceous indusium of the same form, combined with free veins. The plants vary greatly in size and form, some having pedate and others decompound fronds; and they are distributed over the temperate and tropical regions, though most plentiful in the latter. In the true species the vernalion is terminal; but in *P. aquilina*, the Common Bracken, not only is the vernalion lateral, but the indusium is double; that is to say, the spore-cases lie between two—an inner and an outer membrane. Hence it is not improbable that this species will have to be eventually removed. See *PASTA*. The Bracken is the badge of the Robustians. [T. M.]

PTERIS. In Greek compounds = a wing or membranous expansion.

PTEROCARPUS. With the exception of one South African species, this genus of *Leguminosæ* is confined within the tropics, but has representatives in Asia, Africa, and America. The fifteen described species are all trees, frequently of large size, and have alternate pinnate leaves with alternate or irregularly opposite leaflets, and simple racemes or loose panicles of showy yellow flowers, which have a five-toothed somewhat two-lipped calyx narrowed or top-shaped at the base, and a papilionaceous corolla with glabrous petals, and contain ten stamens united into a sheath, which is split on the upper or both sides (sometimes nine are united and one free), and an

ovary with from two to six ovules. The pods are flat, nearly round or oval, and somewhat one-sided—usually thick and hard in the middle or seed-bearing part, but more or less attenuated into a thin wing at the edges all round; and they contain from one to three seeds separated by thin woody partitions.

Gum Kino is obtained from trees of this genus: in India from *P. Marsupium*, and in Africa from *P. erinaceus*. Both these species are large trees, affording valuable hard timber; that of the former being extensively used in India in the manufacture of cotton-gins, while that of the latter is known in Western Africa as Rosewood. Kino is obtained by making V-shaped incisions in the bark, from which the juice exudes and hardens into a brittle mass, easily broken into little angular shining fragments of a bright ruby colour. It is highly astringent, and is used medicinally in diarrhoea, &c., and in India for dyeing and tanning. Another species, *P. santalinus*, yields the deep red dyewood known as Red Saunders, large quantities of which are annually exported from India. [A. S.]

PTEROCARYA. A small genus of *Juglandaceae*, containing Caucasian, Chinese and Japanese species, all of them trees with pinnate leaves composed of about a dozen pairs of leaflets. It is distinguished by its two-winged indehiscent fruits. [A. S.]

PTEROCEPHALUS. A genus of *Dipsacaceae*, founded on the *Scabiosa plumosa* and some others from the Mediterranean region, in which the calyx when in fruit is converted into a pappus of numerous soft feathery bristles.

PTEROCCOCUS. A genus of *Polygonaceae*, from Southern Russia and Siberia, distinguished from *Calligonum* and *Calliphaea* by having the four-angled nut with each angle produced into a double papery or leathery wing, and by being smooth between the wings. They are leafless shrubs, with articulated branches, ochraceate stipules, and flowers with a five-parted coloured perianth. *P. aphyllus*, or *Calligonum Pallasiæ*, has suborbicular toothed wings to the fruit, and reddish flowers. The roots when pounded are said to furnish a mucilaginous edible substance resembling gum tragacanth. [J. T. S.]

PTERODISCUS speciosus, the only known representative of this genus of *Pedaliaceae*, is an herbaceous plant with tuberous roots, confined to Southern Africa, and now an inmate of our gardens. The leaves are opposite, oblong sinuato-dentate, the flowers axillary and of a purple colour, which renders them very ornamental. The calyx is small and five-cleft, the corolla funnel-shaped with a five-lobed border; the stamens are four, the stigma bilabiate, and the fruit an indehiscent capsule, round, compressed, with two broad wings at the edge, small tubercles at the surface, and two or apparently six-celled, two of the cells containing isolated pendulous seeds. [B. S.]

PTEROGLOSSIS. The name of a Chinese perennial constituting a genus of *Scrophulariaceae*. The stems are numerous, slender, branched; leaves pinnately divided; flower-stalks axillary in loose panicles; calyx tubular, ten-nerved; corolla funnel-shaped, contracted below, dilated above, the limb unequally five-lobed and somewhat two-lipped; stamens four, filaments dilated; anthers notched at the top, and opening by a chink at the notch; ovary on a short stalk surrounded at the base by a fleshy lobed disk; the style dilated at its upper portion and the stigma notched, with a viscid gland in the notch, keeled on the upper, flat on the lower surface, the margins dilated into broad membranaceous wings that overlap the two lower stamens; capsule two-valved, concealed by the persistent calyx. [M. T. M.]

PTEROPHYLLA. A genus of *Cunoniaceae*, forming a tree from the Moluccas, with pinnate leaves, and terminal erect aggregated spike-like racemes. Calyx four-cleft, deciduous; petals four; stamens eight; ovary woolly, two-celled; style very short, incurved. [J. T. S.]

PTEROPODIUM. A doubtful genus of *Bignoniaceae*, probably identical with *Jacaranda*, consisting of two South American species, trees with pinnate or bipinnate leaves, and large panicles of purple flowers. The calyx is bell-shaped or tubular, the corolla funnel-shaped, the stamens four in number, with the rudiment of a fifth, the anthers glabrous; fruit unknown. [B. S.]

PTEROSPERMUM. A genus of *Sterculiaceae*, of the tribe *Helicteres*, in which the ovary is borne on a stalk closely combined with the staminal column, and the anthers are stipitate as in *Helicteres*; but the anther-cells are linear and parallel, and the capsule is almost woody, containing numerous winged seeds. There are about fourteen species, tropical Asiatic trees or shrubs, with more or less of a scaly or stipulate tomentum. The leaves are alternate coriaceous entire or toothed, and usually very oblique. The flowers are on short axillary peduncles, usually large white and fragrant, sometimes attaining several inches in length, although their beauty is diminished by a want of breadth and expansion.

PTEROSPOEA. A genus of *Monotropaceae*, characterised by a monopetalous corolla, which is ovate, five-toothed, and withering persistent; and by the two-celled anthers, which are two-horned on the back, and open lengthwise. The seeds are expanded at the apex into a broad reticulated wing many times larger than the body of the seed. *P. Andre-medes*, the only species, is a simple purplish-brown N. American herb, with scattered lanceolate scales in place of leaves, and a long-bracted raceme of nodding white flowers. [J. Br.]

PTEROSTEGIA. A genus belonging to the order *Polygonaceae* and tribe *Styracneae*, in which the flowers are enclosed in an involucre. It differs from others in the involucre being formed of two leaves, which

enclose one flower. There are two known species, both natives of California—*P. drymarioides* and *P. macroptera*. The first is a smooth trailing much-branched annual herb, with opposite stalked leaves having rounded or bilobed blades, and small involucre single in the axils of the leaves, their margins crested with slender teeth. In *P. macroptera* the involucre leaves enlarge as the fruit ripens, so that when mature they are half an inch across. In both the involucre leaves are formed like the valves of an oyster-shell. [A. A. B.]

PTEROSTYRAX. The name applied to a Japanese shrub, constituting a genus of *Styracaceæ*. The shrub is covered with stellate hairs, has sharply serrated ovate leaves, and bears axillary and terminal panicles of flowers. The tube of the calyx is adherent for a short distance to the ovary; the stamens are ten, five longer than the rest, all partially united below into a tube; the ovary contains numerous ovules, arranged in two rows; the style being awl-shaped, jointed above the base, and the stigma somewhat five-lobed. Fruit dry, somewhat woody, partially adherent to the tube of the calyx, the limb of which is expanded, and forms, as it were, five wings to the fruit, whence the name of the genus. [M. T. M.]

PTEROZONIUM. A genus of ferns belonging to the *Gymnogrammeæ*, and separated indeed from *Gymnogramma* itself, where some botanists still retain it. The only species, *P. reniforme*, a South American species, of dwarf stature, with simple reniform coriaceous fronds, has the sori



Pterozonium reniforme.

placed in so remarkable a position, that it has been made the type of a distinct genus. The sori are linear, and radiatofurcate, but laterally approximate, so that they soon become confluent into a broad horseshoe-shaped band on the back of the reniform frond. This confluence of the contiguous lines of spore-cases indicates a considerable approach towards the structure of *Piatyloca*. [T. M.]

PTERYGIUM. Any wing or membranous expansion of seeds.

PTERYGODIUM. A genus of Cape orchids, small terrestrial leafy plants, with sheathing-based leaves, and solitary or racemose pale-yellow or greenish flowers, which have their upper sepal agglutinated to the petals and forming a hood, whence one species is called Monk's Cow. The two lateral sepals are free and spreading; and the lip adnate to the face of the column, and furnished with a large tongue-formed appendage at its base. [A. S.]

PTERYGOTA. A name under which it is proposed to separate *Sterculia alata* from the rest of the genus on account of its winged seeds. It is an East Indian tree, of which the seeds are said to be narcotic.

PTILOTA. A beautiful genus of rose-wooded *Alga* belonging to the natural order *Ceramiales*, and distinguished by their compressed inarticulate frond, which is repeatedly pinnate. *P. plumosa* is confined to our northern coast, growing constantly on *Laminaria digitata*. *P. sericea* is more finely divided, and is common on our coasts, growing on rocks, and occasionally on *Fucus serratus*. It is one of the plants often used for making up seaweed pictures. A species which occurs at the Cape is one of the most beautiful of *Alga*, and there are other southern species. The genus does not apparently occur on the shores of the United States. [M. J. B.]

PTILOTUS. A genus of *Amaranthaceæ*, consisting of glabrous annuals from Australia and the Moluccas, with narrow alternate leaves, and terminal heads of flowers with shining scarious bracts; perigone of five sepals, with three bracts at the base; stamens five, united at the base, without intermediate staminodes; anthers two-celled; utricle indehiscent one-seeded, enclosed in the woolly sepals. [J. T. S.]

PTISAN. A medicated drink prepared from the flowers of *Malva sylvestris*.

PTYCHOB. An internal membrane overlying the external skin of a cell internally; the protoplasm.

PTYCHOMERIA. A genus of *Burmanniaceæ* consisting of six or seven small slender leafless annuals from tropical Brazil and Guiana. They are allied to *Dictyostegia*, but remarkable for the long slender tube of the perianth, its three outer lobes being more or less three-cleft, whilst the three inner ones are very small or entirely deficient.

PTYCHOTIS. A small genus of annual or biennial plants belonging to the *Umbelliferae*, found in the south of Europe, on the borders of the Mediterranean, in Egypt, Arabia, and India. It is distinguished by the compound umbels of white flowers being surrounded by a few-leaved involucre, by the margin of the calyx being five-toothed, and the petals notched or slit at the apex, with a long inflexed point proceeding from the sinus and cohering with the middle vein; and by the two halves of the rough laterally compressed

fruit, having each five equal thread-like ribs with single vittæ between them. All the species have the stem-leaves more or less minutely cut into numerous hair-like segments.

P. Ajowan is a small plant, with erect forking stems, and very few leaves, the lower of which are cut into numerous narrow segments and the upper are simply pinnate; and produces umbels composed of from seven to nine rays surrounded by an involucre of narrow entire leaflets. It is very much cultivated during the cold season in Bengal, where it is called Ajowan or Ajowan, or Javanea, and valued for its aromatic fruits, which are commonly used for culinary and medicinal purposes. They are very small, somewhat like caraways, rough on the surface and strongly ribbed, and remarkable for their strong odour of thyme. [A.S.]

PUBERA (*Ætas*). The period in the duration of a fruit succeeding to the fertilisation of the ovules.

PUBLIC-HOUSE PLANT. *Asarum europæum*.

PUCCINIA. A prominent genus of coniomycetous *Fungi*, and the type of the natural order *Pucciniales*. It is distinguished by the unisepate stipitate protospores, which are not bound together by gelatine. The species are all parasitic, growing on the different parts of phænogams, and in a few rare instances on cryptogams. The mycelia creep amongst and penetrate the cells of the mother-plants, exhausting their juices and appropriating them to the nourishment of the large protospores. The species are therefore more or less destructive to the mother-plant, unless where they tend to repress over-luxuriance. *P. graminis*, which occurs in almost every part of the world on grasses, and especially on cereals, is the common wheat mildew, one of the most formidable diseases of wheat, and one for which no remedy has as yet been found. Were it even possible to devise any plan which might destroy every particle of wheat mildew, there would still be a fresh supply in the fields from the wild grasses. Most species of *Puccinia*, besides the proper protospores, produce others which are unicellular, and which are generally assigned to *Uredo* or its allied genera. These are distinct from the young protospores before the septum is formed. Occasionally two distinct species exist together on the same plant. See *Æcidium*. [M. J. B.]

PUCCINIEÆ. A natural order of coniomycetous *Fungi*, formerly restricted to those parasitic species which have septate protospores, but now extended to those which consist of a single cell, provided there be no true peridium, as in *Æcidium*. In *Xanthophaea* and *Ascypha* the septa are numerous; in *Triphragmium* there is occasionally a vertical septum; in the sections *Uredinet* and *Ustilaginæ* they are mostly unicellular; and in the latter the mother-threads vanish at a very early stage of

growth. In *Cystopus* they are chained together, and are of two kinds, a circumstance which occurs also in the rose rust referred to the genus *Colosporium*. In all, the protospores germinate either from some indifferent point by the protrusion of the inner membrane, or from definite points like many pollen-grains. Some of the species, as mildew and smut, are cosmopolites, but one or two genera have at present occurred only in tropical or sub-tropical countries. *Podisoma* and *Gymnosporangium* differ merely in their abundant gelatine. Zoospores have recently been observed in *Cystopus candidus*. [M. J. B.]

PUCCOON. The Blood-root, *Sanguinaria canadensis*. — **HAIRY.** *Lithospermum hirtum*. — **HOARY.** *Lithospermum acnes-cens*. — **YELLOW.** *Hydrastis canadensis*.

PUCELAGE (Fr.) *Vinca*.

PUCELLE (Fr.) *Galanthus nivalis*.

PUCHA-PAT. The Patchouli, *Pogostemon Patchouly*, used in India as an ingredient in tobacco for smoking, and for scenting the hair, clothes, &c.

PUCHIRIM. A South American name for *Sassafras*.

PUCIÈRE (Fr.) *Plantago Psyllium*.

PUCKFIST, PUCKBALL, or BALL-FIST. Evidently a corruption of the German word *Bofist*, applied generally to the larger puffballs. According to Withering, they are sometimes called Bunt. [M. J. B.]

PUDDING-PIPE TREE. *Cassia Fistula*.

PUDIS (Fr.) *Pistacia Terebinthus*.

PUERARIA. A genus of *Leguminosæ* *Phaseolæ* allied to *Cucurbita*, having small blue or purplish flowers, with a campanulate calyx, an orbiculate or ovate vexillum, and a sessile ovary and narrow linear pod. There are about ten species, natives of Tropical Asia, China, and Japan. In pod and habit they resemble *Phaseolus*; while the flowers of some species are like those of *Dioclea*, and others like *Galactia*. Several of the species were formerly separated under the name *Nautanthus*. [J. Br.]

PURTE (Fr.) *Lepidium ruderals*.

PUFFBALL. *Lycoperdon*.

PUINE (Fr.) *Cornus sanguinea*.

PULAS. An Indian name for *Butea frondosa* and *B. superba*.

PULICAIRE (Fr.) *Pulticaria vulgaris*.

PULICARIA. A genus of herbaceous plants, belonging to the tribe *Corymbifera* of compound flowers. The flowers are conspicuously rayed, all yellow; the florets of the ray forming a single row, and destitute of a pappus; and those of the disk furnished with a hairy pappus, which is surrounded by a cup-like membrane. *P. dysenterica*, the Common Fleabane, received its name from the supposed virtue of its smoke when burnt in driving away fleas. It is a common plant in marshes and by the sides of rivers in England, where it is conspicuous in autumn by its

numerous bright-yellow flower-heads, and wrinkled downy oblong leaves. It grows to the height of about one foot. *P. vulgaris* is a much smaller plant, growing in moist sandy places, but is less frequent and unpretending in appearance. [O. A. J.]

PULLEY-SHAPED. Circular, compressed, contracted in the middle of its circumference so as to resemble a pulley; as the embryo of *Commelyna communis*.

PULLIPUNTA. A Peruvian name for *Phytolophas macrocarpa*.

PULLOM. An African name for *Bombax Ceiba*.

PULL-PIPES. A local North of England name for the stems of some of the larger *Equiseta*.

PULLUS. Black, with a strong lustre.

PULMONAIRE. (Fr.) *Pulmonaria*. — **DE CHÈNE.** *Stella pulmonacea*. — **DES FRANÇAIS.** *Hieracium pulmonarium*. — **DES MARAIS.** *Gentiana Pneumonanthe*. — **DE VIRGINIE.** *Pulmonaria virginica*.

PULMONARIA. The Lungwort: a genus of *Boraginaceæ*, occurring in Europe and North America, consisting of hispid perennials, with creeping rhizomes, and large ovate root-leaves, often marked with white blotches; the stems short, with smaller leaves, and a terminal raceme of blue flowers, which are red while in bud. Calyx five-sided tubular five-toothed, bell-shaped in fruit; corolla between funnel-shaped and salver-shaped, with an open throat without scales; stamens included; nuts free, smooth, affixed to the receptacle by the truncate bases. Two species occur in Britain: *P. officinalis*, with ovate root-leaves, probably an introduced plant; and *P. angustifolia*, with elliptical root-leaves narrowed at the base, which appears to be wild in the Isle of Wight. [J. T. S.]

The *Pulmonaria* formerly held a place in almost every garden, under the country name of Jerusalem Cowslip. Its purple flowers and spotted leaves recommending it to notice; whilst it was held in great esteem for its reputed medicinal qualities in diseases of the lungs, and was hence called Lungwort. It is occasionally found in woods and thickets. Its former use in diseases of the lungs was indicated to our forefathers by the well-defined white spots on the leaves of the *P. officinalis*. These spots were supposed so far to imitate those of the lungs, as to have been designed by Nature to point out its uses, especially in consumption. Sir J. E. Smith says that 'every part of the plant is mucilaginous; but its reputation for coughs arose not from this circumstance, but from the speckled appearance of the leaves resembling the lungs!' The Lungwort, however, offers an interesting instance of a plant which, though having been used as a remedy from the most superstitious motives, yet fortunately possessed those demulcent qualities, which from their beneficial effects were confirmation of the belief in a wrong theory. [J. B.]

PULP. The juicy tissue found in the interior of plants; sometimes applied to the succulent hymenium of fungi.

PULQUE. The fermented juice of *Agave*.

PULSATILLE. (Fr.) *Anemone Pulsatilla*, sometimes called *Pulsatilla vulgaris*.

PULSE. A common name for the seeds of many cultivated *Leguminosæ*, such as peas, beans, &c.

PULTENÆA. A genus of *Leguminosæ* of the suborder *Papilionaceæ* and tribe *Podalyrieæ*, consisting of Australian shrubs, with alternate entire or two lobed small sessile leaves, small brown stipules, and yellow or orange-coloured flowers in terminal heads or in the upper axils, always surrounded by small brown or scarious bracts. The calyx-lobes are nearly equal, the stamens all free, the pod small, more or less flattened, containing one or two seeds. There are between seventy and eighty species, two or three of which are occasionally grown in greenhouses amongst other Australian papilionaceous shrubs.

PULVEROUS. Powdery; consisting of powdery matter.

PULVERULENT. Covered with dust or powdery matter.

PULVINULI. Spongy excrescences in Lichens, sometimes rising up from the thallus and often resembling minute trees, as in *Parmelia glomulifera*.

PULVINULUS. A heap of naked spores, such as occur in the genus *Spilonia*.

PULVINUS (adj.) **PULVINATE, PULVINIFORM.** A cushion-like enlargement at the base of some leaves, or at the apex of some petioles.

PULVIS. Powder, dust, &c.

PUMICIN. (Fr.) Palm-oil.

PUMILUS. Short, close-growing, as compared with other species of the same genus or family.

PUMPKIN. A species of Gourd, *Cucurbita Pepo*. The name is sometimes loosely applied to other gourds.

PUN. An Indian name for the leaves of *Typha elephantina*.

PUNCRUDE. (Fr.) A kind of olive.

PUNCTATA VASA. Dotted vessels; tubes having dot-like appearances on their sides. See **BOTHRÆSCHYMA**.

PUNCTATE. Dotted; marked with some colour disposed in very small round spots or points.

PUNCTUM VEGETATIONIS. The growing point of a leaf-bud.

PUNGA-PUNGA. A kind of bread made from the pollen of the Raupo, *Typha angustifolia*.

PUNGENT. Terminating gradually in a hard sharp point, as the lobes of the Holly leaf.

PUNICA. Owing to the singular structure of its fruit, this genus, which contains only one species, *P. Granatum* (the Pomegranate), was by some botanists formed into a separate order *Granataceæ*. [It was afterwards placed in *Myrtaceæ*, but Bentham and Hooker consider it allied to *Lythraceæ*.] The peculiarity of the fruit resides in its being



Punica Granatum.

composed of two whorls of carpels, one placed above the other, the lower consisting of three or four and the upper of from five to ten



Punica Granatum (fruit).

carpels; and its seeds also differing from the rest of the order in having a pellucid pulpy coating.

The Pomegranate is a native of Northern Africa and Western Asia, and is usually a tree varying from fifteen to twenty-five feet high, with oblong or lance-shaped entire leaves, destitute of dots, and without the marginal vein usual in *Myrtaceæ*; but there is a dwarf variety with narrower leaves, sometimes called *P. nana*, naturalised in the West Indies. Its flowers are usually scarlet, though sometimes white or yellowish, and have a leathery top-shaped calyx divided at the top into five to seven valvate lobes, and as many or, in certain double-flowering varieties, a larger number of petals. Pomegranates are greatly valued in warm countries on account of their delicious, cooling, and refreshing pulp. Numerous varieties are grown, some being sweet and vinous, and others acid or of a bitter astringent taste; and the colour of their pulp is also much redder in some than in others. They are generally about the size of the fist, and have a tough leathery rind of a beautiful deep golden colour tinged with red, and are crowned with the remains of the calyx-lobes. The rind, espe-

cially that of the bitter kind, contains a large quantity of tannin, and is used for tanning the celebrated morocco-leather, and also as an astringent medicine; the flowers likewise yield a red dye. [A. S.]

PUNICEUS. The same as *Pheniceus*.

PUNICIN. A peculiar principle, obtained from the bark of the root of *Punica Granatum*, which has the appearance of an oleoresin.

PUNK. Touchwood or vegetable tinder.

PUNNEERIA. A genus of *Solanaceæ* containing only one species, *P. coagulans*, common in rocky and cultivated soil throughout Scinde, Afghanistan, and Beloochistan, and well known to the natives of those countries on account of its berries having the property of coagulating milk, in the same manner as rennet, for which they are substituted by the Beloochees and Affghans, who call them Puneer-bund, i.e. cheese-maker. It is a shrubby plant, growing from one to three feet high, clothed in all parts with a down formed of star-like hairs, which give it an ash-grey hue. Its leaves sometimes grow in pairs, and are thickish and of the same colour on both surfaces, oblong or lance-shaped and unequal-sided; and bear in their axils two or three small drooping flowers, which are unisexual by abortion, the sexes being borne on distinct plants. Both have a five-ent calyx, that of the female increasing in size after flowering and closely enveloping the ripe fruit; and their bell-shaped corolla has a five-parted limb. The males contain five fertile stamens as long as the corolla-tube, and an imperfect ovary; and the females five short barren stamens, and a perfect two-celled ovary bearing a simple style and two broad flat stigmas. [A. S.]

PUNOWUR PAIT. A Malayan name for *Eurycoma longifolia*.

PUPUNHA. A name used in the Amazon district for *Guibertia speciosa*.

PURA-AU, or PURATRURA. A Tahitian name for *Cratæva religiosa*.

PURDIEA. A handsome shrub, with alternate sessile entire glabrous and coriaceous leaves, and pink flowers in an elegantly drooping terminal raceme. The calyx consists of five very unequal sepals, which as well as the bracts are thin and scarious; there are five distinct petals, and ten stamens with the anthers opening in terminal pores as in *Ericaceæ*; the fruit is a four-celled nut with one seed in each cell. It forms a genus of the little group of *Cyrtillaceæ* nearly allied to *Ericaceæ*, although polypetalous. It was named after Mr. W. Purdie, the collector, who discovered it near La Cruz in New Grenada.

PURGA MACHO. *Ipomœa batatoides*. — **DE GENTIO, or DA PAULISTAS.** *Anda Gomesii*.

PURKINJIA. A generic name applied by Presl to some specimens of a Mexican shrub figured by him, but which ap-

pear to be a diseased state of some species of *Myrsinaceae*, probably an *Ardisia*.

PURPLE. Dull red with a slight dash of blue.

PURPLE-HEART, GUIANA. *Copaifera pubiflora* and *C. bracteata*. —, TRINIDAD. *Peltogyne paniculata*. —, WEST INDIAN. *Copaifera officinalis*.

PURPLE-LIP. *Vanilla claviculata*.

PURPLES. *Vibrio*.

PURPLEWORT. *Comarum palustre*.

PURPURASCENS. Having a purplish colour.

PURET. *Allium Porrum*.

PURSE-TASSELS. *Muscari comosum*.

PURSHIA. A shrub from the Oregon district in North-west America, with small villous three-toothed or three-lobed leaves, and solitary nearly sessile yellow flowers, forming a genus of *Rosaceae*, allied in many respects to *Geum*.

PURSILL. A Scotch name for *Alaria esculenta*.

PURSLANE, or PURCELLAINE. *Portulaca oleracea*. —, MILK. *Euphorbia maculata*. —, SEA. *Atriplex* or *Obione portulacoides*; sometimes used as a common name for *Obione*. —, SEASIDE. A. West Indian name for *Sesuvium Portulacastrum*. —, WATER. *Peplis*; also *Isomertia palustris*. —, WILD. *Euphorbia Peplis*.

PURSLANE-TREE. *Portulacaria afra*.

PUS, PODUS. In Greek compounds = foot or stalk.

PUSCHKINIA. A genus of *Liliaceae*, with the habit of *Scilla*, but having the segments of the perianth cohering at the base, and the filaments united into a tube forming a six-lobed crown. It is a small bulbous plant, with two narrow leaves, and a scape supporting a lax raceme of campanulate rotate pale-blue flowers. It is a native of Southern Russia. [J. T. S.]

PUSILLUS. Very small. See **PERPUSILLUS**.

PUSSLY. A name used in the North American prairies for Purslane.

PUTAMEN. The hard bony lining or stone of the fruit of many plants, as of the Plum, Cherry, &c.

PUTCH-LEAF. A Malayan name for Patchouly.

PUTCHUK. An Eastern name for the roots of the *Costus*, *Aplotaxus Lappa*.

PUTERA. An Indian name for *Typha elephantina*.

PUTIET. (Fr.) *Cerasus Padus*.

PUTRANJIVA. A large timber-tree, with a white close-grained very hard wood, from the mountainous districts of Central and Peninsular India, forming a genus of

Euphorbiaceae closely allied to *Phyllanthus*, and chiefly distinguished by the fruit, which is always one-seeded only, although derived from a three-celled ovary with two ovules in each cell.

PUTTERLICKIA. A genus of *Celastraceae* founded on the *Celastrus pyracanthus* and an allied species, both from the Cape Colony, which differ from the other species of *Celastrus* in having about six ovules in each cell of the ovary instead of two only. The genus is not adopted by all botanists.

PUTTY-ROOT. *Aplectrum hyemale*.

PUTWA. An Indian name for string and ropes made from the fibre of *Bauhinia racemosa*.

PUYA. This is the same as *Pourretia* of Ruiz and Pavon, and is a tropical and southern subtropical genus of *Bromeliaceae*, the species of which have simple sometimes almost arboreous leafy stems, with narrow spiny leaves, and simple or compound bracteated flower-spikes. Its flowers have a six-parted perianth, with the divisions in two series, the outer calyxine and the inner petaloid. [A. S.]

PUYA. *Bohmeria Puya*.

PYA. A name used in the Sandwich Islands for *Tacca oceanica*.

PYCNANTHEMUM. The generic name of the Mountain Mints of the United States. These are closely allied to our own mints, but have evidently two-lipped corollas, in common with the great mass of the *Labiatae*, while in *Mentha* the corolla has an almost equally four-lobed border. About a dozen species are known, perennial herbs with erect four-angled stems, furnished with opposite mint-like or hyssop-like leaves smelling like those of spearmint or pennyroyal, and small white or lilac flowers disposed in terminal dense cymose bracted heads. To this the generic name (derived from the Greek *pyknos* 'dense,' and *anthemon* 'a flower') alludes. The chief features of the genus are the shortly tubular two-lipped and ten to thirteen-nerved calyx, naked in the throat; the two-lipped corolla; and the four perfect stamens. [A. A. B.]

PYCNIDIA. Many species of *Spheria* and allied genera have a second kind of fruit resembling in some measure the perithecia, but instead of producing asci generating naked spores. These organs are called pycnidia to distinguish them from perithecia. In *Erysiphe* two kinds of pycnidia are sometimes present, the one like the normal fruit, the other produced by a transformation of one or more cells of the short chains of spores produced on the white spawn. Pycnidia require to be cautiously distinguished from spermogonia, and indeed are in many cases to be recognised only by observing whether the granules to which they give rise are capable of germination. [M. J. B.]

PYCNOOMA. A genus of *Euphorbiaceae*

consisting of three or four trees or shrubs from tropical Africa, with alternate oval or oblong leaves, often one to two feet long, and numerous small flowers in dense compound racemes in the upper axils; the terminal flower female, the lower ones in clusters, either all males or with a female one in the centre of each cluster. The fruits of *P. macrophylla* are called Boomah Nuts, and are used in tanning.

PYCNOPTERIS. *Lastrea*.

PYCNOSES. In Greek compounds = close, dense, compact: hence *pycnocephalus*, close-headed, a term sometimes applied to very compact kinds of inflorescence.

PYCNOSORUS. A genus of *Compositæ* of the tribe *Gnaphalieæ*, founded on an Australian cottony undershrub, with oblong-linear alternate leaves, and very small but exceedingly numerous flower-heads, densely clustered into a doubly compound globular head of about an inch diameter.

PYCNOSPORA. A decumbent or ascending weedy perennial, constituting a genus of *Leguminosæ* of the suborder *Papilionaceæ*, having the habit foliage and nearly the flowers of a *Desmodium*, but which on account of the pod, which is not jointed but ovoid and inflated like that of a *Crotalaria* or of a *Flemingia*, must be classed in the tribe *Flemingieæ*. It is common in South-eastern Asia, the Indian Archipelago, and Northern Australia.

PYCNOSTELMA chinensis, or *Asclepias peniculata*, is the sole representative of a genus of *Asclepiadaceæ* inhabiting the mountain-slopes of Northern China. It is an erect perennial herb, with opposite linear leaves, terminal panicles of green flowers, a five-cleft calyx, a rotate corolla deeply cut into five lobes, and a simple corona composed of five leaflets. The fruit is unknown. [B. S.]

PYGÆUM. A genus of *Drupacæ*, consisting of trees, natives of the warmer parts of the Old World; they have entire leaves, and axillary and lateral clusters of flowers more or less covered with woolly hairs. The flowers are six-parted, a circumstance which with the characters presented by the dry fruit, with a somewhat kidney-shaped stone contracted in the middle, serves to distinguish the genus from its congeners. [M. T. M.]

PYRAMIDAL. Having the figure of an angular cone, but more frequently used as an equivalent for *Conical*; as the prickles of some roses, the root of the carrot, and the heads of many trees.

PYRENA. The stone found in the interior of the drupe and of similar fruits, caused by the hardening of the endocarp.

PYRENACANTHA. An Indian climbing shrub, with milky juice, thread-like stems, and stalked elliptic entire alternate leaves, has been so named, and is considered to constitute a genus of itself, whose position is doubtful. Lindley refers it to *Artocarpus*.

others to *Stilaginacæ*. The flowers are small, dioecious, arranged in spikes or heads. Calyx four-parted; stamens four; ovary detached with two pendulous ovules; stigma sessile. The fruit is drupe-like, its stone pitted on the outside, internally spiny, the spines projecting into the seed; albumen fleshy. The name of the genus is expressive of the above-mentioned peculiarity of the stone of the fruit. [M. T. M.]

PYRENIUM. Either the receptacle or perithecium of certain fungi.

PYRENOMYCETES. A name given by Fries to the *Fungi* included in this volume under the natural orders *Sphaeriaceæ* and *Phacidiaceæ*. [M. J. B.]

PYRÆTHRE. (Fr.) *Anacyclus Pyrethrum*.

PYRETHRUM. One of the genera of *Compositæ*, very nearly allied to *Chrysanthemum*, and with difficulty distinguished from it. The distinctive features reside in the presence in *Pyrethrum* of a pappus, in the form of an elevated membranous border, and in the achenes or fruits being angular but not winged. The species are abundant in the temperate countries of the Old World; and many of them are in cultivation as ornamental greenhouse or hardy plants.

P. Parthenium is frequently met with in a wild state in this country, but it is esteemed a doubtful native, and is considered to have escaped from cultivation. It is an erect branching plant, a foot or more in height, with somewhat downy pinnate leaves; and the flower-heads less than half an inch across, arranged in a terminal loose corymb; the florets of the ray white, those of the disk or centre yellow. The plant has bitter tonic properties, like those of chamomile (*Anthemis nobilis*); and is a popular remedy in slight fevers, whence it has received the name of Feverfew, in common with some other allied plants. The smell of the whole herb is said to be particularly offensive to bees. The plant producing the root known in shops as *Rodius Pyrethri*, or Pellitory of Spain, used as an irritant and for the relief of toothache, &c., is included in *ANACYCLUS*: which see. The name of the present genus is derived from the Greek appellation of the last-named plant,—from *pur* 'fire,' in allusion to the hot taste of the root. [M. T. M.]

PYROLACEÆ. (*Wintergreens*.) A natural order of corollifloral dicotyledons belonging to Lindley's erical alliance of hypogynous Exogens. They are herbs with simple leaves, and racemose or solitary flowers; sepals five, persistent; corolla regular deciduous, four to five-parted; stamens hypogynous, eight to ten, free and perfect, the anthers opening by pores; ovary four to five-celled; style one, declinate. Fruit a four to five-celled capsule with central placentas; seeds numerous, albuminous; embryo minute. Natives of temperate climates in Europe, North America, and the north of Asia. There are half

a dozen genera, and about a score of species. Examples: *Pyrola*, *Moneses*. [J. H. B.]

PYROLA. The typical genus of the order of Wintergreens, chiefly distinguished from its allies by having the margins of the valves of the capsule connected by a web. The species are small plants, natives of Northern Europe and of North America, of very graceful aspect when in flower. The name is a diminutive of *pyrus*, a 'pear-tree,' from the resemblance of the leaves to those of the Pear. [G. D.]

PYROLIRION. A genus of *Amoryllidaceae*, consisting of a few Peruvian bulbous plants, with linear leaves, and fistular scapes, bearing a solitary erect orange-coloured flower, similar to *Zephyranthes*. The perianth is campanulately funnel-shaped from a short tube, with a six-parted regular limb, bearing six scales in the throat; stamens six subequal, inserted below the scales in the throat of the perianth; style declinate, with a trifid stigma; ovary three-celled, with many ovules. It differs from *Zephyranthes* in the cochleariform apices of the lobes of the stigma. [T. M.]

PYRRHOSA. Under this name a genus of *Myristicaceae* has been designated, but Drs. Hooker and Thomson consider it to form rather a subdivision of the genus *Myristica*, including those species with flowers arranged in axillary panicles, whose perianth is two to four-lobed, smooth, concealing the column of stamens, which is somewhat globular, concave at the top, and covered with anthers. The mace of one species, *M. (Pyrrhosa) tingens*, is stated by Blume to stain the fingers of a reddish colour. The natives of Amboyna make a pigment of it with the addition of lime, for the purpose of staining their teeth red. The name is probably derived from the fiery-red colour of the mace. [M. T. M.]

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the fruit. There are five petals, numerous stamens, and five or fewer ovaries and styles, which at the time of flowering are often distinct from each other, although enclosed within the calyx-tube; but as the fruit enlarges the ovaries become completely united, and, with the thickened calyx-tube, form a fleshy mass divided in the centre into five or fewer cells of a leathery or cartilaginous consistence, called the core—each cell containing one or two seeds or pips. It is the consistence of this core alone that separates *Pyrus*, as a genus, from *Crataegus* and others which have the cells hard and bony.

There are a considerable number of species, natives of the temperate or mountainous regions of the northern hemisphere, chiefly in Europe and Central Asia; and several are in very extensive cultivation. Amongst those with undivided leaves, *P. communis*, the Pear, and *P. Malus*, the Apple, the badge of the Lamonts, have been in cultivation since the times of the ancient Greeks and Romans. The Siberian Crab, *P. prunifolia*, is planted sometimes in our shrubberies.

Amongst the cut-leaved species the most important are the White Beam-tree, *P. Aria*; the Wild Service-tree, *P. torminalis*; the Mountain Ash or Rowan-tree, the badge of the M'Lachlans, *P. Aucuparia*; and the cultivated Service-tree, *P. Sorbus*—all natives of Europe and temperate Asia, and, except the last, indigenous to Britain.

The above trees mostly supply a hard wood, although few of them attain a sufficient size to be considered as timber-trees. One species, *P. Chamæcyparissus*, not unfrequent in the mountains of Central Europe, is never more than a bush, and sometimes flowers and fruits when not above six inches or a foot from the ground.

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Although the Apple exists in high latitudes, its fruit in such is but small—not from the excessive cold to which the tree is exposed in winter, but for want of sufficient heat in summer; for in Nova Scotia, where the winters are long and intensely cold, the apples are large and of splendid colour; but there the summers, though short, are very hot. In tropical climates the Apple does not succeed; but its cultivation extends from the far north, as we have mentioned, to the warmer parts of the temperate zone, thus extending over a vast portion of the globe. According to Royle, it is cultivated in the north of India, but more abundantly in Kashmir and adjoining countries. It is perfectly naturalised in America; in the northern and middle portions of the United States, its produce is very fine; in Canada likewise, as will be recollected by those who saw the Canadian specimens at the International Exhibition of fruits at South Kensington. Large quantities of American apples are regularly exported in the ice-ships from Boston, in the United States, to the seaports of India and other Eastern countries, where the apple-tree is not grown; and being packed in ice they are landed in excellent condition, and are esteemed a great luxury by the European inhabitants. In the southern hemisphere, in Australia and in New Zealand, where, in the memory of the present generation, nothing better in the way of fruits than a few wild berries were to be met with, and where of apples there were none, the latter are now abundant, and attain great perfection.

When this most useful fruit was first

cultivated in Britain is uncertain—probably by the Romans, to whom twenty-two varieties were known in Pliny's time. Many kinds of cider-apples appear, from their names, to have been introduced from Normandy; but many are doubtless seedlings that have sprung up from pips, and, without grafting, have been found to answer the purpose of cider-making. From their names, we can trace the origin of many of our dessert and kitchen varieties in cultivation at the present day to Holland, and to France; but on the whole the varieties of English origin are the best for our climate, and the most suitable to English taste. Many of the foreign kinds have a mawkish sweetness; whereas we prefer not sweetness alone, but a brisk subacid sugary apple, and of such we have a vast number. The collection of the Royal Horticultural Society contains upwards of 1,500 varieties of dessert, kitchen, and cider apples, and more are continually being raised. Many of the above are, however, considered no longer worthy of cultivation, but some of English origin have acquired almost universal celebrity; for instance, the Golden Pippin, Ribston Pippin, Court of Wick, Scarlet Nonpareil, Blenheim Pippin, &c.; and recently Cox's Orange Pippin has been brought into notice, and is likely to supersede even the Ribston Pippin.

The uses of the Apple are familiar to every one. For a great part of the year it can be employed for pies, tarts, sauces, and in confectionery, &c. The fermented juice forms cider, of which great quantities are made in England and in foreign countries, especially those in which the vine cannot be grown successfully for wine-making. The circumstance of the Apple being so easily cultivated, so generally liked, and so useful in various ways to all classes, rich and poor, accounts for the extensiveness of its cultivation wherever it was known in old countries, and likewise for the eagerness with which it is obtained and rapidly propagated in our new colonial settlements.

The Common Pear-tree, *P. communis*, grows to the height of thirty to sixty rarely seventy feet, and assumes generally a pyramidal form of growth. The branches are thorny, and the leaves ovate and serrated. Under cultivation the thorns disappear, and fruit-buds are formed instead; and the leaves are less sharply serrated, sometimes only crenated, and frequently almost entire. The flowers come in corymbs of from five to nine, all of which sometimes set their fruit; but in that case, from being so numerous, the fruits do not attain a large size if they all hang on to maturity. Generally a few only of each corymb take the lead, and in some cases only one; the rest, unable to compete, drop off at an early stage of their growth.

The name of *Pyrus* is derived from the Celtic *Peren*, and to this most of the European names of the Pear may be easily traced. Thus in Italian and Spanish the Pear is called *Pera*; in German, *Birn*;

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Although the Apple exists in high latitudes, its fruit in such is but small—not from the excessive cold to which the tree is exposed in winter, but for want of sufficient heat in summer; for in Nova Scotia, where the winters are long and intensely cold, the apples are large and of splendid colour; but there the summers, though short, are very hot. In tropical climates the Apple does not succeed; but its cultivation extends from the far north, as we have mentioned, to the warmer parts of the temperate zone, thus extending over a vast portion of the globe. According to Huxley, it is cultivated in the north of India, but more abundantly in Kashmir and adjoining countries. It is perfectly naturalised in America; in the northern and middle portions of the United States, its produce is very fine; in Canada likewise, as will be recollected by those who saw the Canadian specimens at the International Exhibition of fruits at South Kensington. Large quantities of American apples are regularly exported in the ice-ships from Boston, in the United States, to the seaports of India and other Eastern countries, where the apple-tree is not grown; and being packed in ice they are landed in excellent condition, and are esteemed a great luxury by the European inhabitants. In the southern hemisphere, in Australia and in New Zealand, where, in the memory of the present generation, nothing better in the way of fruits than a few wild berries were to be met with, and where of apples there were none, the latter are now abundant, and attain great perfection.

When this most useful fruit was first

cultivated in Britain is uncertain—probably by the Romans, to whom twenty-two varieties were known in Pliny's time. Many kinds of cider-apples appear, from their names, to have been introduced from Normandy; but many are doubtless seedlings that have sprung up from pips, and, without grafting, have been found to answer the purpose of cider-making. From their names, we can trace the origin of many of our dessert and kitchen varieties in cultivation at the present day to Holland, and to France; but on the whole the varieties of English origin are the best for our climate, and the most suitable to English taste. Many of the foreign kinds have a mawkish sweetness; whereas we prefer not sweetness alone, but a brisk subacid sugary apple, and of such we have a vast number. The collection of the Royal Horticultural Society contains upwards of 1,500 varieties of dessert, kitchen, and cider apples, and more are continually being raised. Many of the above are, however, considered no longer worthy of cultivation, but some of English origin have acquired almost universal celebrity; for instance, the Golden Pippin, Ribston Pippin, Court of Wick, Scarlet Nonpareil, Blenheim Pippin, &c.; and recently Cox's Orange Pippin has been brought into notice, and is likely to supersede even the Ribston Pippin.

The uses of the Apple are familiar to every one. For a great part of the year it can be employed for pies, tarts, sauces, and in confectionery, &c. The fermented juice forms cider, of which great quantities are made in England and in foreign countries, especially those in which the vine cannot be grown successfully for wine-making. The circumstance of the Apple being so easily cultivated, so generally liked, and so useful in various ways to all classes, rich and poor, accounts for the extensiveness of its cultivation wherever it was known in old countries, and likewise for the eagerness with which it is obtained and rapidly propagated in our new colonial settlements.

The Common Pear-tree, *P. communis*, grows to the height of thirty to sixty rarely seventy feet, and assumes generally a pyramidal form of growth. The branches are thorny, and the leaves ovate and serrated. Under cultivation the thorns disappear, and fruit-buds are formed instead; and the leaves are less sharply serrated, sometimes only crenated, and frequently almost entire. The flowers come in corymbs of from five to nine, all of which sometimes set their fruit; but in that case, from being so numerous, the fruits do not attain a large size if they all hang on to maturity. Generally a few only of each corymb take the lead, and in some cases only one; the rest, unable to compete, drop off at an early stage of their growth.

The name of *Pyrus* is derived from the Celtic *Peren*, and to this most of the European names of the Pear may be easily traced. Thus in Italian and Spanish the Pear is called *Pera*; in German, *Birn*;

Dutch, *Pear*; French, *Poire*; Danish, *Pære*; Swedish, *Päron*. The Pear is a native of Europe, Circassia, Central Asia, and the north of China; but it is not met with in Southern India. As regards its hardness, it is not found, like the Apple, in a wild state in Norway, nor has its cultivation been extended so far north as that of the Apple by 130 miles; it stops at Drontheim (lat. 63° 25'), and even there it must have the shelter of a wall.

From the Wild Pear have arisen improved varieties in different countries, which instead of being hard and gritty, as the earlier cultivated sorts generally were, become at maturity as melting as a peach. Many of the French Pears, raised upwards of two centuries ago, are no longer reckoned worthy of cultivation. A collection of them, consisting of fifty sorts, existed at Chelsea 150 years ago, and are figured in an early volume of the *Transactions of the Horticultural Society*. Most of the kinds imported from France have been superseded by Belgian varieties, which have proved in general of better quality, and more suitable for the climate of England. Some of these improved varieties, only known comparatively recently in this country, existed in the latter part of the last century chiefly in the gardens attached to numerous religious establishments in Belgium; and it was only after the close of the war in 1815 that they were obtained in England and other countries. The varieties of Pears are now very numerous. After excluding a vast number of worthless kinds, upwards of a thousand still exist in some collections; and amongst these the kinds possessing great excellence are too numerous to be noticed here. We may, however, mention the names of a few of established merit, such as *Passo Colmar*, *Glou Morceau*, *Winter Nellis*, *Beurré Bosc*, *Thompson's*, *Louise Bonne*, *Fondante d'Automne*, *Comte de Lamy*, *Easter Beurre*, *Bergamotte d'Espèren*, *Joséphine de Malines*, and *Beurré Rance*. Mr. Knight, when President of the Horticultural Society, devoted great attention to crossing and raising new pears from seed. A considerable number of those which he obtained were very good, but perhaps the best is Knight's *Monarch*. Besides its use for dessert, the Pear is employed for stewing, baking, compôtes, and for the making of perry.

The True Service-tree, *P. Sorbus*, has the leaves imparipinnate and serrated; and the flowers cream-coloured, about the size of those of the common hawthorn. The fruits,—of which there are two principal varieties, the apple-shaped *P. S. mahformis*, and the pear-shaped *P. S. pyriformis*,—are about as large as a moderate-sized gooseberry, of a dull greenish-brown with sometimes a reddish tinge, and marked with ferruginous specks; the flesh is acid and austere in the unripe state, and only fit to be eaten when it becomes soft and mellow, in a state of incipient decay like the medlar. The tree grows to the height of from twenty to sixty feet. It is a native

of France and Italy, and has been found in some parts of Barbary—also in the mountainous districts of Cornwall. It is said to be of slow growth, and to be sixty years before it comes into bearing; but this is not the case, for in the Gardens of the Horticultural Society, where both the apple and pear-shaped varieties have borne fruit abundantly, the growth was as rapid as that of most trees of the genus *Pyrus*. It appears not so well adapted for the climate of Britain as it is for that of France. It lives to a great age: Loudon states that some specimens of it are believed to be upwards of 1,000 years old, and that it is the hardest and heaviest of all indigenous woods. It has a compact fine grain, and takes a high polish; it is much sought after in France by millwrights for making cogs to wheels, rollers, cylinders, blocks, &c. It is preferred to all other kinds of wood for making the screws to wine-presses, and it is also in repute for mathematical rulers. Its properties are such as to justify the opinion that it would answer exceedingly well for certain kinds of wood-engravings where the fineness of boxwood is not required. [R. T.]

PYTHONIUM. This genus, as is also the case with some of its allies, owes its name to the snake-like appearance of its spadix, &c. It is classed under the *Araceæ*, and consists of Nepalese herbs with a somewhat globular fleshy rootstock, whence emerge the much-divided leaves and the inflorescence—the latter consisting of a spadix, elevated on a long stalk, and surrounded by a spathe. The spadix is thickly beset with male and female flowers; its upper extremity has a number of wart-like neutral flowers on it; the anthers open by two pores; and the ovaries are one-celled, with a long style, terminated by a three to four-lobed fleshy stigma.

One species, best known under the old name of *Arum bulbiferum*, is cultivated in hothouses, and is remarkable for the presence of little bulb-like buds on the leaves just at the junction of the stalk with the blade of the leaf. These bulbs become detached, and thus serve to perpetuate the species. This plant has also been described under the name *Thomsonia*. The odour of the spadix of some of these plants is most disgusting, and has been compared to that of putrid salt-fish. [M. T. M.]

PYRIDANTHERA barbata is a small prostrate creeping evergreen, native of North America, and one of the two genera forming the order *Diapensiaceæ*. It has narrow oblanceolate awl-pointed crowded leaves, bearded near the base, the lower ones opposite and the upper mostly alternate; and very numerous solitary sessile white or rose-coloured flowers, which are distinguished from those of *Diapensia* by their transversely-opening anthers having an awn on the lower valve. [A. S.]

PYXINEI. A natural order of lichens, with an orbicular superficial disk, contained in an excipulum which is at first closed,

distinct from the thallus, which is horizontal foliaceous and for the most part fixed in the centre. It comprises the lichens known in the Arctic regions as *Tripe de Roche*. In *Gyrophora* the disk produces a number of partial disks on the hymenial surface, giving it a curious convolute appearance. *Pyxine*, which is a tropical or subtropical genus, has a thallus like that of *Parmelia*. [M. J. B.]

PYXIS, PYXIDIUM (adj. PYXIDATE). A capsule opening by a lid, as in *Hyoscyamus* or *Anagallis*.

QUADRETTE. (Fr.) *Rhexia*.

QUADRI. In Latin compounds = four times.

QUADRIGRURIS. Having four legs or arms, as in the retinaculum of some asclepiads.

QUADRIFOLIATE. When the petiole bears four leaflets from the same point.

QUADRIHILATE. Having four apertures, as is the case in certain kinds of pollen.

QUADRIJUGUS. Consisting of four pairs (of leaflets).

QUAKERS AND SHAKERS. *Briza media*.

QUALEA. A genus of trees or shrubs of Brazil and Guiana, belonging to the *Yochyaceae*, and remarkable for their unsymmetrical flowers, which have but one petal and one fertile stamen (rarely two of each), as well as for the numerous winged seeds of the fruit. There are about thirty species known, some of them attaining a height of 130 feet; the bark of the trunk is somewhat corky, and the young branchlets often four-sided and covered with gum. They have opposite or whorled, lance-shaped or oblong, laurel-like leaves, with the blades frequently marked with numerous nerves running at right-angles to the midrib; and the flowers are exceedingly handsome and numerous, disposed in axillary or terminal panicles. The flowers have a five-parted calyx, one of the segments being much larger than the others, petal-like, and prolonged behind into a spur as in the balsam, a single fan-shaped petal with the fertile stamen alternating with it; and an ovary which when ripe is a three-celled angular woody capsule, with many winged seeds in each cell.

Many of the species have primrose-scented flowers, yellow white blue or rose-coloured, and the petal is usually marked with a yellow or white line in the centre. Perhaps the most handsome when in flower is *Q. pulcherrima*, a tree about fifty feet high, discovered by Mr. Spruce. It has sessile beautifully veined leaves, in size and shape like those of the Portugal laurel, and when first met with by Mr. Spruce—who remarks he had never seen a more striking object—the crown of the tree was 'a complete mass of blue and red, in which did not appear a single green leaf.' The calyx is blue, the petal red, marked with a yellow line in the

centre, rather more than half an inch long, and shaped like the lower petal of a violet. The largest-flowered species is *Q. macropetala*, in which the large fan-like petal is white marked with a yellow line in the centre, and about two-and-a-half inches across. It also is Brazilian. [A. A. B.]

QUAMASH. The North American name for the edible *Camassia esculenta*. —, **EASTERN**. An American name for *Scilla esculenta*.

QUAMOCHITL. *Inga Unguis Catii*.

QUAMOCLIDION. A genus of *Nyctaginaceae*, established by Choisy for some Mexican species of *Mirabilis*, which have usually three flowers instead of only one in each involucre, but it has since been again reduced to a section of *Mirabilis*.

QUAMOCLIT. A genus of *Convolvulaceae*, containing several species of annual twiners, natives of tropical America and Asia. They are herbs with alternate cordate leaves, and red or crimson flowers on axillary one or many-flowered peduncles. The achenes are mostly mucronate or awned; the corolla cylindrical, tubular, with a small five-lobed spreading limb; the stamens and style are protruded; and the stigma is capitate and two-lobed. The capsule is four-celled, with a single seed in each cell. [W. C.]

QUAMOCLIT. (Fr.) *Ipomœa*. — **CARDINAL**. *Quamoclit vulgaris*.

QUANDANG. The edible fruit of *Santalum acuminatum*.

QUAPALIER. (Fr.) *Sloanea*.

QUAPOYA. The name formerly given to a few tropical American trees belonging to the *Clusiaceae*, and now referred to *Clusia*.

QUAQUARA. *Smilax China*.

QUARANTIN. (Fr.) *Cheiranthus annuus*.

QUARTINE. A fourth integument, counting from the outside, supposed to occur in some ovules; but in reality a mere layer of either the secundine or nucleus.

QUARTINIA turfosa is an Abyssinian Lythraceous herb, which is also known as *Rhyacophylla repens*. It grows on stones in stagnant water and streams, forming reddish-purple tufts on the surface. It has capillary fasciated or subverticillate leaves, and naked spicate racemes, and has much the appearance of a *Myriophyllum*. The flowers are minute, tetramerous, with exerted stamens and a two-celled ovary.

The same name has been bestowed upon a Cereaspinous shrub, which is, however, better known as *Pterocarpium lucerum*. Both commemorate Martin Dillou, a French botanical traveller and collector in Abyssinia. [J. Br.]

QUASI-RADIATE. Slightly radiant; a term applied to the heads of some composites, whose ray-florets are small and inconspicuous.

QUASSIA. Linnaeus applied this name to a tree of Surinam in honour of a negro, Quassi or Colasi, who employed its bark as a remedy for fever, and enjoyed such a re-

putation among the natives as to be almost worshipped by some, and suspected of magic by others. The tree now forms a genus of *Simarubaceæ*. Its distinguishing characteristics reside in the presence of hermaphrodite five-parted flowers, of ten stamens longer than the petals, and of five fleshy drupes in the fruit.

Q. amara is a lofty tree, described as similar in appearance to the common ash. The leaves are unequally pinnate, the common stalk being winged and jointed; and the flowers are large, red in colour, and arranged in terminal clusters. It is cultivated in the West Indies, &c., and may occasionally be seen in the lathouses of the curious. The wood of this plant was at one time employed in this country, under the name of Surinam Quassia; but it appears to be no longer imported for medicinal purposes, the Quassia in use being furnished by the allied *Picramnia excelsa*. The wood is destitute of smell, but has an intensely bitter taste, on which account it was used as a tonic. The root has been considered a valuable remedy in dysentery, as also the bark. The flowers too are stated to have been employed as stomachics in Surinam. It is probable that many of the uses and virtues ascribed to this plant are more properly to be referred to the Jamaica Quassia, *PICRÆNA*, or to the *SIMARUBA*: which see. [M. T. M.]

QUASSIA-CHIPS. The wood of *Picramnia excelsa*.

QUATELÉ. (Fr.) *Lecythis*.

QUATERNI, QUATERNATE. Growing in fours.

QUATRE-ÉPICES. (Fr.) *Nigella sativa*; also *Calycanthus*.

QUEEN-OF-THE-MEADOWS. *Spiræa Ulmaria*.

QUEEN-OF-THE-PRAIRIE. *Spiræa lobata*.

QUEEN'S-CUSHION. A provincial name for *Saxifraga hypnoides*.

QUEEN'S-DELIGHT, or QUEEN'S-ROOT. A North American name for *Stillingia sylvatica*.

QUEKETITIA. A vanaceous genus of orchids related to *Ionopsis*, but with the habit of a *Pleurothallis*. It consists of a single species, *Q. microscopica*, a little Brazilian epiphyte with terete leaves, and a terminal panicle of minute flowers, which have thin erect equal sepals and petals, the lateral sepals slightly joined and gibbous at the base; an undivided lip convolute round the column, and furnished with a couple of callosities in its excavated base; a long narrow column with two long membranous recurved ears hanging down from its apex; and a one-celled anther containing two spherical pollen-masses, hollowed out behind, and attached by a narrow caudicle to a minute gland. Its flowers abound in raphides, and are beautiful objects under the microscope; whence the specific

name of the plant, and whence, also, the genus has been named after Mr. Quekett, the eminent microscopist. [A. S.]

QUELTIA. A subgenus of *Narcissus*, of which *Narcissus montanus* may be taken as the type. They are distinguished by their subcylindrical perianth-tube and their short coronet; by their filaments being unequally adnate to the upper part of the tube; and by their attenuated style. The English name is Mock Narcissus. [T. M.]

QUENNERON. (Fr.) *Anthemis Cotula*.

QUÉNOT. (Fr.) *Cerastium Mahaleb*.

QUENOUILLE. (Fr.) *Typha latifolia*.
— **DES PRÉS.** *Cirsium olivaceum*.

QUENOUILLETTE. (Fr.) *Arctaphila*.
— **LAINEUSE.** *Kentrophyllum lanatum*.

QUERCITRON. *Quercus tinctoria*.

QUERCUS. The technical name of the Oak, derived it is said from the Celtic *quer* 'fine,' and *cues* 'tree.' The genus belongs to the order *Corylaceæ*, and consists of trees and shrubs which bear monœcious flowers, the males in long slender pendulous catkins, with five to twelve stamens surrounded by narrow scales, sometimes united into an irregular perianth; and the females solitary or clustered, each placed within an involucre, or capsule, which is covered with small overlapping scales on the outside, which involucre forms the 'cup' of the ripe fruit or acorn. The perianth of the female flower is adherent to the ovary, and is more or less six-lobed. The ovary itself has three cells or compartments, each containing two pendulous ovules, and is surmounted by a three-lobed style. As the ovary ripens into the fruit, two of the three compartments and five of the six ovules become obliterated, so that in the ripe fruit or acorn there is but one cavity containing a single seed.

The genus comprises numerous species, distributed widely over the northern hemisphere, and found also in Java and the mountains of Mexico and South America. Although much variety exists in the outward appearance of these trees, yet the acorns and their cups are sufficient to distinguish the genus from its allies. One species from Guatemala, however, *Q. Skinneri*, is remarkable for presenting a resemblance to the Walnut (*Juglans*) in its lobed and wrinkled seed-leaves or cotyledons.

As these trees vary extremely not only in the form of their leaves and general appearance, but also in the shape of their fruits, there is great difficulty in discriminating the species, and a like discrepancy between the opinions of various botanists as to their limits. The chief points relied on as furnishing distinctive characters are the following: viz., the time required for the maturation of the acorns, one or two years as the case may be; the nature of the cup and its investing scales; and the shape and colour of the acorns. The leaves also furnish important characters: for instance, they may be deciduous or ever-

green, entire spiny or pinnate; while in autumn, when decaying, they assume varying shades of brown, yellow, crimson, purple, &c., according to the species. The roughness or smoothness of the bark also affords a means of discriminating one species from another. The cup arises from the hollowing out of the top of a small branch, the sides of which are developed small leaves in the shape of scales.



Quercus pedunculata.

Few trees possess so much interest as the various kinds of Oak: the historical traditions connected with them, their varied uses to mankind, their great age, vast size, and noble appearance in some instances, all contribute to render them of more than common interest. The most valuable species, as affording timber, are the European *Q. pedunculata* and *Q. sessiliflora*, the former of which supplies the greater portion of the oak used in this country for shipbuilding and other pur-



Quercus sessiliflora.

poses. There is a considerable difference in the appearance of the wood of these two trees, but, according to Dr. Lindley, the value of their timber for constructive pur-

poses is about equal. The wood of *Q. sessiliflora*, or Durmast as it is called, is described as darker, heavier, and more elastic than that of *Q. pedunculata*, less easy to split, not so easy to break, yet the least difficult to bend. These characteristics depend in some degree on the small proportion of silver-grain dash or flower (terms used by joiners and others to signify the medullary rays of botanists) possessed by the wood of the Durmast in comparison with that of the other kind. On this account, the wood of the Durmast has been frequently confounded with that of the sweet chestnut; and for this reason it is less valuable for the purposes of the cabinetmaker than the wood of *Q. pedunculata*, in which the silver-grain is much more conspicuous. The wood of the Durmast has been stated, on insufficient grounds, to be less durable than that of the Common Oak. The wood of these trees, when stained green by the growth of a peculiar fungus, *Peziza ceruginosa*, is highly prized by cabinetmakers and makers of Tunbridge-ware.

Some of the American kinds also furnish valuable timber. Such are *Q. alba*, the White or Quebec Oak, the wood of which is used in shipbuilding, and by wheelwrights, coopers, and others. *Q. virens*, the Live Oak, also yields excellent timber for naval purposes. The wood of *Q. ilex*, a Mediterranean species, is said to be as good as that of the common oak. *Q. Cerris*, the Turkey Oak, supplies a wood much in favour with wheelwrights, cabinetmakers, turners, coopers, &c. Mr. J. G. Veitch mentions several Japanese oaks, the timber of some of which he describes as 'splendid,' and as likely to prove equal to any oak in the world for practical purposes. The False Sandalwood of Crete is the produce of *Q. abelicea* (L). This wood is of a reddish colour, and has an agreeable perfume. The less valuable kinds furnish excellent charcoal and firewood.

Next in importance to the wood is the bark of these trees, as from its astringency it is valuable for dyeing and other purposes; while that of *Q. Suber*, a native of Southern Europe and Northern Africa, furnishes cork. The outer layers of bark in this tree increase annually, and after eight or nine years fall off, but for commercial purposes they are purposely removed one or two years previously. The bark is removed by incisions round the top and bottom of the tree, and by a long one connecting these two, which allows the bark to be stripped off. The barking of the trees is effected when the bark is most firmly adherent to the wood, in order that the innermost layers of bark may not be injured, nor the health of the tree impaired; indeed, it is said that the removal of the corky layers is beneficial to the tree. The layers of cork, when stripped off, are thrown into pits and soaked in water; by these means, and by placing heavy weights above them, they become flattened. The outer surface is subsequently charred to close the pores, as may be seen in bungs.

The largest quantity and best quality of cork is exported from Spain. In that country cork is said to be employed on floors in lieu of carpets, and on walls in lieu of tapestry. The Romans are said to have used cork for the same purposes as we ourselves, not excepting even cork soles. In some of the Greek islands cork is used for beehives. A floorcloth now coming into extensive use, from its deadening the sound of footsteps, and called Kamptulicon, is said to be manufactured from cork and caoutchouc. Burnt cork or Spanish-black is used for dyeing purposes, and was formerly employed in medicine. Some of the kinds of elm also produce cork, though not in sufficient quantity to be of much use: see *ULMUS*. The name *Suber* is supposed, with reason, to be derived from the Greek *suphar*, 'bark.'

Several species furnish bark of much value for tanning and dyeing purposes; this arises from the presence of tannic and gallic acids. The common oaks of this country are barked or peeled in spring and early summer, a period when the bark contains the most astringent matter, and is also most readily separated from the wood. The slabs of bark as they are removed are stacked in large heaps to dry. Oak-bark is very largely employed in this country in the manufacture of leather. After it has been used for this purpose, it is still serviceable to gardeners for the warmth it generates, and is largely used by them under the name of Tan; it has, however, the objection of favouring the growth of certain fungi, which are occasionally very deleterious to the plants. Refuse tan is also less creditably employed in the adulteration of chicory and coffee. In Brittany tan, compressed into cakes, is used as fuel. Oak-bark also is employed for dyeing black, in conjunction with salts of iron. With alum, oak-bark yields the dyer a brown tint; with a salt of tin, a yellow colour; with a salt of zinc, Isabella yellow.

Q. tinctoria, a North American species, yields Quercitron Bark, employed for dyeing yellow. *Q. aquatica*, also a native of North America, supplies a bark made use of by the tanners of that country. The bark of the South European *Q. Ilex* is also used by tanners, while the American Indians are said to dye their skins red by means of the bark of *Q. Prinus*. The cups of other kinds are also employed by tanners and dyers. Foremost in importance in this respect are those of *Q. Egilops*, a native of the Mediterranean regions. These cups are sometimes very large, at other times smaller; they are used for ornamental purposes in the East, and are imported in enormous quantities from the Levant for tanning purposes under the name of Valonia. Camata and Camatina are also furnished by this tree; they are simply the undeveloped acorns, enclosed within the partially ripened cups. Camatina is the least developed of the two. *Q. sinensis* supplies a dye in China.

Few trees are so subject to the formation of the morbid growths called galls as

are the various kinds of Oak. The galls are various in appearance, and result from the puncture of different species of gall-flies (*Cynips* and *Aphis*). The common oaks of this country are much affected by them—sometimes on the leaves, where they form the so-called oak-apples: sometimes on the shoots, where they do great mischief by checking and distorting the growth of the tree. The galls of commerce are imported from the Levant, and are produced by *Q.*



Quercus infectoria (with galls).

infectoria. They are largely used in the manufacture of ink, for dyeing purposes, and for the preparation of tannic and of gallic acids. The same tree also furnishes the galls known as Mecca Galls, which are supposed to be the Dead Sea or Sodom Apples, 'the fruit that never comes to ripeness,'—the fruit so pleasant to the eye, so bitter to the taste.

Q. coccifera, a native of the Mediterranean region, affords a bark used by tanners, and gives sustenance to an insect like the cochineal insect, and which is used as a crimson dye under the name kermes. This was much employed prior to the introduction of cochineal, and is still largely used in the East. The name kermes is derived from the Arabic word for worm, and is the parent of the French *cramoisi*; and the English crimson.

The medical properties of the various Oaks are due to the astringency imparted by the tannic and gallic acid they contain. Thus common oak-bark is employed as an astringent and tonic; so also is that of *Q. coccifera*. The leaves of *Q. falcata* are stated to have been employed as astringent applications in gangrene. Galls also are used as tonics and astringents, and as an antidote to certain vegetable poisons, whose activity they lessen by the combination of their tannic acid with the organic alkali of the poison. Tannic and gallic acids are of great service in certain forms of hæmorrhage, and are employed in various ways in the arts.

In olden times the rude inhabitants of Britain and other northern countries prized the Oak for the food furnished by the acorns, not only to their herds of swine

but also to themselves. The right of feeding swine in the oak-woods was among our Saxon forefathers a highly-valued privilege, the infringement of which by the Normans constituted one of the most severely-felt hardships that were inflicted on the conquered race. To this day the acorns of some of the species are eaten as food. There is a variety of the common oak which produces sweet edible acorns; this variety is supposed to be the *Æsculus* of Virgil. The acorns of *Q. Ballota*, and of its variety *Q. Gramuntia*, are eaten in Barbary, Spain, and Portugal, under the name of Belotes; in Arabia also they are eaten cooked, and an oil is extracted from them. The acorns of *Q. Æsculus* are eaten in Syria; these retain their green colour even when ripe, and are boiled by the Arabs. The leaves of *Q. mannifera* yield a manna-like exudation in Kurdistan.

The vast size and great age of some Oaks add to the interest that is attached to this family of trees. There still exist some fine specimens in this country. Humboldt refers to an oak in the Département de la Charente Inferieure, measuring nearly ninety feet in circumference near the base. Near Breslau an oak fell, in a storm in July 1857, measuring sixty-six feet in circumference at the base. These large trees are for the most part decayed and hollow in the interior, their 'tops bald with dry antiquity;' their age has been estimated at from one to as many as two thousand years. The famous Oak of Mamre, Abram's Oak, has been recently figured in the *Transactions of the Linnean Society* by Dr. Hooker.



Abram's Oak.

It is a fine tree of the species *Q. pseudo-coccifera*, and is popularly supposed to indicate the spot where grew the oak or lentisc under which the patriarch pitched his tent. There is a superstition that any person who cuts or maims the oak will lose his firstborn son.

The Romans employed branches of the Oak to form the chaplets wherewith the heads of citizens eminent for their civic virtues, especially for having saved the life of a fellow-citizen, were crowned. The Druids venerated the Oak, as being the tree on which the sacred mistletoe grew; or, possibly, the latter plant was regarded as the more sacred from growing on the Oak. At present the mistletoe is rarely found on

the Oak, but that it does grow on this tree is sufficiently attested. To this day the custom is kept up, in many places in the country, of gathering and displaying branches of Oak on May 29, in commemoration of the concealment of Charles II. in the oak at Boscobel. Much difference of opinion prevails as to our British Oaks; some considering that there are three species, some two, and others (as M. Decandolle in his recent revision of the genus) one only. The generally accepted opinion is that there are two, *Q. pedunculata* and *Q. sessiliflora*, distinguished one from the other by the following characters. *Q. sessiliflora*, or Durmast, has long yellowish leafstalks, and sessile or shortly stalked acorns; it grows more quickly than the other species, is more ornamental, and will thrive on poorer soil. *Q. pedunculata* has either stalkless leaves, or the leafstalks are short and of a greenish or reddish hue, while the acorns are on long stalks. This last is the badge of the Camerons. The difference in the timber of these two species has been before mentioned.

A large number of the species mentioned are in cultivation in this country. *Q. flex*, the Holm or Evergreen Oak, is more like a huge shrub than a tree. The Lucombe and Fulliam Oaks are also nearly evergreen. *Q. Cerris* forms a very handsome tree. *Q. coccinea* is valuable for its foliage, which assumes a crimson tint in autumn, and remains on the tree during the greater part of the winter. A valuable frost-proof species, *Q. sinensis*, has been recently introduced from China by Mr. Fortune. It has evergreen leaves, resembling those of the sweet chestnut.

(M. T. M.)

The Oak appears in all ages to have been an object of veneration, from the time of the 'Oak of Mamre,' under which Abraham sat in the heat of the day, down to that of the Greeks, by whom it was held sacred, and the Romans, who dedicated it to Jupiter. To come nearer home, the Druids worshipped beneath its shade; and even we ourselves view the mighty King of the Forest with mingled feelings of veneration and gratitude, which this age of ironclad ships will not wholly eradicate. Still do we retain the name of Gospel Oak in many of our English counties, pointing to the time when penitential psalms and Gospel truths were breathed beneath their shade; and they became notable objects as resting-places in the beating of the parish-bounds, a practice supposed to have been derived from the feast to the god Terminus. Our English custom was thus described more than two centuries since by Withers:

That every man might keep his own possessions,
Our fathers used, inreverent proceedings,
With zealous prayers, and with pious cheer,
To walk their parish limits once a year;
And well-known marks (which sacrilegious hands
Now cut or break) so bordered out their lands,
That every one distinctly knew his own,
And brawls now rise were then unknown.

This ceremony was performed by the minister and parochial authorities, accompanied by the people, going the boundaries

of the parish, and stopping at the most remarkable sites (oak-trees being considered the most worthy), and reading passages from the Gospels, and there also asking blessings for the people. Herrick makes a lover say:—

Dearest, bury me
Under that holy oak or Gospel Tree;
Where, though thou see'st not, thou mayst think
upon
Me, when thou yearly go'st Procession.

It is not a little remarkable that though the name of Gospel Oak has not been newly bestowed for many generations, yet that so many trees with that appellation still remain in different parts of England, so that most people have an acquaintance with one or more ancient trees bearing this appellation.

In the midland counties there is always much speculation as to whether the leaves of the oak or those of the ash will appear first, as the following proverb is implicitly relied upon:—

If the oak's before the ash,
Then you'll only get a splash;
If the ash precedes the oak,
Then you may expect a soak.

Considering the different habits of the two trees, there may be reason in the rhyme. The Oak sends its root deep into the soil, and its leafing is advanced or retarded by a warm or cold spring. The roots of the ash are nearer the surface, and so a wet spring hastens its growth, while a dry one would retard it. Rain, moreover, does not affect the oak so much as it does the ash. [J. B.]

QUERIA, QUERIAEAE. *Queria hispanica* is a small South European annual, intermediate in many respects between *Caryophyllaceae* and *Illecebraceae*; having the petalless flowers and solitary ovule of the latter, with the capsule opening in valves as in *Caryophyllaceae*. It is therefore usually considered as constituting a tribe of that order, or is sometimes proposed as an independent one under the name of *Queriacae*.

QUERNALES. An alliance proposed by Lindley to include the *Corylaceae* and *Juglandaceae*, and distinguished from *Amentales* by the inferior ovary.

QUETSCH. A name used in Germany for the long egg-shaped varieties of the Plum.

QUEB D'ARONDELLE. (Fr.) *Sagittaria*. — **DE CHEVAL.** (Fr.) *Equisetum telmateia*; also *Ephedra*. — **DE LÉZARD.** *Saururus*. — **DE LIÈVRE.** *Lagurus*. — **DE LION.** *Leonotis*. — **DE PAON.** *Nigridia pavonia*. — **DE POURCEAU.** *Peucedanum officinale*. — **DE RAT.** *Myosurus*; also *Equisetum arvense*, and *Pothus acutis*. — **DE RENARD.** *Alopecurus*; also *Equisetum sylvaticum*, and *Amaranthus caudatus*. — **DE SCORPION.** *Scorpiurus*. — **DE SOURIS.** *Myosurus*.

QUICK. The Florin, *Agrostis stolonifera*;

also *Triticum repens*; and the Quickset, *Crataegus Oxyacantha*.

QUICKEN, or QUICK-BEAM. *Pyrus Aucuparia*.

QUICK-IN-HAND. *Impatiens Noli-tangere*.

QUICKSET, or QUICK. The Whitethorn, *Crataegus Oxyacantha*, more especially when used as a hedge-plant.

QUILLAJA. A small genus of South American trees belonging to the *Quillaja* or wing-seeded section of *Rosaceae*, and remarkable for possessing soap-like properties. Three or four species are described, natives of Chili, Peru, and south Brazil. They are large evergreen trees, with undivided scattered leaves upon stalks bearing two small stipules, which, however, soon drop off; and their flowers grow four or five together upon stalks produced from the leaf-axils or at the ends of the branches, some being unisexual and others perfect. The calyx is five-parted, and is furnished with a star-like fleshy disk having five elevated notched lobes; the five petals are spatula-shaped; the stamens are ten in number, five inserted along with and opposite the petals, and five in the middle of the calyx-segments; and the five single-celled ovaries, containing numerous ovules in two rows, cohere together but are tipped with distinct spreading styles.

Quillaja differs from its nearest ally, *Kageneckia*, in the calyx segments not overlapping each other in the bud, as well as in the ten stamens being in two instead of one row.

Q. Saponaria, the Quillal or Cullay of the Chilians, is a tree from fifty to sixty feet high, with smooth shining short-stalked oval leaves; and usually terminal white flowers, either solitary or from three to five upon a stalk. Its bark, called Quillal or Soap-bark, is rough and dark-coloured externally, but internally consists of numerous regular whitish or yellowish layers, and contains a large quantity of carbonate of lime and other mineral matters. It is also rich in saponine, a vegetable soap-principle found likewise in plants belonging to the cloverworts, soapworts, and a few other orders; and on this account it is commonly used as a substitute for washing clothes, two ounces of the bark being sufficient to wash a dress. It is also said to remove all spots or stains, and to impart a remarkable lustre to wool; and it is used to wash the hair, for which purpose it is powdered between stones, then rubbed with the hands in water, making a foam like soap. A preparation of it has lately been brought into use in this country for promoting the growth of the hair. The Brazilian species, *Q. Sellowiana*, which has similar properties, has also been called *Fontenella brasiliensis*. [A. S.]

QUILLWORT. *Isotria*.

QUIN, QUINQU. In composition = five in number.

QUINA. The South American name ap-

plied to several kinds of Cinchona-bark; also the Brazilian name for some other febrifugal barks, as those of *Discaria febrifuga*, *Esenbeckia febrifuga*, *Ticoorea febrifuga*, *Hortia brasiliensis*, and *Solanum Pseudoquina*. — BLANCO. A Mexican name for Cascarilla-bark. — DE SERRA. The bark of *Remyia ferruginea* and *Vellozia*. — DE LA ANGOSTURA, or DE LA GUAYNA. A Venezuelan name for the bark of *Galipea cusparia*. — DE REMIJO. The same as Quina de Serra. — DO CAMPO. The bark of *Strychnos Pseudoquina*.

QUINANCY-WORT. *Asperula cynanchica*.

QUINAQUINA. *Cinchona Condaminea*.

QUINATE. Growing in fives; as when a petiole bears five leaflets from the same point; it is then, however, digitate.

QUINCE. *Cydonia vulgaris*. — BASTARD. *Pyrus Chamamcephalus*. — BENGAL. *Egle Marmelos*.

QUINCHAMALIUM. A genus of *Santalaceae*, consisting of Chilian herbs said to be parasitical upon roots of other plants, like our *Thesium*. The flowers have a long tubular perianth with five short lobes, and each perianth is surrounded at the base by a small four-toothed involucre often taken for an external calyx, and which distinguishes the genus from others of the tribe *Thesaceae*, to which it belongs. There are three or four species known, of little general interest.

QUINCUNCIAL. A kind of rotation, in which out of five parts two are exterior, two interior, and the fifth covers the interior with one margin, and has its other margin covered by the exterior; as in the calyx of the rose.

QUINOA. *Chenopodium Quinoa*.

QUINQUENERVIS. When there are five ribs all proceeding from the same point of the base.

QUINQUINA. (Fr.) *Cinchona*. — BRAZILIAN. The bark of *Coscinuena hexandra*. — COLORADO. The same as Brazilian Quinquina. — DE PLAUHL. The bark of *Exostemma Souanum*. — DES ANTILLES. The same as Quinquina Piton. — FAUX. *iva frutescens*. — INDIGENE. A Mauritian name for *Mussaenda Lendia*. — PITON. The febrifugal emetic bark of *Exostemma caribaeum* and *E. floribundum*.

QUINQUINO. *Myrospermum peruviferum*.

QUINSY-BERRY. The Black Currant, *Ribes nigrum*.

QUINSYWORT. *Asperula cynanchica*.

QUINTEFEUILLE. (Fr.) *Potentilla reptans* and other species — BÂTARDE. *Sibbaldia*. — ROUGE DES MARAIS. *Cornus palustris*.

QUINTINE. A supposed integument of an ovule, the fifth counting from the exterior; but in reality the skin of the nucleus.

QUINTINIA. A genus of *Escalloniaceae*, nearly related to the well-known *Escallonia* of our gardens, and differing from them in the three to five instead of two-celled ovary. Four species are known, two from New Zealand, and two from South Australia: all of them bushes or small trees, with elliptical or lance-shaped leaves, often covered with scurfy scales, and white flowers the size of those of the privet, disposed in axillary or terminal racemes or panicles. Each flower consists of a calyx with a five-toothed border, five petals, a like number of stamens, and a three to five-lobed style crowning the ovary, which when ripe is a small angular capsule with numerous delicately winged seeds. The genus bears the name of La Quintinie, a French writer on Horticulture. [A. A. B.]

QUINTUPLED. Multiplied by five.

QUINTUPLE-NERVED. When of five ribs the four lateral spring from the middle one above its base.

QUISQUALIS. A genus of *Combretaceae*, confined to tropical and subtropical Asia and Africa, and consisting of scandent shrubs with opposite rarely alternate leaves, and axillary or terminal spikes of flowers which change from white to red. The five-cleft calyx is deciduous; the corolla has five oblong petals; the stamens are ten in number, and project beyond the corolla; whilst the fruit is a five-angled one-seeded drupe. *Q. indica* is an inmate of our hothouses. According to George Bennett, a species of this genus, perhaps *Q. chinensis* of Lindley, grows about Macao, and is used by the Chinese as a vermifuge under the name of Tot-chee-fa. [B. S.]

QUITCH. The Couch Grass, *Triticum repens*; also *Agrostis stolonifera*.

QUIVER-TREE. *Aloe dichotoma*.

QUIVISIA. A genus of *Melaceae* confined to Mauritius and Bourbon, and consisting of five species, all of which are shrubs or trees, with alternate or nearly opposite simple leaves, either quite entire or on the same branch lobed, and axillary flowers generally arranged in racemes or corymbs. The calyx is urn-shaped, and has from four to five teeth; the corolla is composed of four to five short externally silky petals; the stamens are from eight to ten; the stigma capitate; and the fruit a dehiscent capsule, with four or five valves and cells, each cell containing two seeds. [B. S.]

QUOYA. A West Australian genus of *Verbenaceae*, having the habit as well as the woolly stems and leaves of some of the small shrubby species of *Stachys*. The leaves are opposite and sessile, and the flowers are disposed in short-stalked close verticils proceeding from the axils of the upper reduced leaves, and forming a long terminal compound raceme, or raceme-like panicle. They have a deeply two-lipped villous calyx, a blue bell-shaped corolla; four perfect stamens; and a filiform style

forked at top, and crowning a four-celled ovary. [A. A. B.]

QUINA. Tropical American trees or shrubs forming a distinct tribe, *Quinae*, of *Guettiera*, characterised by having two ovules in each cell of the ovary, free filiform styles, and an indehiscent baccate fruit. The cotyledons are thick and distinct, and the radicle is very small. The leaves are stipulate, and in one species pinnatifid, the glossy blades being three to twelve inches long by one to six inches broad, marked with prominent primary veins running at right angles to the midrib; and the small yellow or white flowers are disposed in raceme-like cymes in the axils of the leaves. Each flower has a calyx of four to five rounded sepals, four to eight petals, numerous stamens, and a two to four-celled ovary, which when ripe is a small oblong berry. The pinnatifid-leaved species, *Q. guianensis*, was described by Aublet as a separate genus with the name *Touroulia*. [A. A. B.]

RAAB. A kind of jaggery, or coarse Indian sugar.

RABANA. (Fr.) *Sinapis arvensis*.

RABANNES. A kind of matting made in Madagascar from coarse grass, or the fibre of *Raphia Ruffa*, and imported into the Mauritius for covering floors, or wrapping goods, &c.

RABBIT-BERRY. *Shepherdia argentea*.

RABBIT-ROOT. *Aralia nudicaulis*.

RABELAISIA (more correctly known as *Lunasia*) is a genus of *Rutaceae*, consisting of two shrubby species, natives of the islands of the Malayau Archipelago. The branches, inflorescence, and leafstalks are covered with scales; the leaves are waxy at the margins, on long stalks; the flowers are small dioecious—the males arranged in small closely-packed heads on a branched inflorescence, the females more closely crowded on a very short spike. The calyx and corolla have each three segments; and in the male flowers there are three stamens, with globose anthers. The fruit is triangular, three-celled, and opening partially by three valves, each cell containing a single seed. [M. T. M.]

RABÈS. (Fr.) *Carlinia acaulis*.

RABES, or RABETTE. (Fr.) *Brassica Napus*.

RABIOULE. (Fr.) *Brassica Rapa*.

RABONE. *Raphanus sativus*.

RACEME. An inflorescence in which the flowers are arranged singly on distinct pedicels, along a common axis.

RACHIS. The divisions of the petiole of the leaves of ferns; also the axis of an inflorescence.

RACHITIS. An abortion of the fruit or seed—a disease.

RACINE D'ABONDANCE. (Fr.) A variety of the Beet-root. — **AMÈRE.** *Lewisia rediviva*. — **D'AMÉRIQUE.** *Monsoria ame-*

ricana. — **D'ARMÉNIE.** *Rubia*. — **DE CHAROIS.** *Dorstenia Contrayerva*. — **DE CHINE.** *Smilax China*. — **DE COLOMBO.** *Jateorhiza palmata*. — **DE DISETTE.** The same as *Racine d'Abondance*. — **DE ME-CHOACHAN.** *Batatas Jalapa*. — **DE PY-RÈTHRE.** *Anacyclus Pyrethrum*. — **DE SAINTE HÉLÈNE.** *Acorus Calamus*. — **DESANAGROEL.** *Aristolochia Serpentina*. — **DE SERPENT.** *Ophiorrhiza*. — **DE SERPENT A SONNETTES.** *Polygala Senega*. — **DU BRÉSIL.** *Psychotria emetica*. — **DU DICTAME BLANC.** *Dictamnus albus*. — **DU SAINT ESPRIT.** *Archangelica officinalis*. — **SALIVAIRE.** *Anacyclus Pyrethrum*. — **VIERGE.** *Tamnus communis*.

RACLE. (Fr.) *Cenchrus*.

RACOMITRIUM. A genus of acrocarpous mosses belonging to the natural order *Grimmia*, resembling *Grimmia*, but looser in habit, with a mitreiform veil variously split at the base (from whence the name), awl-shaped above, a straight awl-shaped lid, and a single peristome with sixteen twice or thrice-cleft teeth. The leaves are either obtuse or half-pointed. The species are rather numerous. *R. lanuginosum* forms thick broad beds on the sides of mountains, which are hoary from the long diaphanous hair-like points of the leaves. Some other species are common in subalpine countries, but the genus scarcely exists in lowlands except on sandy heaths and in wild exposed stony places. [M. J. B.]

RADAMEA. A genus of *Scrophulariaceae*, containing two small prostrate shrubs from Madagascar, with opposite entire scabrous leaves. The tube of the corolla is slender; and the four stamens with short filaments are included. The short axillary pedicels are furnished with two bracts below the calyx. [W. C.]

RADE KANE. An Indian name for *Panicum mitaceum*.

RADIAIRE. (Fr.) *Astrantia major*. — **PETITE.** *Astrantia minor*.

RADIAL. Growing on the circumference of a circle.

RADIATE. Diverging from a common centre, like rays; as the arms of an umbel, or the ligulate florets of any composite.

RADIATING, or RADIANs. Spreading from a common point, or from the circumference of a circle; also forming apparent rays in the circumference of a circle by the enlargement of the exterior parts; as the outer florets in the umbels of many umbelliferous plants.

RADICAL. Arising from the root, or from its crown.

RADICANS. Throwing out roots; usually applied to stems or leaves.

RADICATE. Having a root.

RADICATIO. The manner in which roots grow, or are arranged.

RADICELLA. A very small root; the young tiny root which appears from the lower part of a young plant at the period of germination.

RADICIFORM. Being of the nature of a root.

RADICLE, RADICULA. The first root of a plant, rudimentary in the embryo.

RADICOSE. Having a large root.

RADII. The peduncles of secondary umbels, or of the flowers of simple umbels.

MEDULLARES. The medullary rays.

RADIOLA. A genus of *Linaceæ*, characterised by the tetramerous flowers and tridentate sepals. There is only one species, *R. Nuttalliana*, which is widely spread in central and southern Europe (including Britain), and extends into temperate Asia; occurring also in the Atlantic islands, and in West Tropical Africa. It is an erect annual herb, one or two inches high, repeatedly forked, having minute white flowers in dichotomous cymose panicles. [J. Br.]

RADIS. (Fr.) *Raphanus*. — **PETITE-RAVE.** *Raphanus sativus*.

RADISH. The well-known esculent root of *Raphanus sativus*. — **HORSE.** *Cochlearia Armoracia*. — **SEA.** *Raphanus maritimus*. — **WATER.** *Nasturtium amphibium*. — **WILD.** *Raphanus Rapanistrum*.

RADIUS. The circumference or outer side of the circle formed by umbels or capitules or of other such parts.

RADIX. The root; the descending axis; that part which is the development of a radicle. It differs from a stem not only in its origin, but in not branching symmetrically, and having no normal leaf-buds.

RADULA. A genus of *Jungermanniaceæ* which is noticed here as containing *R. complanata*, a species common in woods on almost every tree. The lobe at the under-side of the leaves is remarkable for sending roots into the substance on which it grows. It belongs, like *Madotheca*, in which the lobes are without radicles, to the division *Platyphyllæ*. [M. J. B.]

RAEE, RAI. Indian names for Mustard-seed, *Sinapis nigra*, *S. ramosa*, &c.

RAFFLESACEÆ (Rafflesiads). A small order of parasitical plants, the position of which in the natural system has been the subject of considerable difference of opinion, but which Lindley places amongst Rhizophoræ. The plants which compose it have no stem, but consist of flowers only, sometimes of gigantic size, surrounded by a few scales, and sessile on the stems or rhizomes of woody or perennial plants. These flowers consist of a campanulate or globular five-cleft perianth, with numerous anthers on a central column. The ovary is inferior, one-celled, with many-seeded parietal placentæ, and as many styles as placentæ, more or less united within the column, where the flowers are hermaphrodite, or in the centre of female flowers. The fruit is indelaiscent, with nu-

merous seeds, and the embryo undivided, with or without albumen. The principal genera are *Rafflesia* and *Brugmansia* in tropical Asia, and *Pileostyles* and *Apodanthes* in South America.

RAFFLESIA. The name of a genus of parasitical plants, natives of Java and Sumatra. The species have great interest, both for the botanist and for the general public, owing to their peculiar structure and appearance. The *Rafflesiæ* were first made known in 1818. Sir Stamford Raffles, at that time Governor of Bencoolen, was on a tour in the interior of Sumatra, accompanied by Lady Raffles, Dr. Arnold, and others, when the party lighted upon a flower of enormous size, more than a yard across. Descriptions and drawings of this vegetable prodigy were sent to this country, and the plant was named by the celebrated Robert Brown, in honour of its discoverers, *Rafflesia Arnoldi*. Since then several other species have been discovered, but none of equal size with that just mentioned, which indeed still retains its character as being the largest flower known. The genus, with one or two allies, is now comprised in a distinct family, *Rafflesiaceæ*.

The true *Rafflesiæ* have no proper stems or leaves, but consist solely of flowers, varying in diameter from two or three inches to as many feet, enveloped at the base by a few bluish or brownish scales, and emerging from the roots and trunks of various species of *Cissæ*. The unexpanded flower-buds in *R. Arnoldi* are roundish, and resemble a close cabbage in shape. The flowers appear to be diœcious, and have a perianth which is tubular below, but whose limb is divided into five entire fleshy lobes, which partially overlap one another in the bud, but afterwards spread widely. The perianth is flesh-coloured and mottled, and has a foul odour of tainted meat, by which insects are attracted. Within is a thick fleshy rim or corona lining the upper part of the tube; and within this corona, in the male flowers, and occupying the centre, is a thick fleshy column, adherent to the perianth-tube, having one or more projecting rims surrounding its base, and at the top a wide flat plate, the overhanging margin of which is rolled round like the capital of an Ionic column. On the revolute margin is placed a ring of anthers, which are sessile, each one opening by a single pore, although it is divided in the interior into many compartments; the pollen-grains are round. In the female flowers, the deep cup-shaped perianth and corona are like those of the male flowers; the central column is also similar, but there are no anthers. The ovary is adherent to the base of the tube of the perianth, has a single compartment containing numerous ovules attached to its walls, and is surmounted by several styles, which are blended with the central column.

Three or four species are known, differing greatly in size, but little in essential characters. The corona and summit of the column are in some species studded

with tubercles and scales. The outer portions of the flower are brownish or flesh-coloured, the central portions pinkish or yellowish. Dr. Arnold describes the first flower seen by him as being more than a yard across, the petals or lobes of the perianth as being a foot long, and varying in thickness from three-quarters to one-quarter of an inch, and the cup of the flower as calculated to hold twelve pints. The weight of the whole flower was estimated at fifteen pounds.

It appears from the subsequent investigations of Mr. Jack, M. Blume, M. de Vriese, and other botanists, that the growth of these flowers occupies a few months. They first appear as round knobs protruding from the bark of various species of *Cissus*. The flowers remain expanded only for a few days, and then gradually putrefy. Their fetid scent may be conducive to their fertilisation, by means of the insects which are attracted by the smell. This is the more probable, as the stamens and pistil are in different flowers. It was at first considered that these plants grew only on the roots of their foster-parents, and hence they were called *Rhisanthi* or Root-flowers; but it is now known that they grow also on the stems, in some cases at some feet above the ground, though in others the stems are prostrate and thus resemble roots. The parasites develop their flowers at a season when the leaves and flowers of the *Cissus* have withered. Astringent and styptic properties are assigned by the Javanese to these singular plants. One species, *R. Rochussenii*, discovered in Java in 1850 by two Dutch botanists, MM. Teysmann and Binnendijk, was in cultivation in 1851 at the Botanic Garden at Leyden. See Hooker's *Journal of Botany*, 1851, p. 217; also *Transactions of Linnæan Society*, xiii. p. 201, and xix. p. 221. See also PLATE 14 a for *R. Rochussenii*. [M. T. M.]

RAFINESQUIA. This genus of *Compositæ* is nearly related to *Scorzonera*, and differs from it chiefly in the single series of feathery pappus hairs, and the distinctly beaked achenes. The two known species, *R. californica* and *R. neo-mexicana*, are annual weeds with runcinate or lyrate-pinnatifid leaves, those of the stem linear; the cylindrical flower-heads terminate the twigs, and each contain from ten to fifteen rose-coloured florets, all fertile, and enclosed in an involucre of membranaceous scales surrounded at the base by a few short narrow bracts. The genus bears the name of C. S. Rafinesque, a Sicilian by birth, who chose America as his adopted country, and wrote many works on the botany of the United States. [A. A. B.]

RAFANIA. A genus of South African shrubs of the same group of *Leguminosæ* as our own broom, and readily known among its allies by the perfect smoothness of its parts, the usually pea-green leaves, which are not strongly nerved as in *Borbonia*, and the forked instead of racemed inflorescence. There are about twenty species, divisible into two groups by the form of

their leaves, which are either lance-shaped oval or elliptical, or heart-shaped embracing the stem. The flowers are axillary, the pedicels usually forked and bearing a number of flowers, while at the point of forking there are opposite leaf-like bracts. The flowers are yellow, mostly as large as those of the broom. The genus bears the name of C. G. Rafn, a Danish botanist. [A. A. B.]

RAGATELUS. *Trichomanes*.

RAGEE. *Eleusine coracana*.

RAGGED ROBIN. *Lychnis Flos-cuculi*.

RAGIOPTERIS. *Onoclea*.

RAGOUMINIER. (Fr.) *Cerasus pumila*.

RAGWEED. *Ambrosia trifida*.

RAGWORT. *Senecio Jacobæa*. — **AFRICAN.** *Othonna*. — **SEA.** *Cineraria maritima*.

RAIFORT. (Fr.) *Raphanus*. — **AQUATIQUE JAUNE.** *Nasturtium amphibium*. — **DES BOUTTIQUES.** *Cochlearia Armoracia*. — **DES PARISIENS.** *Raphanus sativus*. — **GRAND, or SAUVAGE.** *Cochlearia Armaracia*.

RAIPONCE. (Fr.) *Campanula Rapunculus*.

RAISIN D'AMÉRIQUE. (Fr.) *Phytolacca dodecandra*. — **DES BOIS.** *Vaccinium Myrtillus*. — **D'OURS.** *Arctostaphylos uva-ursi*. — **DE MARS.** *Ribes rubrum*. — **DE MER.** *Ephedra distachya*. — **DE RENARD.** *Paris quadrifida*.

RAISINIER. (Fr.) *Coccoloba*.

RAISINS. Sun-dried Grapes.

RAISIN-TREE. *Ribes rubrum*.

RAIZ DA CHINA. A Brazilian name for the knotty roots of *Smilax glauca*. — **DE PIPI.** A Brazilian name for *Petteria tetrandra*. — **DE TIHU.** A Brazilian name for *Jatropha officinalis*. — **DO PADRE.** *Salernia*. A Brazilian name for the medicinal *Gomphrena officinalis* and *G. macrocephala*. — **PRETA.** A Brazilian name for Cahira, a drug obtained from *Chiococca racemosa*, *densifolia*, and *angustifolia*.

RAJANIA. The celebrated English naturalist John Ray, whose system of grouping plants was published in 1703, and who is considered as the founder of the natural system, is commemorated in this genus. The species are West Indian climbing shrubs, having a great resemblance to those of *Dioscorea*, or yam, from which genus the present is distinguished by having only one ovule in each of the three compartments of the ovary. The membranaceous capsular fruit, moreover, has but one fully-formed compartment, owing to the arrest of the growth of the other two. The fertile compartment is flattened and prolonged into a wing, but does not split when ripe. It contains a single wingless seed. One or two species are cultivated as stove climbers, but have little to recommend them. The genus belongs to the order *Dioscoreacea*. [M. T. M.]



MOUNTAIN VEGETATION OF JAVA
(After De Vriese)

- a *Rafflesia* Rochussenii
- c *A Freycinetia*
Young *Cesuarinas*

- b *A Vanilla*
- d *A Selligera*
- c *Aspicis* of *Angelica*

RAJKA. A Sanscrit name for Black Mustard seed.

RAJ-JEERA. An Indian name for *Amaranthus frumentaceus*, the seeds of which are edible.

RAL. The balsamic resin of *Shorea robusta*.

RALEIGHIA. A genus founded on a Brazilian shrub, referred at first to *Blainia*, and subsequently to *Canoniacea*. Bentham and Hooker now place it in *Samydaceae*, in the tribe *Aboticeae* (which see in SUPPLEMENT), in which it is characterised by the throat of the calyx not being bearded, and by the indefinite stamens with two-celled anthers. It has much the habit of some species of *Weinmannia*. [J. Br.]

RAMAL. Of or belonging to a branch.

RAMALINA. A small genus of lichens with flat fronds like stag's horns, or nearly cylindrical like *Clavaria*. The frond is alike all round, without any distinct under-side, in which the genus differs from *Evernia*. *R. fraxinea* grows everywhere on the trunks of ash-trees, and *R. farinacea*, with its narrow nearly spotted fronds, is almost equally common. Others are marine in their habits like *Roccella*. *R. polymorpha* and *scopolorum* are good dye-weeds. [M. J. B.]

RAMASTRA. The secondary petioles or petiolules of compound leaves.

RAMBEH. *Pierardia sativa*, a Malacca fruit.

RAMBIYA. A Malayan name for the Sago Palm.

RAMBUTAN, or RAMBOOTAN. The fruit of *Nephelium lappaceum*.

RAMEAL, RAMEOUS. Of or belonging to the branches.

RAMEAU D'OR. (Fr.) *Cheiranthus Choiri*.

RAMENTA. Thin membranous expansions found upon the surface of plants, and resembling hairs in composition, except that they are not composed of a single longitudinal series of cells, but of many series of cells arranged on the same plane.

RAMENTACIOUS. Covered with ramenta, as the stems of many ferns.

RAM-GOAT. *Fagara microphylla*.

RAMIE or RAMEE. *Bumelia nivea*.

RAMIPAROUS. Producing branches.

RAMONDA. A genus of monopetalous plants of doubtful affinity, and provisionally classed with *Cyrtandraceae*, from the greater number of which it differs in having five fertile stamens. It is a stemless perennial herb, occupying rocks in the Pyrenees, and also in the Piedmontese Alps. The leaves are radical, ovate, and forming rosettes, and the scape bears from one to six flowers of a purplish colour. The calyx is five-cleft; the corolla rotate, and nearly regular; the stamens are five, their filaments short and glabrous; whilst the style is simple; and the capsule oblong, one-celled, enclosing numerous seeds. [B. S.]

RAMOON-TREE. *Trophis*.

RAMOSE. Divided into many branches.

RAMPE. *Arum maculatum*.

RAMPION, or RAMPS. A garden name for *Campanula Rapunculus*.

RAM'S-HEAD. An American name for *Cypripedium arietinum*; also the seeds of *Oxer arietinum*.

RAMSONS, or RAMSIES. *Allium ursinum*.

RAMSTED. An American name for *Litnaria vulgaris*.

RAM-TIL. An Indian name for the Black Til, *Gutierrezia oleifera*.

RAMTURAI. An Indian name for the Ochro, *Abelmoschus esculentus*.

RAMULUS (adj. RAMULOSE). A twig; a small branch—the least which a plant produces.

RAMUS. A branch; any division of the stem.

RAMUSCULI. The mycelium of certain fungals.

RANALES. An alliance proposed by Lindley for the hypogynous polypetalous families which have indefinite stamens and a minute embryo enclosed in a large quantity of fleshy or horny albumen. It includes *Magnoliaceae*, *Anonaceae*, *Dilleniaceae*, *Ranunculaceae*, *Sauraceae*, and *Papaveraceae*.

RANDIA. A genus of *Cinchonaceae* named in honour of Isaac Rand, formerly Professor of the Botanic Garden of the Society of Apothecaries at Chelsea. The species are small trees or shrubs, natives of the tropical regions of both hemispheres. They have axillary spines, and, so far as the construction of their flowers goes, they are very nearly allied to *Gardenia*. The main differences are to be sought in the ovary, which is two-celled, and surmounted by a disk. The fruit has a dry rind, is surmounted by the limb of the calyx, and is internally divided into two compartments, containing numerous seeds imbedded in pulp. Moreover, the tube of the corolla is usually shorter in this genus than in *Gardenia*. *R. dumetorum* is used as a hedge-plant in India. Its fruit is emetic, and is used to stupefy fish, so as to allow of their ready capture; the rind of the root is also used medicinally. The seeds of *R. scandens* furnish in China a scarlet dye. The fruit of *R. aculeata* is employed in the West Indies as a blue dye; its wood is used for cask-staves, ladders, and other purposes. Some of the species are in cultivation in this country as stove shrubs; the flowers are whitish or yellowish in colour. [M. T. M.]

RANKNESS. A condition often assumed by fruit-trees in gardens and orchards, in consequence of which great shoots, or feeders as they are called, are given out with little or no bearing wood.

Excessive richness of soil, and a too copious supply of manure, are generally the moving causes, though some varieties are naturally so luxuriant that they require grafting, or something which may check their growth. Pears, for this reason, are beneficially grafted on quince stocks; but where this has not been done, lifting and root-pruning are indispensable. We do not, however, recommend gardeners to adopt root-pruning as a system without reference to the nature of the soil or condition of their trees. If the soil is naturally sterile, and the growth moderately luxuriant, root-pruning may induce permanent mischief, as we can ourselves bear witness. In this case, as in many others in horticultural matters, 'a little knowledge is a dangerous thing.' [M. J. B.]

RANUNCULACEÆ. (*Ranunculi, Podophyllaceæ, Crowfoots.*) A considerable order of polypetalous dicotyledons, characterised chiefly by definite deciduous sepals, indefinite hypogynous stamens, several free ovaries, seeds without an arillus, and a homogeneous albumen with a minute embryo. With the exception of *Clematis*, the species are almost all herbaceous, with radical or alternate leaves, very frequently much cut or divided; the sepals are generally four or five, and more or less coloured; the petals always free when present, but often small and scale-like, or spurred or otherwise deformed, or altogether wanting; the carpels of the fruit either single-seeded and seed-like, or capsular with several seeds, often opening into follicles. The species are numerous in Europe and Northern Asia, less so in North America; and there are several in the temperate regions of the southern hemisphere, but very few within the tropics, except in mountain districts. Throughout the order there is a tendency to an acid, caustic, and more or less poisonous principle, very volatile in the foliage and herbaceous parts, but sometimes very virulent in the roots. There are about forty genera, of which the principal are: *Clematis*, *Thalictrum*, *Anemone*, *Ranunculus*, *Caltha*, *Trollius*, *Helleborus*, *Nigella*, *Aquilegia*, *Delphinium*, *Aconitum*, *Actæa*, and *Pæonia*.

RANUNCULUS. An extensive genus of herbaceous plants giving name to the order *Ranunculaceæ*, and distinguished by the following characters:—Sepals five, not prolonged at the base; petals five, with a nectariferous scale at the base; fruit without awns. There are reckoned to be about twenty British species, which may popularly be arranged into several groups. The common meadow weeds with glossy yellow flowers, known by the names Buttercups, Golden-cups, and King-cups, belong to one or other of the following species—*R. acris*, *R. bulbosus*, and *R. repens*, of which the first may be discriminated by its slender cylindrical flower-stalk and spreading calyx; the second by its furrowed flower-stalk, reflexed calyx, and bulbous root; the third by its furrowed flower

stalk, spreading calyx, and creeping scions. *R. auricomus* approaches nearest to *R. acris* in habit, but grows in woods, has the calyx coloured, frequently has one or more of its petals abortive, and has the upper leaves smooth and divided into very narrow segments. *R. scleratus* is a coarse succulent aquatic, with glossy divided leaves, small yellow flowers, and oblong heads of fruit. *R. arvensis*, common in cornfields, is a slender plant about a foot high, sufficiently marked by its large prickly fruit. All the above have divided leaves and yellow flowers. *R. lingua* and *R. Flammula*, (Greater and Lesser Spearwort, have lanceolate undivided leaves, and grow in watery places—the former two to four feet high with large yellow flowers; the latter also with yellow flowers six to eighteen inches high. *R. aquatilis*, the Water Crowfoot, with its varities, by some botanists considered species, is the common aquatic with showy white flowers, long flexible stems, bearing numerous leaves, of which the submerged ones are capillary, while the upper are plane, variously lobed, and floating; when growing in swift-running water, the upper leaves and flowers are not developed, and the lower may be compared to a tuft of bright green hair waving to and fro in the current. The Lesser Celandine, the showy star-like yellow flower which cultivates every bank in early spring, is by some botanists called *R. Ficaria*, by others *FICARIA*: which see. Most of the above have very acrid properties, which renders their presence in meadow-lands objectionable; but the herbage of *R. aquatilis* is not only innoxious, but nutritive to cattle.

Among cultivated species *R. asiaticus* affords the endless varieties of *Ranunculus* grown by florists. White Bachelor's Buttons (Fr. *Boutons d'Argent*) are the flowers of *R. aconitifolius*, and Yellow Bachelor's Buttons (Fr. *Boutons d'Or*) are those of a double variety of *R. acris*. Several species of humble growth, but having comparatively large flowers, grow in the Arctic regions, or high up on the mountains in most parts of the world. French: *Ranunculus*; German: *Ranunkel*. [C. A. J.]

RAOULIA. A genus of *Compositæ* nearly related to *Gnaphalium* and *Helichrysum*, and, according to Dr. Hooker, differing mainly from these in their peculiar habit, and the narrow receptacle of the flower-heads. The species, mostly from New Zealand, grow in dense tufts in rocky mountainous places, and have the aspect of mosses, their short branches being densely clothed with minute smooth or woolly leaves. Sitting at the apex of each short twig is a single white starry flower-head closely surrounded with leaves. In some species, as *R. grandiflora*, where the heads are three-quarters of an inch across, the inner scales of the involucre are white, and have the appearance of ray-florets, which, however, are tubular and fertile, the disk-florets being also tubular and perfect. The achenes are smooth or downy,

and crowned with a papus of one series of rough hairs. The name of Vegetable Sheep(?) is given by the settlers in New Zealand to *E. crinita*, because, from its growing in large white tufts on elevated sheep-runs, it may be readily mistaken for the sheep. The genus is dedicated to M. Raoul, a French naval surgeon who wrote on New Zealand plants. [A. A. B.]

RAPA. The name given by Tournefort to the genus which he constituted to contain the common turnip, *Brassica Rapa*, which he separated even from the colza, *B. Napus*; though some botanists now include both these under *B. campestris*, considering that the differences are not sufficient to establish even their specific distinction. [J. T. S.]

RAPATEA. A genus of *Jimcaem*, consisting of four or five species from tropical South America. They are stout and rather coarse herbs, with long flat radical leaves and erect simple scapes, often much flattened at the top; and bearing a head or dense umbel of yellow flowers in an involucre of two leafy bracts, broad at the base with long points. Each flower is surrounded by several imbricated scales, and consists of three outer stiff chaff-like erect sepals, and three inner spreading petals, with six stamens and a three-celled three-valved capsule, with one seed in each cell.

RAPE, SUMMER. *Brassica campestris*.
—, **WINTER.** *Brassica Napus*.

RÂPETTE. (Fr.) *Asperugo procumbens*.

RAPHANISTRUM. A genus of *Cruciferae* combined with *Raphanus*, from which it differs only in the more slender-headed pods, which break transversely into one-seeded joints, the lower joint persistent, empty, not obliterated, and the substance of the pod woody not spongy throughout. The flowers are pale-yellow or white. The pod has a beak formed by the conical persistent style. The Wild Radish, *Raphanus Raphanistrum*, a common weed in cultivated ground, is the type. [J. T. S.]

RAPHANUS. A genus of *Cruciferae* containing only two or three species, of which the most important is the Common Radish. The genus is characterised by the pod, which is more or less elongated thick pointed and indehiscent, more or less contracted or even jointed between the seeds, without any longitudinal partition when ripe, but containing several seeds separated by a pithy substance filling the pod.

The Garden Radish, *R. sativus*, is unknown in the wild state; but some varieties of *R. Raphanistrum* on the Mediterranean coast come sufficiently near to suggest the possibility that it is merely a cultivated race of the wild plant. It is a hardy annual, and in the time of the Pharaohs was extensively cultivated in Egypt, from whence it gradually found its way into Europe, but does not appear to have reached this country until A.D. 1548. Gerard

mentions four varieties as being known in A.D. 1597. The root is fleshy and variable in form, in some varieties fusiform, in others round like a small turnip, or semi-globular, and either of a reddish-purple, white, yellowish, or deep brown colour. The leaves are rough, lyrate, or partly divided transversely into segments, the outer one being much larger and broader than the rest. The flower-stem is round erect and branching, about three feet high, and bearing moderate-sized flowers, varying from white to pale-violet, with strong dark-coloured veins. The seed-pods are smooth, ending in a short pointed beak. When plump, and while young and green, these pods are used for pickling, alone or with other vegetables, and are considered a tolerable substitute for capers.

It is, however, as a salad-root that radishes are chiefly grown, and for this they have been used from time immemorial. They are of rapid growth, and in perfection when of a moderate size and quite young. The flesh is white, crisp, and tender, and abounds in a peculiar nitrous juice, which is much relished by vegetarians, and considered to be a powerful antiscorbutic. Radishes are usually eaten raw with salt, vinegar, &c., or cut into slices and mixed in salads. When too large for a salad they make an excellent dish if dressed and served like asparagus. Although a favourite vegetable, it is generally admitted to possess but a very small amount of nutritive matter. *R. caudatus* furnishes long edible pods. [W. B. E.]

RAPHIE. The cord of fibro-vascular tissue which connects the base of the nucleus of an ovule with the placenta.

RAPHIA. The species forming this genus of Palms are confined to three very limited but widely separated localities—one, *R. tadigera*, being found only on the banks of the Lower Amazon and Pará



Raphia Ruffa.

Rivers in Brazil; another, *R. vinifera*, on the West Coast of tropical Africa; while

the third, *R. Rufia*, is only known as a cultivated plant in Madagascar and the neighbouring islands. All three inhabit low swampy lands in the vicinity of the sea, or river-banks within the influence of the tides. They have stout unarmed ringed trunks of no great height, and bear gigantic pinnate spongy leaves, often fifty or more feet in length, and erect, so that the entire trees are sometimes sixty or seventy feet high. The flower-spikes are also of large size and much-branched, hanging down from amongst the leaves, and measuring as much as six feet in length; the branches being arranged in two opposite rows, and the ultimate ones bearing the flowers resembling flattened catkins. Both sexes are borne on the same spike. The fruit-spikes sometimes weigh as much as 200 lbs. or 300 lbs., and bear a large number of one-seeded fruits rather larger than eggs, covered with shining bony overlapping scales.

The Jupati Palm, *R. toridgera*, has cylindrical leafstalks, which measure from twelve to fifteen feet in length, and are used by the natives of the Amazon for a variety of purposes; the walls and partitions of their houses being often constructed of them, while baskets, boxes, &c., are made of strips of the smooth outer portion. *R. vinifera*, the Bamboo Palm, is employed for similar purposes by the Africans, who also make very pliable cloth and neat baskets of the undeveloped leaves. Palm-wine is obtained from it, whence its Latin specific name. [A. S.]

RAPHIDA, RAPHIDES. Crystals of various salts formed in the interior of plants by the combination of vegetable acids with alkaline bases. They derive their name from being in many cases acicular, or needle-shaped.

RAPHIOSTYLES (or *Raphiostyles*). A name proposed by Planchon for a tropical African tree of the order *Oleaceae*, which has since been united with *Apodytes*, differing from the other species of the latter genus only in its axillary inflorescence.

RAPHISTENMA. A genus of *Asclepiadaceae*, consisting of two species from Eastern India and Java. They are both tall climbers, with large opposite cordate leaves, and rather showy white campanulate flowers in axillary corymbs. The genus is chiefly characterised by the staminal corona, consisting of five distinct ligulate petal-like scales, inserted at the top, and as long as the tube of the corolla.

RAPISTRUM. A genus of *Cruciferae* inhabiting Southern Europe and Central Asia; in annuals or perennials, with a more rigid habit, and much shorter pods in larger racemes, than *Raphanus*. The pods are two-jointed with one-celled joints, the lower stalk-like obconic one-seeded or empty; the upper subglobose one-seeded, terminated by the filiform style. [J. T. S.]

RAPONCULE. (Fr.) *Phytolacca*.

RAPONTIQUE. (Fr.) *Rheum*. — DES

MONTAGNES, or DES MOINES, *Rumex alpinus*. — VULGAIRE. *Centaurea Jacea*.

RAPPADURA. A coarse kind of sugar made in Mexico.

RAPUNCULUS. *Campanula Rapunculus*.
RAPUNTUM. *Lobelia*.

RAQUETTE. (Fr.) *Opuntia vulgaris*.

RAKAK. The Malayan name for the Soap-berry, *Sapindus emarginatus*.

RARE, RARUS. Thinly placed; the reverse of such terms as dense, approximated, &c.

RASAMALA. An Eastern name for *Liquidambar Altingia*.

RASPAILIA. A genus of *Bursiacea*, united by Sonder with *Berardia*, but considered sufficiently distinct by Bentham and Hooker. It is characterised by the globose, not involucre heads, and by the bracts being shorter than the flowers. There are seven or eight species, all heath-like shrubs, natives of the Cape. The flowers are small, white or yellow, in solitary terminal heads, and are succeeded by bicocous one-seeded fruits. [J. Dr.]

RASPBERRY. The fragrant subacid fruit of *Rubus Idæus*.

RASPBERRY-JAM TREE. The *Acacia acuminata* of Western Australia, from which is obtained a hard heavy wood, with an odour resembling raspberry jam. It is nearly related to the Spearwood, *A. duratylon*, and like it is used for making arms.

RATA. A New Zealand name for one of the hardwooded species of *Metrosideros*.

RATANHIA. A Peruvian name for the drug called Rhatany-root, the root of *Krameria triandra*.

RATIBIDA. A synonym of *Obeliscaria*, sometimes used in gardens.

RATMARA. An Indian name for one of the dyeing lichens.

RATONIA. A genus of *Sepioidaceae*, consisting of (about forty-five species of pinnate-leaved, usually lofty tropical trees, natives of Australia, Asia, the Mauritius, the West Indies, and America, where they are especially numerous. It is closely allied to *Cupressus*, differing in the valvate or very slightly imbricate aestivation, in the gamosepalous calyx, and in the long filaments; the petals are rarely as long as the calyx, while the filaments exceed it. The leaves are smooth, formed of two to seven pairs of oblong-lanceolate leaflets; and the minute greenish flowers disposed in axillary or terminal panicles, have five calyx-segments, five scale-like petals (or none), eight to ten stamens, and a trifid style surmounting a three-celled ovary, which becomes a two or three-lobed leathery capsule, each cell with a single black seed having a yellow aril at its base. *R. apelta*, a common West Indian plant, forms a tree of about twenty feet high, and is known in Jamaica as Bastard Locust. [A. A. B.]

RATOON. The young shoots of the Sugar Cane.

RATSBANE, or RAT-POISON. A West African name for *Chaetelia toxicaria*.

RATTAN. A commercial name for the long trailing stems of *Calamus Royleanus*, *Rotang*, *rudentum*, *viminalis*, and other species, which form a considerable article of import from India and the Eastern Archipelago. — **GREAT.** *Calamus rudentum*. — **GROUND.** *Rhaphis flabelliformis*.

RATTANY, or RHATANY. The powerfully astrigent root of *Krameria triandra*. — **SAVANILLA.** The root of the New Guadalupe variety of *Krameria* *laxa*.

RATTLE, RED. *Pedicularis sylvatica*. — **YELLOW.** *Rhinanthus Crista galli*.

RATTLE-BOX. *Rhinanthus Crista galli*; also an American name for *Crotalaria*.

RATTLESNAKE-HERB. An American name for *Actæa*.

RATTLESNAKE-ROOT. The root of *Polygala Senega*; also an American name for *Nabalus*.

RATTLESNAKE'S MASTER. An American name for *Liatis scariosa* and *squarrosa*.

RATTLESNAKE-WEED. *Eryngium virgatum*.

RATTLEWORT. *Crotalaria*.

RAUCHE. (Fr.) *Typha latifolia*.

RAUPO. *Typha angustifolia*.

RAUWOLFIA. This genus of *Apocynaceæ*, so called in honour of a botanical traveller, consists of tropical American shrubs, having the leaves opposite or whorled, and the flowers in corymbs. The corolla is funnel-shaped, with a hairy throat, and a limb divided into five oblique segments; the ovary is two-lobed, surrounded at its base by a circular thickened rim; and the fruit is fleshy, divided into two halves each containing a stone, in which is enclosed a single seed. The fruits of *R. canescens* contain a black juice which has been used as a dye in the West Indies. These plants are more or less poisonous. Some of them are used medicinally as cathartics or emetics, as for instance *R. nitida*, of which the root is thus employed. [M. T. M.]

RAVE. (Fr.) *Brassica Rapa*. — **DE SAINT ANTOINE.** *Ranunculus bulbosus*.

RAVENALA. A splendid Madagascar plant constituting a genus of *Musacæ*. The trunk is like that of the palm, and is built up of the sheaths of the leafstalks, the other portions of the leaves having fallen off. The upper leaves are in two rows on long stalks, and they diverge from the upper portion of the stem somewhat in the same manner as the ribs of a fan, from its centre. The flowers are closely crowded in the axils of large bracts or spathe, which are ranged in two rows along the terminal flowerstalks. In botanical characters the flowers are similar to those of the species of *Musa* and *Strelitzia*, but they differ in the stamens which are six in num-

ber. The fruit also is woody, capsular, three-celled, and three-valved; and the seeds are arranged in two rows, in each of the compartments of the fruit, and have a pulpy blue arillus surrounding them.

This noble plant is called by the French the Traveller's Tree, probably on account of the water which is stored up in the large cup-like sheaths of the leafstalks, and which is sought for by travellers to allay their thirst. The broad leaves are used as thatch to cover the huts in Madagascar. The seeds are edible, and the blue pulpy aril surrounding them yields an essential oil. The blades of the leaves are oblong in form, and are larger in size than those of any known plant, being simple, except the *Victoria regia*. [M. T. M.]

RAVEN-BLACK. See **PULLUS** and **COBACINUS**.

RAVENCHEENY. An Indian name for *Gamboge*.

RAVENELLE. (Fr.) *Raphanus Raphanistrum*. — **JAUNE.** *Cheiranthus Cheiri*.

RAWUND, or REWUND. Indian names for *Rhubarb*.

REAUMURIA, REAUMURIAEÆ. The first of these names represents a small genus of dicotyledons, closely connected through *Hololachne* with *Tamarix*, and considered by several botanists as belonging to the family of *Tamaricaceæ*, whilst others, relying upon its affinities with *Hypericaceæ*, propose it as the type of the small independent order *Reaumuriaceæ*. The foliage, the free erect distinct pinnate, and the seeds, connect the genus with *Tamaricaceæ*, from which it differs chiefly in the more numerous stamens, and in the pinnate, which, although free from the sides of the ovary, rise up to the top of the cavity, with which they are often united there as well as at the base. The few species are small diffuse or much-branched saline shrubs, natives of the eastern shores of the Mediterranean, or of the salt-plains of Central Asia; and bearing solitary conspicuous flowers, which have a five-lobed bell-shaped calyx surrounded by numerous overlapping bracts, five egg-shaped petals with two fringed scales at their bases on the inside, numerous stamens with narrow awl-shaped filaments cohering together in five bundles, and a sessile ovary terminating in five thread-like styles, and divided into five cells each containing four ovules. The five-celled fruits contain one or two hairy seeds in each cell. The bruised leaves of *R. verticillata* are used at Alexandria as an external application for the cure of the itch. [A. S.]

REBENTA CABALLOS. A Spanish American name for *Isotoma longiflora*.

RÊBLE, or RIEBLE. (Fr.) *Galium aparine*.

RECCIA. An imperfectly known Mexican shrub formerly referred to *Dillenia*, but more recently identified with *Ripostachya*, an anomalous plant of doubtful affinity, which

Benthams and Hooker place in *Simarubas*.
[J. Br.]

RECEPTACLE. A general term expressive of a part which receives or bears other parts: as the receptacle of flowers or *clinanthium*, the receptacle of fruits or *torus*, the receptacle of ovules or *placenta*. Receptacles of oil are cysts formed among the cellular tissue of plants and containing an oily secretion, as in the so-called dotted leaves of the orange. Receptacles of secretion are those cavities of the interior of a plant into which natural secretions are drained.

RECESS. The same as *Sinus*.

RECEVEFURA. A name applied to two Brazilian species of *Hypericaceae*, which have since been referred to the section *Brachys* of the genus *Hypericum*.
[J. Br.]

RECHSTEINERA. A genus of *Gesneraceae* inhabiting Brazil, of which *R. allagophylla* (*Gesnera allagophylla* of the gardens) is the type. They have large tubers, an erect hairy stem, opposite or ternate linear or oblong leaves, and a terminal spike of fine scarlet or yellow flowers. The nearly bilabiate corolla is scarcely double the length of the five-cleft calyx; and the ovary is surrounded by five glands, two of which are larger than the rest. *R. allagophylla* has long been a favourite in our hot-houses, on account of its gay orange-scarlet flowers.
[B. S.]

RECLINATE, RECLINING. Bent down upon some other part; falling gradually back from the perpendicular, as the branches of many trees.

RECONDITE. Concealed; not easily to be seen.

RECTEMBRYE. A suborder of *Solanaceae*, consisting of those plants in which the embryo is straight, as distinguished from *Cucembrye*, in which it is curved.

RECTINERVIS, RECTINERVIUS. The same as *Parallelnervis*.

RECTIVENIUS. Straight-veined; having all the veins parallel, as in the leaves of a grass.

RECTUS. In a right line; not wavy or curved, or deviating from a straight direction in any way.

RÉCURE DE CRAPAUD. (Fr.) *Elatine Alsinastrum*.

RECURVATE, RECURVED, RECURVUS. Bent, but not rolled backwards.

RED. The common term for any pure red.

RED-BROWN. See *PORPHYREUS*.

RED-BUD. *Cercis Siliquastrum*; also *C. canadensis*.

RED-COAT. *Erythroxylon*.

RED GUM, RED RAG, RED ROBIN, RED RUST are all so many synonyms of *RUST*.

RED-HEAD. *Aclepias curassavica*.

RED-INK PLANT. *Phytolacca decandra*.

RED-KNEES. *Polygonum Hydropiper*.

RED-LAC. *Rhus succedanea*.

RED-LEGS. *Polygonum Bistorta*.

RED MOROCCO. *Adonis autumnalis*.

REDOUL. (Fr.) *Cornaria*.

RED ROOT. A popular name for the fleshy rhizomes of *Sanguinaria canadensis*; also the root of *Gemm canadense*, and of *Cornuthus americanus*; also an American name for *Lachnanthes*.

RED-ROT. *Drosera*.

RED-SHANKS. *Polygonum Persicaria*; also *Geranium Robertianum*.

RED SNOW. The common name of *Protococcus nivalis*, which in an incredibly short space of time produces large patches of a brilliant scarlet on the surface of snow in the Arctic regions or amongst the Alps. A species of *Protococcus*, which is almost identical with *P. plumalis*, is common upon leaves, straws, little pebbles, &c. where water has rested; and has given occasion to Shuttleworth, Cohn, and others for a tolerably perfect study of this strange production, which before the discovery of the propagation of so many *Algae* by zoospores must undoubtedly have been referred to the animal kingdom. The endochrome is divided into a definite number of cells, each of which becomes a new individual. Some become naked active cells moving by two flagelliform processes, or these cells are surrounded by a hyaline sac, and within the sac are definitely divided into a number of new individuals. Occasionally the division goes so far that their number is apparently indefinite. It is impossible within our limits to trace each further change, for which we must refer to Cohn's paper (*Nachtrage zur Naturgeschichte des Protococcus plumalis*). The spores, as in many other minute *Algae*, are in some stages green, in some scarlet.
[M. J. B.]

RED-TOP. An American name for *Agrostis vulgaris*. — **FALSE.** *Poa serotina*. — **TALL.** *Trienspis scelerimides*.

REDUPLICATIVE. Doubled back: a term of aestivation, when the edges are valvate and doubled back.

REDWARE. *Laminaria digitata*.

RED-WATER TREE. *Erythrophloeum guineense*.

RED-WEED. *Papaver Rhæas*; also *Phytolacca*.

RED-WITHE. *Combretum Jacquinii*.

REDWOOD. An East Indian dye-wood, the produce of *Pterocarpus santalinus*; also *Erythroxylon*. The Redwood of the Turks is *Cornus mascula*; that of the timber trade is furnished by *Sequoia sempervirens*. — **ANDAMAN.** The timber of *Pterocarpus dalbergioides*. — **BAHAMA.** *Ceanothus*

colubrinus, or *Colubrina ferruginea*. —, JAMAICA. *Gordonia Hematoxylon*.

REDWOOD-TREE. *Boymida febrifuga*.

REED. *Arundo* and *Phragmites*. —, AROMATIC, of Scripture. *Andropogon Calamus aromaticus*. —, BUR. *Sparganium*. —, CANARY. *Digraphis arundinacea*. —, COMMON. *Phragmites communis*. —, EGYPTIAN. *Papyrus antiquorum*. —, INDIAN. *Canna*. —, SEA. *Amnophila arundinacea*. —, SMALL. *Calamagrostis*. —, TRUMPET. *Arundo occidentalis*. —, WATER. *Arundo* or *Phragmites*.

REED-MACE. *Typha*.

REEPERS. Laths, or longitudinal sections of the *Palmyra* Palm, used for building purposes in the East.

REEVESIA. A genus of *Sterculiaceæ*, comprising a few evergreen bushes with alternate stalked ovate or lance-shaped leaves, somewhat like those of a laurel; and terminal cymes of white blossoms, appearing at a distance like those of a *Viburnum*, and remarkable for their protruding staminal tube, which terminates in a round knob, consisting of fifteen sessile anthers. The chief features of the genus are:—A bell-shaped three- to five-lobed calyx, five-clawed petals, and a long stamen-tube enclosing a stalked ovary, which is tipped with a sessile five-lobed stigma, and when ripe is an inversely pear-shaped capsule about an inch long, with five cells and one or two winged seeds in each. *R. thyrsoidea* was introduced from China in 1818 by John Reeves, Esq., F.R.S., whose name the genus bears, and is cultivated as a greenhouse shrub. Two other species are known from the Khasia mountains in India. [A. A. B.]

REFLEXED. Curved backwards excessively.

REFRACTUS. Curved or directed backwards suddenly.

REGELIA. A genus proposed by Schauer for the *Melaleuca sprengeloides*, and an allied species, both of them myrtaceous shrubs from South-western Australia, differing slightly from *Beaufortia* in the dehiscence of their anthers, and in the ovary having several ovules instead of a single one in each cell.

The same name has been also applied in Continental gardens to a fine Seychelles Palm, which Wendland has since designated *Verschaffeltia splendida*.

RÉGLISSE. (Fr.) *Glycyrrhiza*. — **BÂTAIDE** or **SAUVAGE.** *Astragalus glycyphyllos*. — **DES ALPES** or **DES MONTAGNES.** *Trifolium alpinum*.

REGMA. A tricocccus fruitlike that of spurge; also any such fruit, whether the number of cocci is three or not.

REGRESSUS. In Morphology, signifies the change from one organ into the form

of the organs that immediately preceded it; as of petals into sepals.

REGULAR. Having all the parts of each series of a flower of a similar form and size.

REHMANNIA. A genus of the cyrtandraceous division of *Gesneraceæ*, containing a single species, a Northern Chinese herbaceous plant, with obovate coarsely serrated alternate leaves decreasing in size towards the top of the plant, and solitary axillary long-stalked flowers. These have a campanulate five-cleft calyx; a corolla, with a long compressed ventricose tube, and a two-lipped nearly equally five-lobed limb, the two upper lobes of which are bent back and the three lower spread out; two long and two short included stamens with diverging anther-cells; a one-celled ovary with two two-lobed parietal placentas; and a slender style bearing a stigma of two broad equal plates. [A. S.]

REICHENBACHIA. A small little-known shrub from the Rio Magdalena in tropical South America, with alternate lanceolate leaves, and small tubular flowers in terminal cymes, which forms a genus of woody plants allied to *Salpianthus*.

REIDIA. A genus of *Euphorbiaceæ* allied to *Phyllanthus*, of which it has entirely the habit, differing chiefly in the calyx of the sterile flowers consisting of four instead of five sepals, and the stamens being two instead of three in number. There are about a dozen known species distributed over tropical India and Java. They are small bushes having slender twigs, furnished with numerous small unequal-sided ovate or oblong smooth entire leaves, bearing in their axils, either singly or in clusters, small green or whitish pink-tipped flowers, fertile and sterile in the same cluster (the fertile larger than the sterile), and with slender drooping stalks an inch or more in length. The calyx in the females is of four to six deep triangular divisions often fringed; and inside these an equal number of glands surrounding the ovary, which is tipped with three forked styles. The fruits are little trilobed capsules of the size of peas, with three cells and two seeds in each. *R. glaucescens* is a very neat bush cultivated in hothouses. Its slender twigs are furnished with elliptical pea-green leaves about half an inch long, arranged in a two-ranked manner so that the twigs have the aspect of pinnate leaves. When this plant is covered with its slender-stalked drooping neatly fringed blossoms of a pinkish hue, it is really an extremely pretty object. This plant is a native of Java. M. Baillon unites the genus with the West Indian *Epistylum*, which however embraces plants of a very different aspect, although the structure of the flower is very similar. He also refers here a Javanese plant known under the name of *Eriococcus*. [A. A. B.]

REIMARIA. A genus of grasses belonging to the tribe *Panicææ*, which has the

inflorescence in racemes, the spikelets of which are subsessile and two-flowered; lower flowers neuter, one-glumed and three-nerved; hermaphrodite flowers two-glumed, membranaceous, shining, the lower glume three-nerved acute, the upper obsoletely three-nerved; stamens two; styles two; ovary smooth. This genus contains but two species, *R. acuta* and *R. conferta*, both natives of Brazil. [D. M.]

REINECKIA. The generic name of a Chinese lilaceous plant related to *Sansevieria*, but more so to *Ophopogon*, from which it is hardly recognisable. *R. carnea* is a tufted plant with a creeping rootstock, thick fibrous roots, grassy leaves six inches to a foot long; and rising from their midst a flower-spike three to four inches high, bearing a number of sessile rose-coloured fragrant flowers, each seated in the axil of a bract. They have a tubular perianth with a six-lobed flat border, six stamens opposite the lobes, and a three-celled three-lobed ovary with four ovules in each cell. *Sansevieria carnea* was the name first given to this plant when introduced to English gardens about the year 1792; afterwards it was named *Sanseviella carnea*; and now *Reineckia*. [A. A. B.]

REINE CLAUDE. (Fr.) The Green Gage Plum.

REINE DES BOIS. (Fr.) *Asperula odorata*; also *Dianella ensifolia*. — DES PRÉS. *Spirea Ulmaria*. — DES PRÉS DU CANADA. *Spirea lobata*. — MARGUERITE. *Callistephus chinensis*.

REINWARDTIA. The name given to a genus of *Linaceæ* peculiar to the mountainous regions of India, and consisting of three species which were formerly included in *Linum*; from which they differ in having three or four instead of five styles, as well as in the glands at the base of the petals being unequal or entirely deficient. *R. trigyna* is a very common erect branching deciduous-leaved bush often cultivated in hothouses in England for the sake of its handsome yellow flowers, which are nearly one inch and a half across. The ash-coloured twigs are furnished with ovate or lance-shaped leaves two to three inches long, and the flowers are solitary or two or three together from the apex of the shoots. It is readily propagated by cuttings or pieces of the creeping root, which renders it a troublesome weed in some parts of India. This plant, which has been in cultivation for upwards of sixty years, and is often called *Linum trigynum*, has been named in honour of G. C. Reinwardt, a celebrated Dutch botanist. [A. A. B.]

REISSEKIA cordifolia is the only species of a genus of *Rhamnaceæ*, which is most nearly related to *Gouania*, differing chiefly in the flowers being disposed in umbels instead of racemes. It is a scrambling Brazilian bush, with slender branches, having tendrils like a vine, and alternate stalked heart-shaped leaves, bearing in their axils umbels of minute yellowish

flowers much like those of the common blackthorn. These are succeeded by three-celled three-winged capsules, having the wings papery in texture, and a single seed in each cell. It was named in honour of M. Reisseck, a Continental botanist. [A. A. B.]

RELBUN. The roots of *Calceolaria arachnoidea*, which are largely collected in Chili for dyeing woollen cloths crimson.

RELHANIA. A South African genus of *Compositæ*, comprising six species, three of which are small bushes with an abundance of heath-like leaves covered with white down underneath, and solitary yellow flower-heads terminating the twigs; while the others have smooth rigid oblong leaves with recurved tips, and their yellow flower-heads are in terminal corymbs: each head with numerous florets intermixed with chaffy scales, the ray-florets strap-shaped and female, and those of the disk tubular and perfect. The genus differs chiefly from its near allies in the minutely-toothed crown-like pappus which surmounts the narrow achenes. [A. A. B.]

RELQUIE. The withered remains of leaves which do not fall off, but perish upon a plant and adhere to it.

REMIJIA. A genus of *Cinchonaceæ* closely allied to *Cinchona* itself, but differing in the structure of its seed-vessels, and its peltate seeds, as well as in its inflorescence and habit. They form slender shrubs, with oblong or ovate revolute leaves, lanceolate stipules, long interrupted axillary racemes of flowers, and a corolla which is woolly outside, and has five linear limb-segments. In Brazil, where the plants are found, some of the species, as *R. ferruginea*, and *R. Vellozii*, are called Quina de Serra, or Quina de Remijo, and their bark is used as a substitute for that of *Cinchona*. [T. M.]

REMIREA. A genus of sedges belonging to the tribe, *Cyperæ*. The inflorescence is in heads or clusters, the spikelets of which are one-flowered; glumes four to five, the lower empty and blunt, the uppermost containing the flower sharp-pointed; stamens three; styles three-cleft. The few species described under this genus are natives of subtropical countries, ranging from South Africa to China. [D. M.]

REMORS. (Fr.) *Scadiosa succinea*.

REMOTE. Separated by intervals longer than usual.

REMUSATIA. A genus of *Aracæ*, comprising a solitary species formerly known under the name of *Caladium vitiparum*. This is an Indian plant with a tuberous rootstock, from which are sent off long branches bearing small bulbs, which after a while fall off and grow into distinct plants; subsequently the peltate leaves are produced. The apudix is short, entirely covered with flowers, and completely encircled below by the yellow spathe; above it is exposed, owing to the spreading open and bending downwards of the spathe.

The anthers are one-celled, and between them and the ovaries are placed a number of rudimentary flowers. The ovaries are numerous, and partially three-celled, and contain numerous ovules. *R. vespera* is in cultivation. [M. T. M.]

RENANTHERA. A genus of vanaceous orchids very nearly allied to *Vanda* itself, from which it is technically distinguished by its lip being articulated not continuous with the column, and saccate or spurred at its middle instead of at its base. The original species of the genus is a native of Cochín China, but those since added, eight or ten in number, are all confined to the large islands of the Malayan Archipelago. As ornamental plants they take rank with the most beautiful of the orchid tribe, in which they are also amongst the largest-growing, their long branching and rooting stems climbing on trees to a considerable height. They have thick leathery strap-shaped leaves regularly arranged in two opposite rows; and their flowers are disposed in long panicles proceeding from the sides of the stems. The most magnificent and certainly the most remarkable species of the genus yet known in this country, is *R. Lowii*, formerly *Vanda Lowii*, a native of Borneo. This species grows to a great height, and has leaves from half a yard to a yard in length; and from near the top of its stem it sends out several long slender pendulous flower-spikes, ten or twelve feet in length, clothed with numerous rather large conspicuous flowers. These are of two kinds, at least all the spikes that have as yet come under notice have been furnished with a couple of tawny-yellow crimson-spotted flowers at their base; while all the rest, forty or fifty in number, have been of a pale-greenish hue, marked inside with very large irregular blotches of reddish-brown. [A. S.]

RENEALMIA. A genus of *Zingiberaceæ* named after the French botanist Renealmie. The species are tropical American herbs, with creeping rootstocks, from which are thrown up the two-ranked leaves, and panicled inflorescence. The flowers are concealed within large bracts, and partake for the most part of the botanical characteristics of those of *Alpinia*. The lip of the corolla, however, is erect, and embraces the very short flattened filament; and the three-celled capsule splits into three pieces when ripe. They have white flowers. [M. T. M.]

RENGGERIA. A genus of *Clusiaceæ* nearly related to *Clusia*, from which, according to Mr. Benthams, it differs chiefly in having from five to ten instead of a much greater number of stamens to the sterile flowers; and from most others in having many instead of few ovules to each cell of the ovary, which when ripe is a capsule. The two (or one?) known species, found in Tropical America, are scrambling semiparasitical trees of low growth, with opposite entire leathery leaves, the twigs terminating in panicles of yellowish flowers, the sterile and fertile on different trees.

[Two or three species formerly included here are now referred to *Rangitia*: which see in SUPPLEMENT.] [A. A. B.]

RENIFORM. The same as Kidney-shaped.

RENNELLIA. A genus of *Oinchonaceæ* whose species inhabit Sumatra. The inflorescence is a terminal spike, the flowers crowded and united one to another by the confluence of the calyx-tubes. The free margin of the calyx is unbroken; the corolla is tubular, its limb divided into four spreading segments; stamens four; style thread-like, surrounded at the base by a fleshy disk, and dividing above into two stigmas. Fruit of irregular shape, consisting of several ovaries combined, and surmounted by the persistent calyces and disks. [M. T. M.]

RENONCULE. (Fr.) *Ranunculus*. — DES JARDINS. *Ranunculus asiaticus*.

RENONCULIER. (Fr.) *Cerasus avium flore-pleno*.

RENOUÉE. (Fr.) *Polygonum*. — ACRE. *Polygonum Hydropiper*. — DU LEVANT. *Polygonum orientale*.

RENOUELLE. (Fr.) *Eriogonum*.

REPAND. Having an uneven slightly wavy or angular margin.

RÉPARÉ E. (Fr.) *Beta maritima*.

REPENT. Creeping; lying flat upon the ground, and emitting roots at the same time.

REPLICATE, REPLICATIVE. When the upper part of a leaf is curved back and applied to the lower, as in the *Aconite*.

REPLUM. The valve of a door—applied in Botany as if it signified a door-frame; the frame left in certain fruits by the dropping-off of the valves in the act of dehiscence.

REPRISE. (Fr.) *Sedum Telephium*.

REPTONIA. This genus is interesting because of its botanical affinities. It is usually placed in the *Myrsinaceæ*, with which it accords in the one-celled ovary; but on the other hand, it is close to the *Sapotaceæ*, having five sterile filaments alternating with the five fertile ones which are opposite the corolla-lobes; the leaves have no transparent dots as have most *Myrsinaceæ*; and the seeds, with ruminated albumen, are unlike any in either of the two families. *R. buxifolia*, the only known species, is found in Afghanistan and on the shores of the Persian Gulf opposite to Muscat; it is a rigid evergreen hardwooded bush, with alternate entire leaves, and short lateral shoots terminating in spiny points like those of the *sloe*. The small yellowish flowers, arranged in clusters in the axils of the leaves, have each a five-cleft calyx with rounded lobes, a shortly tubular corolla, and an ovary remarkable for its slender style being protruded while the flower is yet in the bud. According to Griffith, the rounded black edible drupes, of the size of marbles, are

considered heating by the Affghans, who sell them in their bazaars under the name of Goorgoor. The fruit is mainly occupied by the seed, which is not eaten. *Edgeworthia burifolia* and *Monotheca maseatensis* are synonyms of this plant. [A. A. B.]

REREE. *Typha angustifolia*, the leaves of which are used in the north-western provinces of India for making mats.

RESEDACEÆ. (*Weldsworts*.) A small order of polypetalous dicotyledons allied to *Capparidaceæ*, from which they differ chiefly in their irregular scale-like usually fringed petals, and in the fruit which is most frequently open at the top before it is ripe. They are mostly herbs or small spreading undershrubs, with alternate entire or pinnately divided leaves, and minute gland-like stipules. The flowers, usually green white or of a greenish-yellow and not showy, are in terminal racemes or spikes; sepals and petals usually five or six each; stamens definite, or at any rate not numerous, and inserted on a broad fleshy hypogynous disk. The ovary is one-celled with three parietal placentas, and bears three distinct stigmas; and the seeds have a curved embryo without albumen. The species are for the most part inhabitants of Europe, Northern Africa, and Western Asia, but a very few occur also in Southern Africa and North-west America. The order consists chiefly of the Linnean genus *Reseda*, and some small ones which have been separated from it by modern botanists, and to these has been added *Ochradenus* with an exceptionally baccate fruit.

RESEDA. Herbaceous or slightly shrubby plants giving name to the order *Resedaceæ*, well marked by the calyx being divided almost to the base into from four to six narrow segments, an equal number of cloven petals, and a bladderly three to four-horned many-seeded capsule open at the top. *R. odorata*, the Mignonette, a native of Egypt and Northern Africa, is a universal favourite which needs no description. When cultivated it is usually treated as an annual, but if protected during winter and properly trained may be made to last several years, and to attain a large size. *R. luteola*, the Weld, Yellow-weed, or Dyer's Weed, is a common wayside plant, one to three feet high, with numerous lanceolate glossy leaves, and terminal spikes of greenish-yellow flowers nodding at the top. Dyers formerly made great use of this plant, as it affords a beautiful yellow dye. A paint is also made from it called Dutch-pluk. *R. lutea* is a native of many parts of Britain; it has to some extent the habit of *R. odorata*, but is more erect in growth, and the flowers are scentless. Other foreign species are sometimes cultivated. [C. A. J.]

RÉSÉDA. (Fr.) *Reseda odorata*. — **RAIPONCE.** *Reseda Phytouma*. — **SAUVAGE.** *Reseda lutea*.

RES HERBARIA. Botany; whatever relates to that subject.

RESIN. The residue of the process for obtaining oil of turpentine; also a general term for certain vegetable secretions insoluble in water, which become solid either by the evaporation of their volatile constituents or by the absorption of oxygen, and are distinguished from balsams by the absence of benzoic acid, and from gum-resins by the absence of gum. —, **CARANA.** The product of *Bursera acuminata*. —, **COPAL.** The product of *Rhus copallina*, *Gustouria copalifera*, *Trachylobium Hornemannianum*, and other plants. —, **COUMIA.** The product of *Isica Tucamahaca*. —, **ELEMI.** The product of *Amyris Plumieri*. —, **GUAIAC.** The product of *Guaiacum officinale*. —, **HEMP.** Churras, the narcotic product of *Cannabis sativa*. —, **CHIBOU** or **CACHIBOU.** The product of *Bursera gummiifera*. —, **MANAWA.** The product of *Avicennia tomentosa*. —, **MASTICH.** The product of *Pistacia Lentiscus*. —, **MAY-NAS.** The product of *Calophyllum Culaba*.

RESIN-BUSH. *Eurypops speciosissimus*.

RÉSINE DE GOMMART. (Fr.) A resinous product of *Bursera acuminata* or *gummiifera*.

RESTANS. The same as Persistent.

RESTENCLE. (Fr.) *Pistacia Lentiscus*.

RESTHARROW. *Ononis arvensis*.

RESTIACEÆ. (*Restiads*.) An order of monocotyledons having usually the habit of rushes or sedges, and closely allied in character both to *Juncaceæ* and *Cyperaceæ*. They differ from *Juncaceæ* by the more glume-like segments of their perianth, usually fewer than six; from *Cyperaceæ* by their more perfectly formed perianth; and from both by their pendulous seed, and lenticular embryo, placed at the extremity of the albumen most remote from the hilum. They are usually stiff herbaceous plants, with narrow simple leaves having longitudinally slit sheaths, or in some species the leaves are reduced to these sheaths or entirely wanting. The flowers are frequently unisexual, usually gathered into heads or clusters with glume-like bracts; the perianth has from two to six segments; the stamens are usually two or three but sometimes twice those numbers; and the ovary has one two or three one-seeded cells, and bears two or more styles or stigmas. The order is divisible into two suborders, sometimes considered as distinct orders; the true *Restiaceæ* distributed into about twenty-four genera, all natives of the southern hemisphere, chiefly South Africa and Australia, with the exception of a very few tropical Asiatic species; and the *Eriocaulaceæ*: which see.

RESTIBILIS. A plant with a perennial root and annual stems: an herbaceous plant.

RESTIO. A genus of *Restiaceæ* comprising all the true rush-like leafless *Restiaceæ* in which the style is elongated, with two long linear stigmas. There are a large number of species known, more than two-thirds of which are natives of Southern Africa.

the remainder being found in Australia. None are of any special interest or deserving of cultivation.

RESTREPIA. A genus of orchids closely allied to *Plaurothallia*, but having the hind sepal and petals always extended into long tapering glandular points, a long slender column, a hooded anther-bed, and a linear membranous bordered stigma. It embraces about a dozen tropical American species, small mostly epiphytal plants, with either one-leaved stems or stems with one-leaved branches, always furnished with large membranaceous sheaths, and bearing largish generally spotted flowers, solitary on long stalks. [A. S.]

RESUPINATE. Inverted in position by a twisting of the stalk—as the flowers of *Orchis*; also said of those maritaneous Fungals whose hymenium is placed uppermost instead of undermost.

RETAMA. A genus of *Leguminosae* whose species are sometimes included in *Genista* and *Sarcothamnus*, from which they differ in having rounded or oval somewhat bearded pods about the size of damsons, which do not open when ripe, and contain but one or two seeds, instead of being thin, dry, bursting, and containing numerous seeds. There are about ten known species, distributed over the Mediterranean region and the Canary Isles, all of them much-branched bushes, the twigs angular or round and rush-like, the younger sometimes having a few lance-shaped leaves, but usually entirely leafless, and thickly covered in the summer months with short clusters of yellow or white flowers sometimes tinged with lilac. *Rætem* is the name given by the Arabs to a white-flowered species, *R. Retam*, which grows in Arabia and Syria. According to Forskål, an infusion of its bitter roots is drunk by the Arabs for internal pains, and the shoots macerated in water are applied to wounds. The Arabic name *Rætem*, altered slightly into *Retama*, is the common appellation of the plants of this genus in Spain.

Don remarks of *R. monosperma*: 'The use of this shrub along the shores of Spain in stopping the sand is great. It converts the most barren spots into a fine odoriferous garden by its flowers, which continue for a long time. The young shoots are eagerly eaten by goats, and the twigs are used for tying bundles.' These remarks seem to apply better to *R. sphaerocarpa*, a yellow-flowered species which is common on the Spanish coast, while *R. monosperma* is comparatively rare. The latter species is sometimes cultivated in greenhouses in England, or on sheltered borders with a southern aspect. It has slender shoots covered with short silky hairs, which give the plant a silvery appearance. The flowers are white, the centre of the standard and the calyx tinged with lilac. [A. A. B.]

RETICULARIA. A genus of the semi-gelatinous myxogastrous Fungi, distinguished by its simple expanded stemless peridium, and flat-branched flocci amidst

the multitudinous spores. Corda has shown that these are at first developed in little bundles on oranclets of the threads. *R. maxima* is sometimes a troublesome plant in hotbeds from its rapidly-growing slimy spawn enclosing everything in its way, and the abundance of its dark dust-like spores. [M. J. B.]

RETICULATE, RETIFORM. Having the appearance of network.

RETICULATO-VENOSE, RETINERVIS, RETINERVIUS. Having veins with the appearance of network.

RETICULUM. A membrane consisting of crossing fibres, found in palm-trees at the base of the petiole, either on its side or between it and the stem.

RETINACULUM. A viscid gland belonging to the stigma of orchids and asclepiads, and holding the pollen-masses fast.

RETINOSPORA. A small Japanese genus of the *Cupressaceae* division of *Coniferae*, closely allied to and by some botanists regarded as a section of the North American genus *Chamaecyparis*, from which it is distinguished by the integument of its seeds being furnished with evident resinous channels, whence the generic name. One species, *R. obtusa*, the Japanese Cypress, is a very fine forest tree, eighty or



Retinospora obtusa.

more feet high, with a straight trunk occasionally as much as five feet in diameter at its base, yielding a useful fine-grained light-coloured timber. Its Japanese name is *Hinoki*, which signifies Tree of the Sun, it being dedicated by them to the God of the Sun. The other species are either smaller trees or largish shrubs. [A. S.]

RETOBET. (Fr.) *Passerina Tartou-raria*.

RETROCURVUS. The same as Recurved.

RETROFLEXED. The same as Reflexed.

RETROSE. Backwards: thus, *retroscæ folia* are those leaves which are pressed backwards against the stem; *retroscum hamulosum*, having a number of little hooks directed backwards.

RETROVERSTO. A bending backwards an inversion, or turning upside down.

RETTI or **RATI-WEIGHTS**. The seeds of *Abrus precatorius*.

RETUSE. Terminating in a round end, the centre of which is depressed.

RETZIACEÆ. Three shrubs or under-shrubs from South Africa—*Retzia* with rather long erect verticillate leaves, and two species of *Lonchostoma* with small crowded ones,—all with sessile flowers, which although not small are almost concealed by the leaves, have been attached by different botanists to *Convolvulaceæ*, to *Hydrocaryæ*, or to *Solanaceæ*. Their technical characters are those of the latter order, but their habit is so different that they have been proposed by some as a distinct group under the above name of *Retziaceæ*.

REVALENTA ARABICA. The prepared farina of the Lentil, sold also as *Ervaleuta*.

RÉVEILLE-MATIN. (Fr.) *Euphorbia helioscopia* and other species.

REVENTA-CAVALLOS. *Isotoma longiflora*.

REVOLUTE. Rolled backwards—i.e. out of the direction ordinarily assumed by other similar bodies; as certain tendrils, and the sides or ends of some leaves.

REVOLUTIVE. When the edges are rolled backwards spirally on each side, as in the leaf of the rosemary; a term of cultivation.

REWUND, or **RAWUND**. Indian names for *Rhubarb*.

REYNAUDIA. A genus of grasses belonging to the tribe *Agrostidæ*. The inflorescence is in simple panicles, the spikelets of which are one-flowered; outer glumes compressed, cleft below the points, with short bristles; flowering glumes one half shorter, three-nerved; pales with very short bristles below their points, the lower five-nerved, the upper one-nerved; stamens two; styles two. Only one species is described, *R. Aliformis*, a native of San Domingo and Cuba. [D. M.]

REYNOLDSIA. A genus of *Araliaceæ*, consisting of two trees from the islands of the Pacific Ocean, with simply pinnate leaves, and small flowers in compound terminal or lateral panicles. They have the entire calyptra shaped corolla of the American *Sciadophyllum*, but differ from that genus in foliage, in the perfectly consolidated stigmas, and in the drupe consisting of from eight to eighteen pyrenes.

RHABABATH. An Arabian name for the fruit of *Ruscus aculeatus*.

RHABBARUM. *Rheum*.

RHABDIA. The generic name of two stiff branching erect shrubs three to four feet high, with the habit of some *Lyciums*, belonging to the *Ehretiaceæ*, and most nearly allied to *Ehretia* itself—differing mainly from that genus in the style being entire instead of forked. *R. viminea* is

very common in India, and is found also in Ceylon and Borneo, always growing in the rocky or sandy beds of rivers. It has reddish twigs furnished with an abundance of alternate spatulate leaves, and in their axils a few small rose-coloured flowers disposed in corymbs. Each flower has a five-parted calyx with narrow segments, a shortly tubular corolla with a five-lobed border, five stamens arising from the tube, and an ovary ending in a slender style with a two-lobed stigma. The fruit is a scarlet berry with four to six seeds. *R. lycnoides* is a Brazilian species growing in similar situations, and very like the former in habit, but having broadly lance-shaped leaves. [A. A. B.]

RHABDOCALYX. *Cordia*.

RHABDOTHAMNUS *Solandri* is the sole representative of a genus of *Cyrtandraceæ* peculiar to New Zealand, forming a slender twiggy much branched shrub, two to four feet high, with opposite leaves, and pretty yellow and red striped flowers. Calyx five-cleft; corolla with a bell-shaped tube and a two-lipped border; fertile stamens four, the anthers united; ovary broadly ovate; style long, slender, and curved towards the apex. The shrub is found in the northern island of the New Zealand group, from the Bay of Islands as far as the east coast. [B. S.]

RHABDUS. The stipe of certain fungi.

RHÆO. A name proposed by Hance for the *Tradescantia discolor*, a commelynaceous plant long since introduced into our stoves from the countries bordering on the Gulf of Mexico, and which differs from the other *Tradescantias* in its dense umbels on very short scapes from the midst of long broad radical leaves, and in the ovules being always solitary in each cell of the ovary. There is little beauty in its flower, but it is sometimes grown on account of the rich purple colour of the underside of the leaves.

RHAGADIOLUS. A genus of cichoraceous *Compositæ* nearly allied to *Lapsana*, readily recognised when in fruit by the involucreal scales, which are about eight in number, being spread out in a star-like manner, and the margins of each incurved so as to clasp in its embrace one of the cylindrical achenes of the outer row: so that in looking at a flower-head with ripe achenes, there appears to be nothing but the involucreal scales left. There are but two species, *R. stellatus* and *R. Hedynnos*, the former common through the Mediterranean region, the latter extending eastwards to Afghanistan. Both are annual weeds six inches to a foot high, with lyrate and toothed or sinuate radical leaves, and numerous small yellow flower-heads, those situated where the branches fork being sessile, the others stalked. [A. A. B.]

RHAGODIA. A genus of Australian shrubs or herbs belonging to the *Chenopodiaceæ*. They have alternate leaves, and spicate bractless flowers with a five-parted

perigone unchanged in fruit, one to five stamens, and a bifid style. The fruit is depressed, with a horizontal seed. [J. T. S.]

RHAMNACEÆ. (*Rhamni*, *Rhamnada*).

An order of polypetalous dicotyledons, comprising trees or shrubs resembling *Celastraceæ* in their small green or yellowish flowers with a fleshy disk, and stamens equal in number to the sepals, but differing usually in their valvate sepals, and in their more decidedly perigynous and sometimes superior stamens; and always in these stamens being alternate with the sepals, and in the petals when present being small concave or hood-shaped, opposite the stamens, and often enclosing them. The leaves are alternate or very rarely opposite, entire or more frequently toothed, and sometimes reduced to minute scales. The branches are frequently thorny or prickly; the flowers in axillary or terminal clusters, cymes, panicles, or rarely racemes; their parts are in fours or in fives; the ovary is two three or four-celled, with solitary erect ovules in each cell; and the seeds have a straight embryo in a fleshy albumen, which is rarely wanting. The order is spread over the greater part of the globe, and consists of above forty genera, of which the principal are *Zizyphus*, *Rhamnus*, *Ceanothus*, *Colletia*, *Pyrica*, *Pomaderris*, and *Gouania*.

RHAMNUS. The Buckthorn: a large genus typical of the *Rhamnaceæ*, and, with the exception of a few species inhabiting mountainous regions within the tropics in India and Abyssinia, confined to the temperate countries of the Northern Hemisphere. The majority of them are shrubs varying from one to eight or ten feet high, though some occasionally grow as high as fifteen or twenty feet and form small trees, and many of them are armed with stout spines. Their leaves, which are thick and evergreen in some species, but thin and deciduous in others, are almost always alternate short-stalked and simple, and usually smooth and feather-veined; and their small greenish short-stalked flowers are borne in clusters or umbels proceeding from the leaf-axils. They have a four or five-cleft calyx, the lower or entire part of which is cup-shaped or hemispherical and lined with the thin disk, and has the petals and stamens (agreeing in number with the segments of the calyx) inserted into its summit; the former, however, are sometimes absent, but when present they are usually nearly flat and notched at the top. The ovary is free from but generally shorter than the calyx-tube, from two to four-celled, and bears a two to four-branched style. The fruits are fleshy, and contain from two to four small one-seeded hard-shelled stones. Several species afford useful products, particularly dyes, and the fruits of many possess violent purgative properties.

The *Alaternus*, *E. Alaternus*, is an evergreen shrub or small tree, native of the South of Europe and North of Africa, of which several varieties are grown for orna-

mental purposes in English gardens. It has smooth serrated leaves varying from egg-shaped to elliptical or lance-shaped, and flowers of separate sexes, without petals.

R. catharticus, the Purgive Buckthorn, indigenous to Britain, is a stiff very much branched shrub growing from five to ten feet high, frequently having the branches terminating in a sharp thorn-like point. It has deciduous yellowish-green egg-shaped leaves, and dense clusters of yellowish-green flowers, which produce a crop of little shining black fruits about the size of peas. These fruits, which resemble corns of black pepper when dry, were formerly in great demand as a purgative medicine, and are still employed by rustic practitioners; but on account of the violence of their action, they have deservedly fallen into disrepute, although Syrup of Buckthorn is included in our pharmacopœias. The pigment known as sap or bladder-green is prepared by mixing the fresh juice of buckthorn berries with lime and evaporating to dryness. The bark likewise possesses active purgative properties.

The Alder Buckthorn, *R. Frangula*, also affords a colouring-matter, and its wood yields a superior charcoal for making gunpowder. But the most important commercial product of the genus is the dyeing material used by calico-printers, and known as Yellow-berries or Persian berries, considerable quantities of which are annually imported from Asiatic Turkey, and from Persia by way of Trebizonde. Although usually ascribed to *R. tinctorius*, they are probably collected indiscriminately from several species—the unripe fruits alone being gathered.

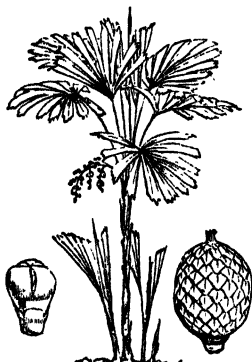
From the bark of two species lately described under the names *R. chlorophorus* and *R. utilis*, the Chinese prepare a beautiful green dye, called by them Lo-kao, and in this country Chinese Green Indigo, considerable quantities of which have been imported into Lyons and used for dyeing silks, the shades of green imparted by it being exceedingly beautiful, especially when seen under the influence of artificial light. A similar dye has since been extracted from *R. catharticus*. [A. S.]

RHAPHIDOPHORA. A genus of *Orontiacæ*, consisting of Indian herbaceous plants differing from *Calla* in their flattened filaments and linear stigmas, and in the presence of only a single ovule in the ovary. From *Monstera* they are distinguished by their one-celled ovaries, with only one ovule in each, and by the linear stigmas; from *Scindapsus* by their flattened filaments; and from each by the persistent spathe. The leaves of some of the species are perforated with holes, for an account of which see *SCINDAPSUS*. [M. T. M.]

RHAPHIOLEPIS. A genus of evergreen bushes belonging to the *Rosaceæ*, and numbering three species found in China and Japan. They are nearly allied to *Crataegus*, but are readily distinguished by the flowers being disposed in racemes or panicles in-

stead of cymes, as well as by the funnel-shaped calyx, the upper free portion of which falls off when the flower withers. *R. indica*, varieties of which are known in our greenhouses as *rubra*, *salicifolia*, and *phacostemon*, is a nearly smooth evergreen bush, having alternate ovate or lance-shaped leaves, and short terminal panicles of white or pink-tinted flowers, the size of those of the hawthorn. These have a calyx-border of five narrow segments, five petals, numerous stamens, and two styles crowning a two-celled ovary, which when ripe is a small black berry with two cells and one or two seeds in each. *R. japonica* is a beautiful large-leaved species forming, according to Siebold, a bush from six to ten feet high, and commonly cultivated by the Japanese, who plant it either with azaleas and other bushes, or singly, as it forms a beautiful object when covered with its innumerable bouquets of dark red flowers. The generic name refers to the narrow bracts, which are often seen on the panicles mixed with the flowers. [A. A. B.]

RHAPIS. The genus *Rhapis* is closely allied to *Chamaerops* in its botanical characters, and belongs to the same section of *Palmaceae*, but it differs in general appear-



Rhapis flabelliformis.

ance, the four or five species referred to it, all of which are confined to Eastern Asia, being of dwarf habit, and having thin reed-like stems growing together in dense tufts rising from the same roots. Their leaves are fan-shaped but deeply cut into segments, which are usually toothed at the top, and the sheathing-bases of their stalks are split into a fibrous network. The flower-spikes have spreading branches, and their stalks are sheathed in incomplete spathe. Some plants bear flowers of only one sex, while others have both sexes and also perfect flowers. The latter have

a cup-shaped shortly trified calyx, a tubular or bell-shaped trified corolla, six stamens with thread-like filaments and egg-shaped anthers, and three distinct ovaries, all or only one or two of which ripen into one-seeded fruits.

R. flabelliformis is commonly called the Ground Rattan Palm, and is said to yield the walking-canes known by that name in this country; but as its stems are seldom more than three or four feet high and not much thicker than the finger, this is probably a mistake, though it is possible they may be the produce of one of the larger species. It is a native of Southern China, and is also cultivated in Japan, where it is known by the name of Kwaiwortsk, and in European gardens plants of this species from Japan are sometimes called *Rhapis Kwaiwortsk*. [A. S.]

RHAPONTIQUE. (Fr.) *Rheum Rhaponticum*.

RHAPONTICUM. A genus belonging to the thistle-tribe of the *Compositae*, and comprising nine species distributed over Southern Europe and Northern Africa, Siberia and Manchuria. Some of them have the aspect of *Centaurea*, but the florets are all equal and perfect. They are related to *Serratula*, but differ in the membranaceous tips of the involucreal scales; and to *Leucoseris*, from which they are recognised by the rough instead of feathery pappus-hairs. All are perennials, and the stems (which in a few are three to five feet high and slightly branched) are furnished with lance-shaped or pinnatifid leaves usually clothed with white down underneath; while the large knapweed-like yellow or rose-coloured flower-heads, sometimes as much as two inches across, are solitary at the ends of the twigs. *R. acutius*, an Algerian species, has a rosette of pinnately-parted much-cut leaves lying close on the ground, and seated in their midst a large head of yellow flowers which smell like those of the sweet *Acacia Farnesiana*. The root also, according to Desfontaines, is eatable and not unpleasant to the taste. [A. A. B.]

RHAPTOSTYLUM. A name given by Kunth to a South American tree which has been since shown to be a species of *Hesperia*.

RHATANY. The root of *Krameria triandra*. —, **SAVANILLA.** The root of the New Grenada variety of *Krameria lina*.

RHAZYA. The two species of this genus of *Apocynaceae* are small shrubby plants, with alternate entire short-stalked leaves, natives of South-western Asia. Their flowers have a five-parted calyx; a corolla with a long tube and five egg-shaped or oblong lobes, the tube being wide in the middle and constricted at the top and hairy inside, particularly in the throat, but destitute of scales; five stamens rising from the middle of the corolla tube, with very short filaments and longish anthers; two ovaries connected at the bottom; and a style bearing a roundish stigma, and

girded by a reflexed cup-shaped membrane. Their fruits consist of a pair of erect tapering follicles, containing a number of flattened seeds.

R. stricta is widely distributed through Western Asia, from Yemen in Arabia to the North-west Provinces of India. Its leaves, which are very bitter, are collected and sold in the bazaars in Schinde, the natives using them in the preparation of cool drinks in the hot weather. It is a stiff-growing plant with erect stems two or three feet high, and upright thickish smooth leaves, placed rather close together on the stem. [A. S.]

RHEA. *Böhmeria nivea* and *B. utilis*.

RHEEDIA. A genus of trees or shrubs found in Madagascar and tropical America belonging to the *Clusiaceae*, and numbering about nineteen species, most of which were formerly included in the Asiatic genus *Garcinia*, from which they differ in having a calyx of two instead of four rounded sepals to each flower. They have opposite stalked entire leaves, with lance-shaped or ovate oblong blades very leathery in texture and sometimes a foot in length; and the flowers are small, white or greenish, the males and females on the same or on different trees, and arranged in clusters in the axils of the leaves: the sterile with numerous free stamens, and the fertile with a three to five-celled ovary crowned with a shield-like stigma, succeeded by ovoid berries with few seeds. The fruits of the Wild Mamee of Jamaica, *R. lateriflora*, are one to four inches long, yellow when ripe, and have a pleasant acid taste, as have also those of *R. edulis*, a Panama species with fruits the size of hazel-nuts. [A. A. B.]

RHETSA-MAUN. A name used by the Telings for *Xanthoxylon Rhetsa*.

RHEUM. The technical name of the genus more familiarly known as Rhubarb. It is said to be derived from *Rha*, the ancient name of the Volga, on whose banks the plants grow; but according to others it comes from the Greek *rheo* 'to flow,' in allusion to the purgative properties of the roots. The genus is included in the *Polygonaceae*, and consists of several species, natives for the most part of Central Asia. They are perennials, with large rootstocks, from which the large sheathing leaves and flower-stalks are given off. The inflorescence consists of much-branched panicles bearing a great number of whitish greenish or pinkish flowers, which have a petaloid six-parted perianth, enclosing nine stamens attached to its base. The three-sided ovary is surmounted by three spreading styles. The three-cornered fruit is winged and encircled at the base by the withered remnants of the perianth.

Owing to the fact that great part of the district where the plants grow is as yet unexplored by travellers, and to the jealous reticence of the Chinese, the exact species yielding the best medicinal Rhubarb is not known with anything like certainty. What is known in English commerce as the best

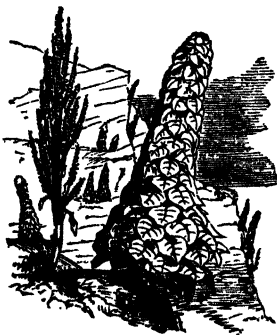
Turkey Rhubarb in reality comes from China through Russia by way of Kiachta. It was formerly imported from Natolia, whence the name Turkey Rhubarb. The root is said by Pallas to be dug up in the summer, washed, bored with a hole, strung on a thread, and dried in the sun. In this state it is sent to the chief towns of China and to the Russian frontier-town Kiachta: at the latter place the drug undergoes careful examination by the agents of the Russian Government, and all inferior or decayed specimens are rejected. The odour of the best samples is so delicate, that it is stated that the assistants in the wholesale drug-warehouses are not permitted to touch it without gloves. The pieces are covered with a fine yellow powder, and when broken present a mottled red-and-yellow colour, owing to the passage of a number of wavy carmine-coloured streaks through the yellowish-white matrix. Here and there are small spots of a darker colour.

The best Rhubarb has a bitter astringent and somewhat aromatic taste, and feels gritty to the teeth owing to the abundance of small crystals of oxalate of lime which are contained in it. Genuine powdered rhubarb of this description is rarely to be had, being generally mixed with the powder of inferior sorts, such as Chinese and English Rhubarb; the latter being principally grown near Banbury in Oxfordshire, and the species being *R. Rapaonticum*. It is chiefly used to adulterate the more highly-priced rhubarb and is the sort sold by itinerant vendors, some of whom carry the delusion still further by arraying themselves in Oriental costume. English Rhubarb is of a light spongy texture; its taste is astringent and mucilaginous, but destitute of the aromatic and gritty qualities possessed by the more highly-esteemed kinds. It is probable that with greater care in the preparation, this kind might be looked upon with more favour, as it appears that there is very little difference in the medicinal effects of home-grown and foreign Rhubarb. In the Himalayas *R. Emodi* and *R. Webbiana*, and possibly other kinds, furnish Indian Rhubarb, which however is not esteemed in this country.

Rhubarb is largely employed medicinally as a mild purgative, in addition to which its tonic and slightly astringent properties render it useful as a stomachic in cases of indigestion. These properties are said to be due to the presence in the drug of certain resinous and crystalline substances. Several species and varieties are cultivated in this country for the sake of their leaf-stalks, which form so agreeable a substitute for fruit in pastry, etc. The leaves themselves are made use of in the fabrication of nectitious cigars and tobacco. The shape of the hairs however, as seen under a microscope, is amply sufficient to enable the observer to detect the presence or absence of tobacco, but it is not so easy to determine the source of the fraudulent admixtures. Some of the species are very handsome owing to the boldness of their foliage and the elegance of their inflorescence. They

have not however found much favour in an ornamental point of view.

One Sikkim species mentioned by Dr. Hooker has such a singular and showy appearance that its introduction into this country is greatly to be desired. Dr. Hooker thus describes the plant:—'The individual plants of *R. nobilis* are upwards of a yard



Rheum nobilis.

high, and form conical towers of the most delicate straw-coloured shining semitransparent, concave imbricating bracts, the upper of which have pink edges; the large bright glossy shining green radical leaves, with red petioles and nerves, forming a broad base to the whole. On turning up the bracts the beautiful membranous fragile pink stipules are seen like red tissue-paper, and within these again the short-branched panicles of insignificant green flowers. The root is very long, often many feet, and winds among the rocks; it is as thick as the arm, and bright yellow inside. After flowering, the stem lengthens, the bracts separate one from another, become coarse red brown, withered and torn; finally, as the fruit ripens they fall away, leaving a ragged-looking stem, covered with panicles of deep-brown pendulous fruits. In the winter these naked black stems, projecting from the beetling cliffs or towering above the snow, are in dismal keeping with the surrounding desolation of the season. The natives, it is said, eat the pleasantly acid stems and call them *Chuka*.

[M. T. M.]

R. Rapaensis and its varieties form the common Rhubarb used for culinary purposes. It is a hardy perennial found on the borders of the Volga River, and has been grown in this country since 1672. The plant has large broad heart-shaped smooth deep-green leaves, strongly veined beneath. The footstalks are long, thick and fleshy, channelled above, and rounded at the edges. *R.*

acutum also yields some of the forms of

garden Rhubarb, especially those with red leafstalks.

In Queen Elizabeth's time Rhubarb-leaves were used as a potherb, and considered superior to spinach or beet. The use of the tender leafstalks is comparatively of modern date; for although they are now so common during the spring and early part of summer, it was not until the beginning of the present century that they came to be employed for tarts, and were found so valuable for various other culinary preparations. They are excellent, either stewed alone, or with rice; and a capital preserve has been made from them, in the form of a jam which is equal in flavour to that made from currants. When too large and old for cooking they undergo a process by which the juice is expressed from them and made into a delicious wine similar to that from green gooseberries, and closely resembling champagne; indeed, it may be suspected that much of the so-called champagne commonly drunk is no other than a preparation from the stalks of Rhubarb. The juice is stated to contain oxalic acid, as well as nitric and malic acid in abundance; and it is these which give an agreeable taste to the stalks when cooked, but which render them ill-suited to persons of weak digestion.

In the *Gardener's Chronicle* for 1846 (p. 5) Mr. A. Forsyth first directed attention to another part of Rhubarb as being suited for culinary purposes, and to which he gave the name of Rhaflower. This is the large globular pouch of unopened flowers, which is described as being of a beautiful colour when dressed in the same manner as Rhubarb, of a milder flavour, and forming altogether a dish of great delicacy. [W. B. R.]

RHEUMATISM-ROOT. *Jeffersonia diphylla*.

RHEXIA. A small North American genus of *Melastomaceae*, the species of which are low perennial often bristly herbs, commonly called Deer-grass, or Meadow-beauty, and have sessile three to five-nerved bristle-edged leaves, and large showy cymose flowers. It has an urn-shaped calyx-tube and four persistent teeth shorter than the tube; four obovate somewhat retuse petals; eight equal or nearly equal stamens, with mostly narrow curved blunt one-pored anthers, somewhat thickened at the base and prolonged beyond the insertion of the filament, above which they are nearly always armed with a sharp spur or a tubercle; and a four-celled ovary, adherent at its base. Its fruit is invested by the permanent calyx, and contains numerous seeds of a coiled pyramidal form, like a snail-shell. [A. S.]

RHIGOZUM. A South African genus of *Bignoniaceae*, in which it is remarkable for having five or rarely six to seven perfect stamens to the flower, instead of four fertile and one sterile, as is usually the case. The two known species, *R. trichotomum* and *obovatum*, are rigid bushes, with short lateral branchlets terminating in spiny points, and furnished with ternate leaves

having obovate entire leaflets. The flowers, arising from the axils of the leaves, are

three-quarters of an inch across. The fruits are thin compressed elliptical capsules with two cells, separated from each other by a partition which runs contrary to the boat-like valves; and each cell has a number of flattened orbicular winged seeds. [A. A. B.]

RHINACANTHUS. A genus of *Acanthaceae*, containing a few Indian species, all of them having the habit and structure of *Justicia*, except that the small white flowers are arranged in trichotomous terminal spikes. The roots of *R. communis*, better known as *Justicia nasuta*, are used by the Hindoos for the cure of ringworm. [W. C.]

RHINACTINA. This genus, belonging to the same group of *Compositae* as *Aster*, differs from that in the rough pappus-hairs being in two series, the outer shorter than the inner; and from its nearer ally, *Diplopappus*, in the tubular forets of the disk being somewhat two-lipped instead of regularly five-toothed, one of the lips four-toothed, the other narrow and undivided. There are two species, *R. uniflora* and *R. lanosifolia*, both natives of desert regions along the Altai mountain range. The first is a tufted nearly stemless perennial, with a rosette of spatulate hoary leaves, and a short flower-stalk bearing a single purple-rayed flower-head; the other has branching stems six to eight inches high. [A. A. B.]

RHINANTHACEÆ. An order of dicotyledons, originally established by Jussieu under the name of *Pediculariæ*, and adopted by many subsequent botanists with some modifications under that of *Rhinanthaceæ*, but now with general assent incorporated with *Scrophulariaceæ*.

RHINANTHERA. *Scotopia*.

RHINANTHUS. A genus of European annuals belonging to the *Scrophulariaceæ*, of which the characters are:—Stamens four, two longer than the others; calyx with four divisions; upper lip of corolla compressed laterally; calyx inflated. *R. Crista galli*, the Yellow Rattle, is a common weed in meadows and pastures, with a rigid smooth spotted stem, either simple or branched, oblong tapering serrated leaves, and yellow flowers in the axils of the upper leaves; these are made conspicuous by the large light-green inflated calyx, which is persistent, and if brushed against or shaken when the seeds are ripe makes a rattling noise; hence the name. *R. angustifolius* grows in cornfields in the North of England, and is distinguished by its more bushy habit, and by the acuminate bracts and upper leaves. French: *Cocarde des prés*; German: *Hahnenkamm*. [O. A. J.]

RHINOCARPUS. The name often given to a noble tree of Columbia and British Guiana, where it is called the Wild Cashew. Like the common cashew, which it much

resembles, it belongs to the genus *Anacardium*. It grows to a height of 160 feet, yields an excellent tough durable timber, and a pleasant edible fruit like the cashew. In Panama, according to Seemann, the tree is called Espave, and its bark is said to be used in stupefying fish. Caracoli is the name of the tree in New Grenada: see *ANACARDIUM*. [A. A. B.]

RHINOPETALUM. A liliaceous plant from the Ural Mountains, with the bulb and habit of a small *Fritillaria*, but differing from that genus in the simple undivided stigma. It has not the beauty of the majority of its allies.

RHIPIDODENDRON. By some writers separated from the genus *Aloe* in consequence of the stamens not being adherent to the tube of the perianth. The species are natives of the Cape of Good Hope, and have a woody forked stem, bearing towards the extremities of the branches a number of closely-packed fleshy tongue-shaped leaves, arranged in two rows on either side of the branch, so that a fan-like appearance is presented by them: whence the name, from the Greek words signifying 'fan-tree.' The Hottentots extract a kind of aloes from the leaves, and employ the stems as quivers for their arrows. [M. T. M.]

RHIPIDOPTERIS. A small group of ferns of the section *Acrosticheæ*, allied closely to *Polybotrya* in their free veins and wholly fertile fronds, but differing altogether in habit and aspect. They are curious little creeping plants, with small fronds from one to three inches high, the sterile ones flabellately parted and dichotomously wedge-shaped, and the fertile ones either roundish and entire, or two-lobed. The veins are flabellately forked. They are confined to the West Indies and South America. [T. M.]

RHIPSALIS. One of the genera of *Cactaceæ*, with rotate or wheel-like flowers, that is, flowers with wide-spreading segments and scarcely any tube. The segments in the present genus vary from twelve to eighteen, the outer ones or sepals being small greenish and scale-like, and the inner or petals larger and whitish. Its flowers contain numerous stamens of nearly equal length, and a narrow style bearing a three to six-rayed stigma; and they are succeeded by little smooth berries about the size of peas, bearing the withered remains of the flowers and becoming pelucid when ripe. It consists of a considerable number of small fleshy jointed-branched leafless plants, usually growing upon trees but varying considerably in general appearance, some having cylindrical and others angular stems and branches, while those of others, again, are flat and leaf-like; the flowers are produced from the sides of the branches, or from little notches along the edges in the flat-branched kinds. All the species are natives of the warmer parts of the Western Hemisphere, extending from Mexico to Buenos Ayres. Several are met with in hothouses in this country.

E. Cassytha is a common species in the West Indies, where it grows from one to six feet long, and hangs from the branches of trees. It has whorls of cylindrical branches with blunt ends, the ultimate branchlets being about three inches in length. *E. platycarpa*, a native of Brazil, has flat leaf-like branches resembling those of the genus *Phyllocactus*, the joints being from four to eight inches long and about one-and-a-half broad, with small distant notches from which the dirty white flowers are produced. [A. S.]

RHIZANTHÆ. One of the five classes into which Lindley divides the vegetable kingdom. It consists of plants destitute of true leaves, but with short amorphous stems parasitical on roots. The flowers, which in some instances are very large, are various in their structure; and the three orders composing the class, the *Balanophoraceæ*, *Cytinaceæ*, and *Rafflesiaceæ*, are by some botanists placed far from each other in the vegetable system.

RHIZINA. The young roots of mosses and lichens.

RHIZOBLASTUS. A term applied to embryos which develop roots.

RHIZOBOLACEÆ. (*Rhizobols*.) A small order of dicotyledons, consisting only of the two genera *Caryocar* and *Anthodiscus*, which have been compared with *Clusiaceæ* on account of the extraordinary size of the radicle of the embryo with very minute cotyledons, and the opposite leaves of one genus. The leaves are, however, alternate in the other genus, and the structure of the flowers is so nearly that of *Ternstroemiaceæ*, among which there is sometimes an approach to the same disproportion in the parts of the embryo, that the *Rhizobolaceæ* are now proposed to be considered as a tribe of that order, differing both from it and from *Clusiaceæ* in their digitately compound leaves. The few species known are all tropical American trees.

RHIZOBOLUS. *Caryocar*.

RHIZOCARPÆ. The same as *Marsileaceæ*.

RHIZOCARPOUS, RHIZOCARPICUS. Having a perennial root, but a stem which perishes annually; as herbaceous plants. The sign of these is χ .

RHIZOGENS. *Rhizanthem*.

RHIZOGLOSSUM. *Ophioglossum*.

RHIZOID, or RHIZOIDEOUS. Resembling a root.

RHIZOMA, RHIZOME. A prostrate rooting stem, progressively throwing up leaves. The name is applied among ferns to the creeping stem, which may be either superficial or covered with the soil, and in such a case must not be confounded with the true roots. The fronds are sometimes articulated with the rhizome, and such ferns are called by Smith *Stemobrya*; sometimes they are permanently attached, and

the ferns in which this is the case are called *Stemobrya*. The distinction is, however, not of the same importance as in phanerogams; and if this character were adopted as distinctive, closely allied genera would be widely separated. The rhizomes of ferns, like real stems, exhibit very different arrangements of their several constituent tissues. When these differences have been more extensively studied, they will very probably afford good characters for sectional divisions. For an account of these we refer to Berkeley's *Introduction to Cryptogamic Botany*, p. 514. [M. J. B.]

RHIZOMANIA. An unnatural development of roots. Many plants, as ivy, screw-pines, figs, &c., without any indication of disease whatever, send out roots from various parts in the same way as trees so commonly produce adventitious buds. In the common garden fig, wherever it is nailed to the wall, roots are sent out within the band which surrounds the stem. Their development, however, as in the vine and common laurel, usually indicates something wrong about the ordinary roots, in consequence of which sufficient moisture is not supplied to the stems and leaves, and rootlets are thrown out from the stem in search of it. In the laurel this generally ends in death. Roots again are frequently developed in little bundles on the stems of apple-trees; and as they retain moisture amongst them, and their tips in process of time decay, decomposition is set up, extending inwards till canker is produced. [M. J. B.]

RHIZOMORPHA. A spurious genus of *Fungi*, comprising a great number of root-like productions which are nothing more than particular states of *Polyptori*, *Hypoxylia*, &c. Many of these owe their peculiar flattened character to the circumstance of their growing between the bark and wood of our forest trees, and thus being strongly compressed in the course of their growth. Other matters have been referred to the same genus, which are merely the roots of willows, elms, &c., or even of herbaceous plants filling up drain-tiles or other cavities where there is a constant supply of water. Fries indeed thinks that there is one good species of *Rhizomorpha* produced in mines, a bad situation for an autonomous plant. One great peculiarity of the supposed species which grow in mines, or of some of them at least, is their highly luminous character, which is not exceeded by *Agaricus olearius*, or any other luminous fungus. In the coal-mines near Dresden the species are described as giving those places the air of an enchanted castle; the roof, walls, and pillars are entirely covered with them, their beautiful light almost dazzling the eye. The light (which is apparently phosphorescent) is found to increase with the temperature of the mines. [M. J. B.]

RHIZOMORPHOUS. Resembling a root.

RHIZOPHORACEÆ. (*Rhizophoræ*, *Man-groves*.) An order of polypetalous dicotyledons, belonging to Lindley's *Myrtal* alliance, and

allied to *Combretaceae* and *Lythraceae*. It consists of tropical trees or shrubs, with opposite entire leaves, and axillary flowers, either solitary or in cymes or clusters. The calyx is often superior, with the lobes always valvate; the petals inserted on the calyx are often fringed or divided; and the stamens as many or twice as many as the petals, rarely more. Inserted within them with erect anthers. The ovary has two or more cells; and the fruit, either inferior or enclosed in the calyx, has one or few seeds. The order contains about fourteen genera and is divided into two distinct tribes: *Rhizophoreae* proper consisting of the genus *Rhizophora*, and a few small ones separated from it, all maritime trees known as mangroves, whose seeds are without albumen and almost always germinate before falling off; and *Legnoidae* (which see), trees or shrubs not strictly maritime, with usually smaller flowers, and albuminous seeds not germinating before they fall. The chief genera of this tribe are *Caesalpinia*, *Gynotroches*, and *Austrorharia* in Asia and Africa, and *Cassipourea* in America and Africa.

RHIZOPHORA. This genus gives its name to the family *Rhizophoraceae*, and is more familiarly known by that of Mangrove. The species are trees, inhabiting the muddy swamps close to the sea-shore in tropical climates. Botanically they are distinguished from neighbouring genera by their four-parted calyx, four sharply-pointed petals, eight to twelve stamens, with short filaments and anthers containing several little pits filled with pollen, and a partially adherent ovary, the adherent portion containing two cavities each containing two ovules, and the free portion solid fleshy and gradually tapering into a style.

Their chief interest, however, arises from their peculiar mode of growth and of germination. Dr. William Hamilton has published an interesting account of them in the *Pharmaceutical Journal*, from which we extract the following: 'In the economy of Nature the Mangrove performs a most important part, wresting annually fresh portions of the land from the dominion of the ocean, and adding them to the domain of man. This is effected in a twofold manner: by the progressive advance of their roots, and by the aerial germination of their seeds, which do not quit their lofty cradle till they have assumed the form of actual trees, and drop into the water with their roots ready prepared to take possession of the mud, in advance of their parent stems. The progression by means of the roots is effected by fresh roots, which issue from the trunk at some distance above the surface of the water, and arching downwards penetrate the mud, establishing themselves as the pioneers of fresh invasions of the retiring element. In this manner the plants, after their descent from the parent trees, continue during their early years to advance steadily forward, till they have attained a height of

about fifteen feet, and gained a position considerably in advance of their parent trunks. After this, fewer additions are made to the roots, but the head begins to expand in every direction, spreading its branches on all sides. These branches in their turn send down long slender roots, like those of the banyan-tree (*Ficus indica*), which rapidly elongating descend from all varieties of height, and reaching the water penetrate the mud, becoming in time independent trees: thus a complicated labyrinth is at length formed.'

These mangrove-trees are the certain indicators of a malarious locality, inasmuch as they prevent the escape of the unhealthy miasma. The natives scramble along from root to root, without ever trusting their weight to the boggy soil below. To these roots the oysters and other molluscs adhere, and are brought into view as the tide goes down, thus verifying the statement of old travellers that oysters grew on trees.

All parts of these trees contain an abundance of tannin, and hence they are very serviceable to tanners. The bark is likewise employed by dyers, yielding with salts of copper and iron, olive, brown, rust and slate-coloured tints. The bark has also been used medicinally as an astringent remedy. In the West Indies and the Mauritius the leaves and roots of some of them are employed by the fishermen as poultices for wounds caused by certain fish and venomous animals.

The fruit of *R. Mangle* is said to be sweet and edible, and the fermented juice to be made into a kind of light wine. In Borneo mangroves furnish the best firewood, and a coarse bitter salt is extracted from their aerial roots. In the Philippines, and also in the West Indies, the bark of some of the species is used as a febrifuge. The genus well deserves its technical name of root-bearer. [M. T. M.]

RHIZOPHYLLUM. A name proposed by Newman for the *Polypodium* referred to *Phlebodium* and *Placopeltis*.

RHIZOPOD, or RHIZOFODIUM. The mycelium or spawn of fungi.

RHIZOPOGON. A genus of hypogaeous Fungi, agreeing with *Melanogaster* in having root-like fibres running over the surface, though not moist within, but dry like a piece of porous bread-crumbs. We are not aware that the British species are eaten, though sometimes produced in abundance. *R. provincialis* is greedily devoured by the peasants in Provence. One species is found in the United States, and the genus occurs also at the Swan River. [M. J. B.]

RHIZOS. In Greek compounds = root.

RHIZOSPERMA. *Asolla*.

RHIZCLA. The young root of mosses and lichens.

RHODACTINIA. The well-known *Barnadesia rosea* has been separated from the others of that genus under this name. It differs from *Barnadesia* in having straight

instead of spirally twisted hairs on the receptacle, free in place of monadelphous stamens, and no central tubular florets: see *BARNADESLA*. [A. A. B.]

RHODALSINE. A genus of *Caryophyllaceae*, proposed for *Alsine procumbens*, which differs from the other species of the genus in having the cotyledons accumbent not incumbent. It is a small glandular plant inhabiting the Mediterranean region; and has oblong leaves, and small flowers with entire rose-coloured petals, ten stamens in two rows, three styles, and compressed kidney-shaped seeds. [J. T. S.]

RHODANTHE. A beautiful genus of *Compositae*, found in Western Australia. The only species is *R. Manglessii*, of which there are several varieties differing from each other mainly in the size and colour of their flower-heads, which have the dry character of what are commonly called 'everlasting flowers.' It is an annual plant, rising from a foot to a foot and a half high, with an erect branching stem, oblong blunt entire stem-clasping leaves of a glaucous green colour, and flower-heads on slender stalks arranged in a corymbose manner. The flower-heads have a top-shaped involucre of numerous dry scales, which are small and silvery at the base, but gradually increase upwards in size and depth of tint till they become radiate and of a colour varying from pale rose to deep purple. Each head contains numerous florets, all similar and borne upon a naked receptacle, the florets themselves having a five-cut tubular corolla, and a pappus of distinct feathery bristles in a single row. The achenes are woolly and beakless. By some the plants called *atrosanguinea* and *maculata* are regarded as distinct. [A. S.]

RHODEA (or **ROHDEA**) *jaпонica*. A curious Japanese monocotyledon formerly described as an *Orontium*, of which it has somewhat the appearance, but from which it is widely different in structure. It constitutes a genus of *Liliaceae* of the tribe *Aspidistree*, remarkable for the flowers and afterwards the baccate fruits being densely aggregated in a compact oblong spike, resembling the spadix of several *Aroidae*.

RHODES-WOOD. The Candelwood of the West Indies, *Amyris balsamifera*.

RHODIOLA. A succulent herbaceous perennial, which by some authors is separated from *Sedum* on account of its bearing fertile and barren flowers on distinct plants. *R. rosea*, the Rose-root, may be considered as a species of *Sedum* with plane leaves and a thick root, having the habit of *S. Telephium*. It grows on wet rocks on the high mountains of Scotland and the North of England and Ireland, as well as on scree-cliffs. The stems are unbranched, about a foot high, the leaves broad thick fleshy and glaucous, and the flowers yellow, crowded at the summit of the stem. The root, when bruised and even when dried, yields a scent like that of a rose. The Rose-root is the badge of the clan Gunn. [C. A. J.]

RHODO. In Greek compounds = red.

RHODOCALYCE. (Fr.) *Rhodochiton*.

RHODOCHITON. A genus of *Scrophulariaceae*, founded on *R. volatile*, a climber from Mexico, which differs little from *Lophospermum*, except that the calyx is less divided and the corolla is not so open, and has the two lips cut into nearly equal segments. [W. C.]

RHODOCHLAMYS. A genus of *Labiatae*, the leading characters of which are: Calyx inflated, the upper lip entire, the lower bifid; tube of the corolla inflated about the middle, its upper lip short and entire, the lower tricrenate; filaments of the lower pair of stamens dilated and partly joined. *R. speciosa* is a Mexican shrub with red flowers, hoary and glandulose above. The name is from the Greek words signifying 'red' and 'a covering,' in allusion to the appearance of the corolla. [C. D.]

RHODOCOMA. A genus proposed by Nees for a species of *Restiaceae* from the Cape Colony, but which is probably not sufficiently distinct from *Elegia*.

RHODODENDRON. The generic name of a group of showy plants belonging to the *Ericaceae*. In their flowers the corolla is funnel-shaped, sometimes slightly irregular, five-lobed; and the stamens are ten in number, rarely fewer, and usually declined.

The species are shrubs or low trees, with entire alternate leaves, and showy clusters of flowers. The name is from the Greek, and literally means 'rose-tree.' The plants of this genus have been long favorably known to cultivators, combining, as most of them do, beauty profuseness and fragrance of flower with handsome foliage. Some also have the additional recommendation of bearing a succession of flowers for a considerable time: *R. Madderi*, for example, flowering for eight or more weeks. The flowers of *R. Edgeworthii* attain a diameter of five inches, are white with a shade of delicate pink, and so fragrant that a few are sufficient to scent a large room. The snow-white flowers of *R. Griffithianum* present a beautiful contrast with the large leaves, six to twelve inches long, which are bright-green with a pale-yellow edge.

In the size attained by the species there is a wide contrast. The small and humble *R. lapponicum* is a prostrate shrub, with branches a few inches long; while *R. Rolissonii* of Ceylon attains a height of thirty feet, and a girth of four feet; and *R. Falconeri* is sometimes fifty feet high, with leaves nineteen inches long.

The genus is widely diffused: *R. lapponicum* occurs in the Arctic Zone, *R. maximum* and *R. catawbiense* are plentiful in some parts of North America. The genus has also representatives in Europe and in China, but in India we find the greatest number. Dr. J. D. Hooker observed forty-three species in Sikkim, most of which were new; and in Bhotan they also abound. *R. lapponicum* is one of the brightest

floral ornaments on the shores of Davis's Straits near the sea-level; on the other hand *R. niale*, the most alpine of woody plants, flourishes at an elevation of 17,000 feet. Respecting it and some others Dr. Hooker reports the following interesting facts:—*R. niale* ripens its fruit in two months; *R. anthopogon*, at 13,000 to 14,000 feet, requires four months; *R. campanulatum*, at 11,000 to 12,000 feet, six months; and *R. argenteum*, at 8,000 to 9,000 feet, eight months. Some are epiphytes or false parasites, growing attached to the stems of other plants. Such is the *R. Brookeanum* of Sarawak, whose large fleshy roots are admirably suited to such a habitat.

As regards properties, some are looked on with suspicion. It is long since poisonous qualities were attributed to honey collected by bees from flowers of *R. ponticum*, and the same is reported of some Indian species. Goats are said to die after eating the leaves of *R. cinnabarinum*; and when used as fuel it produces swellings of the face and inflammation of the eyes. Notwithstanding this, a jelly is prepared in India from the boiled-down flowers of *R. arboreum*. The Siberian *R. chrysanthum*, of which a figure is given, is narcotic in its properties and is used medicinally.

The discoveries of Dr. J. D. Hooker have added greatly to our knowledge of the species, and enriched our collections with several which are highly prized by cultivators. *R. ciliatum* may be mentioned as an example; it grows in the rocky valleys of Sikkim, at 9,000 to 10,000 feet elevation, and of all Indian species is probably most easily cultivated; while its moderate size and abundant flowers are further recommendations. The process of hybridising has been extensively used between species of this genus—for example, between *R.*

known representative of a genus of *Chimnaceæ* peculiar to Madagascar. It is a climbing shrub, the fruit of which is unknown; and has oval leaves, axillary peduncles and large purple flowers, with three sepals, six petals, an indefinite number of stamens, quadrangular anthers, and a three-celled ovary, containing numerous ovules in each cell. [B. S.]

RHODOLEIA *Championi* is a beautiful shrub or small tree, a native of the island



Rhodoleia Championi.

of Hong-Kong, forming a genus of *Hamelidaceæ*, allied to *Bucklandia*, but remarkable for the flower-hands being surrounded by several rows of imbricated bracts, whilst the bright pink petals of all the five or six flowers of the head are arranged round the circumference, giving it the appearance of a *Camellia*, e.g. *C. hongkongensis*. The evergreen coriaceous leaves, too, are also not unlike those of some *Camellias*. The plant was introduced a few years since, and has flowered at Trentham. A second species of the genus has been found in Java.



Rhododendron chrysanthum.

ciliatum and *R. Edgeworthi*, *R. formosum* and *R. Dalhousie*; but we must refer to professedly horticultural treatises for details respecting the results in such cases. The beautiful epiphytall *R. Dalhousie*, just mentioned, is represented in its natural habitat in Plate 1.

[G. D.]

RHODOLÆNA *alticola* is the only

RHODOMELACEÆ. A natural order of rose-spored *Algae*, belonging to the division in which the spore-threads are tufted. The nucleus is lodged in an external oval or globose conceptacle, which is hollow and has the placenta at the base; and the spores are confined to the terminal cell of the spore-threads. *Rhodomelaceæ* are either jointed, or have a jointed many-tubed axis, and the surface divided into little areas. It contains some of the most beautiful genera, and especially *Amanzia*, while others are dark in colour and inelegant. Several of them contain many species, *Polysiphonia* numbering two or three hundred. *Odonthalia dentata*, one of our most beautiful *Algae*, does not extend further south than the Isle of Man; while some genera, as *Amanzia*, are tropical and subtropical, and others have representatives in every part of the globe. Some are attached to peculiar plants. For example, wherever we find *Fucus nodosus* we are sure to find *Polysiphonia fastigiata*. [M. J. B.]

RHODOMYRTUS. This genus of *Myrtaceae* differs but little from *Myrtus*, except in the flowers, which are rose-coloured (whence the name); and in the seeds, which are compressed, flat, and arranged in two rows in each of the compartments of the fruit. *R. tomentosa*, a native of the Nellgherry Hills and of China, is the common Hill Gooseberry of India. It much resembles the common myrtle, save in the colour of the flowers, and in the fact of the leaves being downy on their under-surface. [M. T. M.]

RHODORA. *Rhododendron*.

RHODORRHIZA. A small genus of *Convolvulaceae* confined to the Canary Islands, and by most authors regarded as identical with *Convolvulus*. It derives its name from the rose-like smell peculiar to the rootstocks and lower part of the stems, which yield a kind of Rosewood (*lignum rhodii*). From them is extracted by distillation the powerfully-scented oil known as *Oleum ligni Rhodii atherense*, used in some countries for ointment, but more frequently for the adulteration of attar of roses. This Rosewood is called by the French Bois des Rhodes des Parfumeurs, and must not be confounded with the so-called rosewood of commerce used for furniture. *Rhodorrhiza* is composed of two species: *R. scoparia* (*Convolvulus scoparius*) and *R. florida* (*Convolvulus floridus*), both having woody erect stems, linear leaves, terminal panicles of flowers, five sepals, a bell-shaped corolla, a single style bearing two stigmas, and a two-celled capsule, each cell of which has two or by abortion one seed. [B. S.]

RHODOSPETHA. A genus of *Orontiaceae*, comprising certain Peruvian herbaceous plants, throwing down roots from their trailing stems, having large leaves and very large rose-coloured spathe, whence the name of the genus. It differs from *Calla* and *Monstera* in the definite stamens, and in the structure of the fruit. [M. T. M.]

RHODOSPERMEÆ. The Rhodosperms form one of the three great divisions of *Algae*, distinguished by their rose-coloured spores, which are of two kinds—the one contained in capsular bodies of various structure and denomination, external or immersed; the others of spores, always four together (tetraspores), formed by the cell-division of the endochrome of a single cell, which is generally globular, but sometimes cylindrical. Antheridia are also found in many genera, and probably are universal. One or two genera which are not of this group, as *Bangia* and *Porphyra*, have spores of a similar colour, but they have not the double fructification. It has been questioned which is the true fruit. At present the tetraspores are regarded as gemmæ not requiring impregnation.

The Rhodosperms divide naturally into two great tribes, *Desmiospermeæ* and *Gonyiospermeæ*, in the former of which the spores are formed in a joint or joints of the spore-threads; in the other they are

congregated without order in a hyaline mucous or membranaceous mother-cell. The genera depend partly on the structure of the frond, and partly on the nature of the fruit, whether capsular or tetraspored. It is to the younger Agardh especially that we are indebted for the present improved arrangement, which has been diligently followed out by Montagne, Harvey, and others. Kützinger also has done a good deal, but unfortunately has not clear notions as to the extent of genera and species. Rhodosperms are found in all parts of the world; but, like other bright-coloured productions, their maximum is attained in warmer climes, however abundant they may be elsewhere. [M. J. B.]

RHODOSTOMA. A genus of *Ochnaceae*, of which one species is in cultivation in hothouses, but whence obtained is doubtful. It is a small shrub, with smooth somewhat glossy leaves, white or pinkish flowers in terminal cymes, the small branches of which are of a rich flesh-colour. The five lobes of the calyx are reflected; the corolla is funnel-shaped, with a long tube concealing the stamens; the ovary is two-celled, adherent to the calyx, and surrounded by a fleshy disk. The plant is a pretty stove-shrub, and known under the name of *E. gardenioides*. [M. T. M.]

RHODOTHAMNUS. A genus of *Ericaceae*, distinguished by its wheel-shaped and five-lobed corolla, and by the ovary being two-celled, and when ripe opening through the backs of the cells into five valves. The only species has been long known as *Rhododendron Chamæcistus*, a small handsome shrub with solitary rose-coloured flowers, and alternate oval leaves. The generic name expresses the general reddish tint of the plant. [G. D.]

RHODYMENIA. The typical genus of the natural order of rose-spored *Algae*, *Rhodymeniaceae*, which are characterised by an articulate membranaceous frond composed chiefly of many-sided cells, the surface-cells forming a continual coating, and the nucleus lodged in an external conceptacle, and either single or compound; spores at first moniliform. *Rhodymenia* itself has a flat forked or irregularly cleft frond with a simple nucleus. *R. palmata*, which is common everywhere on our coasts, and is parasitical on *Fucus* and *Laminaria*, &c. in the United States, is the Dulce or Dillisk of the Scotch; and though tough and of a parchment-like texture, is not an unacceptable food to hungry men, as we have ourselves experienced in former days amongst the Western Islands, when travelling was not so easy as it is now. It varies much in width, and is sometimes wider than it is long. [M. J. B.]

RHOMBUS, RHOMBOID, RHOMBOIDAL. Oval, a little angular in the middle, as the leaf of *Hibiscus rhombifolius*.

RHOPALA. A proteaceous genus of trees or large shrubs, natives of South

America, having simple or pinnate coarse and generally toothed leaves, and flowers in axillary or terminal racemes, often covered with a rich brownish wool. These flowers have a straight cylindrical club-shaped calyx of four linear sepals, with concave apices, which become recurved; four stamens, one inserted above the middle of each sepal, with linear anthers; and a straight filiform persistent style having a club-shaped stigma. The seed-vessel is a woody or leathery oval two-seeded follicle, containing oblong compressed winged seeds. [R. H.]

RHOPALOSTYLIS. A name given by Klotzsch to a scandent bush of the *Euphorbiaceae*, found in Northern Brazil and Guiana, and better known to botanists as *Dalechampia micrantha*. It merely differs from *Dalechampia* in the leaves being undivided instead of more or less lobed; and in the sunk instead of projecting stigmas at the apex of the club-shaped style, which is much longer than the flowers. The ovate and alternate stalked leaves are smooth and five-nerved, while the inconspicuous flowers are borne on short axillary peduncles. [A. A. B.]

RHUBARB. *Rheum*. — **BUCHARIAN.** *Rheum undulatum*. — **ENGLISH.** *Rheum Rhaoticum*. — **FRENCH.** *Rheum Rhaoticum undulatum* and *compactum*. — **HIMALAYAN.** *Rheum Emodi* and *Webbianum*. — **MONK'S.** *Rumex alpinus*; also *R. Patensia*. — **POOR-MAN'S.** *Thalictrum flavum*. — **TURKEY.** *Rheum palmatum*.

RHUBARBE. (Fr.) *Rheum*. — **DES MOINES.** *Rumex Patensia*. — **DES PAUVRES.** *Thalictrum flavum*.

RHUS. A large and widely-spread genus of *Anacardiaceae*, found abundantly in the temperate countries of both hemispheres, especially in North America and at the Cape of Good Hope, and more sparingly within the tropics. The greater number of the species are shrubs from six to ten feet high, but some are low bushes, while others again grow to a considerable height and form trees. With few exceptions their leaves are compound, either composed of three leaflets or pinnate with a terminal leaflet. The Venetian Sumach and a few others, however, have simple leaves. Their flowers are small, and most frequently have only one sex perfectly developed; the male and female flowers sometimes occurring on separate trees, and very few species having uniformly perfect flowers. Their fruits are small, and are either nearly dry or slightly juicy, and contain a single bony one-seeded stone.

Most of the species of *Rhus* possess poisonous properties in a greater or less degree. Some American species indeed, such as *R. venenata* and *R. Toxicodendron*, produce effects almost rivalling those once

carrying a branch of one of these plants, and the swelling being accompanied with intolerable pain and inflammation, and ending in ulceration. These effects, however, are not felt by everyone, some people



Rhus Toxicodendron.

being able to handle the plants with impunity. *R. venenata*, called the Poison Sumach or Poison Elder, is a tall shrub with pinnate leaves composed of eleven or thirteen smoothish leaflets; while *R. Toxicodendron* is a rambling shrub, either trailing along the ground and rooting at intervals, or climbing up trees or on walls and attaching itself like ivy, and has leaves composed of only three leaflets.

Some species, however, yield useful products, such as *R. Coriaria*, the Tanning Sumach, which affords commercial Sumach or Shumac. This species is a native of the European countries bordering the Mediterranean, and when allowed to grow to its full size attains a height of fifteen or



Rhus Cotinus.

twenty feet; but in a cultivated state the young shoots are cut off annually for the sake of their leaves, and it is consequently seldom seen higher than four or five feet. Its leaves are hairy and composed of from

greatly swollen from simply touching or

five to seven pairs of leaflets and a terminal odd one, the leaflets somewhat resembling the leaves of the common elm. The Sumach of commerce is the finely-ground young leaves: it is extensively employed for tanning and dyeing purposes, from 12,000 to 18,000 tons being annually imported, chiefly from Sicily.

R. Cotinus, another South European species, called the Venus or Venetian Sumach, yields the yellow dyewood called Young Fustic, which in olden times was supposed to be the young branches of the true Fustic-tree (*Machura*). This is a shrub with simple smooth shining green leaves, and a very remarkable feathery inflorescence.

The Japan wax, which is occasionally imported into this country, is the produce of the fruits of *R. succedanea*, a small tree or tall shrub with smooth branches and leaves, the latter being pinnate, and consisting of from eleven to fifteen shining green leaflets from two to three inches long, and of an oblong form with a long taper point. *R. vernicifera*, another small Japanese tree, yields the famous lacquer so extensively employed by the inhabitants of that country for lacquering various articles of furniture and small-ware. It exudes from wounds made in the tree, and is at first milky-white, but becomes darker and ultimately black on being exposed to the air. Nothing certain is known respecting the mode of preparing it for use, and it is said that the Japanese themselves have lost the secret of its preparation, for the lacquer-ware at present manufactured is greatly inferior to the ancient. [A. S.]

RHYNCHANTHERA. A genus of *Malvaceae*, consisting of herbs undershrubs or shrubs, from Guiana, Brazil, and other parts of tropical America, usually hirsute and glandular, with opposite cordate or oblong leaves, and for the most part showy flowers in the upper axils, or in terminal panicles. They belong to the tribe of *Lavatiaceae*, in which the fruit is free and capsular, and the seeds not curved; and are distinguished from allied genera chiefly by the anthers, of which five are perfect, ending in a long beak and surcled at the base, whilst the other five are small and often imperfect. One of the five perfect ones is also in many species much longer than all the others. There are nearly thirty species known, several of which might be ornamental if introduced to our hot-houses. The name has also been given to an orchidaceous plant now referred to *Corymbia*.

RHYNCHOCORYS. A small genus of annuals from the South of Europe and East of Asia, separated from *Rhinanthus* because the flowers have a distinctly two-lobed calyx. [W. G.]

RHYNCHOGLOSSUM. A small genus of *Cyrtandraceae* inhabiting the East Indies and Java, having a fleshy herbaceous stem, alternate ovate leaves, terminal racemes bearing blue flowers, a tubular five-cleft

calyx, a tubular corolla with a bilabiate border, two fertile and two sterile stamens, and an ovate capsule. [B. S.]

RHYNCHOLACIS. A genus of *Podostemaceae*, consisting of aquatic herbaceous plants, with very short thick hardened stems, unbranched or repeatedly forked; flowers on long stalks or in whorls; and broad membranous leaves, lacerated at the margins. The principal diagnostic mark of the genus resides in the capsule, which consists of two equal valves, each provided with a keel and projecting beak. The species are natives of Guiana. [M. T. M.]

RHYNCHOLEPIS. A genus of *Piperaceae*, the species of which are shrubs inhabiting the Philippine Islands. The branches are jointed, hairy; the leaves ovate and oblique, hairy; their stipules very hairy; and the flowers dioecious, borne on cylindrical catkins, the bracts of which are stalked, peltate, fleshy, and elongated into a long thread-like process. [M. T. M.]

RHYNCHOPETALUM. A genus of *Loefeliaceae*, represented by an Abyssinian herbaceous plant, with a hollow stem about a foot high, bearing a crowded tuft of lance-shaped leaves at the top, and flowers in long clusters. The five lobes of the calyx are leafy; the tube of the corolla is split on the upper edge, and its lobes are confluent one with another so as to resemble the prow of a boat. This latter circumstance has given the name 'beak-petal' to the genus. [M. T. M.]

RHYNCHOSIA. A genus of *Leguminosae* the species of which are very numerous, and occur in India and other parts of Southern Asia, in Australia, the West Indies, and the warmer parts of America. They are herbs or undershrubs, usually with twining stems, and often sprinkled with small yellow resinous or glandular dots. Their leaves generally consist of three leaflets, the middle one of which has a long stalk, very rarely of a single leaflet; and their flowers are in most instances disposed in racemes produced from the angles of the leaves, and nearly always of a yellowish colour. They have a bell-shaped four or five-lobed calyx; a papilionaceous corolla, the upper petal of which is roundish, and has two round lobes or ears at the bottom, but no hard swellings as in some allied genera; ten stamens, nine being united into a sheath, and the tenth or upper one free from the bottom; and a stalkless ovary with a smooth style. Their flattened unequal-sided or sickle-shaped pods are without divisions, and contain two (rarely one) round or somewhat kidney-shaped seeds.

R. precatoria has pretty little half-black and half-scarlet or yellow shining seeds, which the Mexicans string into necklaces and rosaries—whence its Latin name. It is a tall climbing plant, with hairy stems, and broadly egg-shaped or almost rhomboid three-nerved leaflets covered with soft short hairs or down; its flower-spikes are about the same length as the leaves,

and its pods scarcely one inch long, constricted between the seeds, and covered with glandular hairs. It is a native of Mexico and Panama. [A. S.]

RHYNCHOSPERMUM verticillatum is a Javanese composite plant related to *Erigeron*, from which it differs in the shortly-beaked achenes, as well as in the pappus-hairs being twisted or inflexed at the apex. It is described as being a smooth perennial, the ultimate branches whorled, the leaves shortly stalked and lanceolate, and the stalked terminal flower-heads almost the size of peas, with strap-shaped and fertile outer florets in two or three series, and tubular perfect inner florets. Only one species is known. For the well-known *Rhynchospermum jasminoides* of gardens, see *PAROKHITIA*. [A. A. B.]

RHYNCHOSPORA. A genus of *Cyperaceae* belonging to the tribe *Rhynchosporae*. The inflorescence is generally in clustered spikelets forming terminal or axillary heads. Each spikelet contains from one to nine flowers; glumes imbricated round the axis, the lower or outer empty, the upper containing flowers; stamens three, rarely two or one; styles cleft flattened and thickened at the base. Steudel describes 131 species, which are distributed over North and South America, Australia, &c. The European representatives, *R. alba* and *R. fusca*, grow on wet spongy bogs, the former frequent but the latter rare in Britain, and hitherto only observed in a few places. [D. M.]

RHYNCHOSTEMON. A name given to two small West Australian bushes belonging to the *Scrofulaceae*, differing from *Thomasia* only in the anthers being prolonged into a short beak—whence the name, signifying 'beaked stamen.' They have alternate stalked leaves with spear-shaped blades, clothed, like the young twigs, with glandular hairs; and their pretty pink flowers are disposed in racemes towards the ends of the twigs, and greatly resemble those of *Thomasia*. [A. A. B.]

RHYNCHOTHECA. A genus of *Oxalidaceae* peculiar to the Andes of South America, and consisting of two species, both spiny shrubs, with square branches, oblong leaves, and pedunculate flowers crowded towards the apex of the branches. The calyx is composed of five sepals, the corolla is entirely wanting, the stamens eighteen, the style very short, and the carpels five; each containing two ovules. *R. diversifolia* grows in hedges. [B. S.]

RHYTACHNE. A genus of grasses belonging to the tribe of *Rottboelliae*, and having the inflorescence in solitary terminal spikes; spikelets two-flowered, inserted in notches on the rachis—the lower flower hermaphrodite, the upper male; glume one, thick, transversely wrinkled and awned; stamens three. Only one species is described, *R. rottboelloides*, which is a native of the West Indies. [D. M.]

RHYTIDOMA. A formation of plates of

cellular tissue within the liber or mesophloem.

RHYTIDOPHYLLUM. A small genus of shrubby West Indian *Geraneaceae*, with sparse leaves, hairy beneath and bullate above, and long axillary flower-stalks bearing a cymose inflorescence. The calyx has the tube adnate to the ovary, and a five-parted limb; the corolla is obliquely campanulate, broad at its mouth and somewhat constricted at its middle, and has a five-lobed limb; the stamens are inserted high up on the corolla, and are two short and two long, with the rudiment of a fifth; and the disk upon the top of the ovary is thick annular and sinuose. The species constitute part of the undergrowth in virgin forests. [A. S.]

RHYTIGLOSSA. A very large genus of herbaceous or shrubby plants belonging to the *Acanthaceae*, widely dispersed through the tropical and warm countries of the Western Hemisphere, and found also at the Cape of Good Hope. Most of the species have terminal flower-spikes and reddish flowers, usually with narrow bracts resembling but shorter than the divisions of the calyx, or rarely with broad overlapping bracts. The calyx is four or five-parted; the corolla two-lipped; the stamens two; and the stigma simple and sharp-pointed. *R. pectoralis* is one of the commonest of the American species, being found in most of the West India Islands, and in various parts of tropical America, from Southern Mexico to Brazil. In some of these countries an infusion or tea made of the leaves is drunk to relieve chest affections, or a stomachic syrup is prepared by boiling them with sugar. In Martinique the French call it *Herbe au Charpentier*. [A. S.]

RHYTISMA. A genus of phacididaceous Fungi, with a thin stroma, and superficial irregular wrinkle-like more or less confluent perithecia. The two most common species are *R. sakkenum* of the willow, and *R. acerinum* of the ascomore—especially the latter, which forms large shining black orbicular patches on the leaves, conspicuous all the winter, and fructifying in the spring. [M. J. B.]

RIB. The principal vein or nervure which proceeds from the petiole into a leaf; also any firm longitudinal elevation.

RIBAND-WEED. The common name in some districts of the ordinary form of *Laminaria saccharina*. [M. J. B.]

RIBAS. An Eastern name for *Rheum Ribes*.

RIBBON-TREE. *Plagianthus betulinus*.

RIBES. The principal genus of *Grossulariaceae*, characterised by its flowers having a five-parted coloured calyx, five small distinct petals, as many free stamens rising from the throat of the calyx-tube alternately with the petals, and a two to four-cleft style; and by its juicy one-celled berries, which are crowned with the

remains of the flower, and contain numerous seeds suspended in pulp by long threads. Upwards of sixty species are described, two-thirds of which are found in the temperate parts of the American continent, where they extend from the Straits of Magellan to the Arctic Circle; while the rest are confined to the temperate regions of Europe and Asia. They are all shrubs, varying from one or two to five or six feet high, sometimes spiny, and have lobed alternate leaves, and either solitary or axillary racemes of flowers.

R. sanguineum, the Red-flowered Currant, a native of North America, is the species most frequently grown in our gardens for ornamental purposes, and when covered with a profusion of racemes of rich deep rose-red flowers in early spring, it forms a most beautiful object. It belongs to the section of the genus without prickles, and forms a bushy shrub sometimes as much as eight feet in height, having five-lobed serrated leaves, heart-shaped at the base, and downy underneath; and racemes usually twice as long as the leaves, containing numerous flowers, the conspicuous part of which is the richly-coloured calyx, which has a long bell-shaped tube, and blunt spreading segments much larger than the small paler-coloured petals. [A. S.]

Those well-known and extensively cultivated fruits, the Gooseberry and Currant, are included in this genus. The rough or hairy Gooseberry has been called *R. Grosularia*, and the smooth Gooseberry *R. Uva crispia*; but there is no difference between them except as regards the surface of the fruit, for seeds from one bush will produce both rough and smooth-fruited plants. The Gooseberry is called in Cheshire and in the North of England *Feaberry* (according to Gerard, a contraction of *Feverberry*, the fruit being considered a sort of specific against fevers); in Norfolk it is called *Feabas*; in Scotland *Groat* or *Groserts*; by the Germans *Krausel-beere*, or *Stachel-beere*; by the Dutch *Kruisbees*, or *Kruisbeets*; and by the Danes and Swedes *Krusbees*, which is nearly identical with the Dutch name. The French call it *Grosseille*, formerly written *Groiselle*, or *Groisselets* according to Decandolle, and these names bear much analogy to the old Scotch name *Groat*. The French use the fruit for making a sauce for mackerel, and hence call it *Grosseille à Maquereau*; and we find it frequently stated in books that it is called Gooseberry from being used as a sauce for young or green geese. This, however, must be an error; for when Queen Elizabeth received the news of the destruction of the Spanish Armada, on September 26, she was eating goose, and that day has since been noted as about the time when young geese are in season; but there are then no green gooseberries to be had for sauce.

The Gooseberry is indigenous in this country, as well as in many other parts of Europe, and it has been found, according to Royle, in Nepal. Dr. Schubeler states that 'it is found wild here and there in

Norway, in the lowlands, up to lat. 63°. Finer varieties, when cultivated, will ripen as far north as 66° at least.' It therefore appears that it will succeed 16° north of London, but it will not thrive so far to the south. Even in southern parts of England, under a hot sun, the fruit of some of the varieties becomes as if parboiled. The cooler climates of the North of England and Scotland suit it best. It is an important plant for millions of the manufacturing population; for it supplies abundant fruit for tarts, pies, sauces, &c. at an early period of the season, and before any other can be had in quantity for these purposes. By competition for prizes in Lancashire and the adjoining counties, the size of the berries has been enormously increased, although some of the old sorts, such as the Red Champagne, are yet unsurpassed in quality. The varieties are exceedingly numerous, and are divided into sections according to their coloured yellow green and white; and again from their surface being hairy downy or smooth.

Of the Red Currant, *R. rubrum*—which has cordate bluntly three to five-lobed leaves, yellowish-green flowers, and bright red fruit in pendulous racemes,—there are several varieties, the most distinct of which are the pale-red, the flesh-coloured or champagne, the striped, and the white; but the red and the white are the most extensively cultivated. The original form of the species has undergone very great improvement. The Currant is indigenous to Britain, Central and Northern Europe, Siberia, and Canada. According to Dr. Schubeler (*Synopsis of the Vegetable Products of Norway*), it is generally to be found wild as far north as Finmark, and even under the seventieth parallel of latitude it produces annual shoots twenty inches in length. It may therefore be said that it possesses all the hardness that need be desired. But, like the gooseberry, it is not suited for so warm a climate as the South of Europe—otherwise it would have become known to the Greeks and Romans, which does not appear to have been the case. It was only in the Middle Ages that its cultivation was introduced into the South of Europe. It is called *Ribe* in Danish, *Riep* and *Raps* in Swedish; and the Latin name of the genus, *Ribes*, is believed by Alph. Decandolle to have had a northern origin. The English name of Currant originated from the similarity of the fruit to the Corinth or Zante Grape, the currant of the shops. Improved varieties of the Currant appear to have been introduced from Holland, and the Red Dutch and the White Dutch are amongst the best in cultivation at the present day. These fruits are always in demand for making wine, tarts, jellies, jams, &c., and the quantities grown for that purpose have greatly increased since the price of sugar has become reduced. The refrigerant juice is also very grateful to the parched palates of persons suffering from fever.

The Black Currant, *R. nigrum*, bears short lax racemes of large black berries, which are much prized for domestic use, both as a preserve and medicine. [R. T.]

RIBESIACEÆ. Another name for the *Grossulariaceæ*.

RIBWORT. *Plantago lanceolata*.

RIBWORTS. Lindley's name for the *Plantaginaceæ*.

RICCIACEÆ. A natural order of liverworts with a valveless capsule sunk in the substance of the frond, rarely free, surrounded by or adnate with the veil, with or without additional envelopes, at length bursting irregularly, or opening by a terminal pore, and producing numerous spores without elaters. Most of the plants are horizontal, but *Riella* has an erect frond. At first sight they might seem to have some affinity to *Endocarpon*, but the vegetation and formation of the fruit (which take place, as in the case of pollen-grains, by repeated cell-division) are entirely different; besides which the structure of the frond is diverse from that of the thallus of any lichen. Warm countries are their favourite abode, but there are some which delight as much in temperate regions. Most of them grow upon the surface of the soil like *Marchantia*, but several are always immersed in or float freely on the surface of water, while a few grow on the trunks of trees. In *Corsinia* there is a chaffy compound involucre; in *Cronista* the involucre consists of two or sometimes of three boat-like leaves. [M. J. B.]

RICCIA. The typical genus of the natural order *Ricciaceæ*, with a horizontal, more or less forked lichen-like frond, which adheres closely to the soil or to the trunks of trees, or floats on the surface of pools. The same species may exist in all the three situations with slight modifications. *R. glauca* is extremely common on calcareous soil, though often overlooked, while *R. natans* and *R. fluitans* are common in fen-ditches. The latter has a narrow repeatedly forked frond, the former a shorter broader frond with numerous flat processes beneath hanging down into the water, which make admirable subjects for the microscope, especially when treated with various chemical substances. [M. J. B.]

RICCIN. (Fr.) *Ricinus communis*.

RICE. *Oryza sativa*. — **CANADA.** *Zizania aquatica*. — **FALSE.** An American name for *Leersia*. — **HUNGARY.** *Paspalum exile*. — **INDIAN.** An American name for *Zizania*. — **MILLET.** *Panicum colonum*. — **MOUNTAIN.** An awnless upland variety of *Oryza sativa*, grown without irrigation on the Himalayas, in Cochin China, &c.; also an American name for *Oryzopsis*. — **PETTY.** A Peruvian name for the seeds of *Chenopodium Quinoa*. — **WATER, or WILD.** *Zizania aquatica*.

RICE-PAPER. A peculiar kind of transparent paper manufactured in China from the pith of *Araha papyrifera*, and used for

painting on by native artists. — **MALAY** *Scavola Taccada*.

RICHARDIA. A genus of *Araceæ*, containing a well-known species often cultivated as a drawing-room ornament under the name of the White Arum or Trumpet Lily. It is a native of the Cape of Good Hope, and throws up from the root a number of hastate leaves borne on long sheathing stalks; the spadix is also stalked, its spathe large, rolled round below but flattened and bent backwards above, and of a dead-white hue. The spadix itself is completely covered with flowers. At the upper part are the very numerous yellow anthers, which have a wide wedge-shaped connexive between their two cells, and which open by two pores. The ovaries occupy the lower part, and are mixed up with a number of barren stamens; each ovary has three parietal placentas, and is partially subdivided into three compartments; the style is short, the stigma roundish and glandular. The fruits consist of one-celled few-seeded berries. This plant is deservedly a favourite from its elegant appearance, and the contrast presented by its deep-green leaves, its snow-white spathe, and its bright yellow spadix. The genus is named in compliment to an eminent French botanist. [M. T. M.]

RICHARDSONIA. A genus of tropical American herbs belonging to the *Cinchonaceæ*. They are trailing plants, with woody roots, covered with a thick rough rind. The flowers are clustered together in heads at the ends of the branches, and are invested by an involucre of four bracts. The calyx-limb is divided into from four to seven nearly equal teeth; the corolla is funnel-shaped, and its limb divided into from three to five lance-shaped segments; there are from three to five stamens protruding from the throat of the corolla, near to which they are attached; and the stigma is divided into three or four thick almost club-like divisions. The fruit is membranous, and divides into three or four one-seeded segments, which are themselves indehiscent. The root of *R. acabra* has emetic properties, and has been employed in medicine under the name of White Ipecacuanha. These roots are smaller than those of the true Ipecacuanha, destitute of the circular rings characteristic of the genuine drug, and less certain and active in their effects. [M. T. M.]

RICHEA. The four species of this genus of *Epacridaceæ* are found in the mountains of Tasmania, one only, *R. Gussat*, occurring elsewhere, and that only in the neighbouring mountains of Victoria in South Australia. Some grow to a considerable height, and are crowned with a tuft of long ribbon-like leaves resembling those of acrotophyes, while others are scarcely more than a foot high, and have short erect leaves; in all the species, however, the leaves are hard stiff and sharp-pointed, and are without stalks, their broad bases clasping the branches and overlapping each other.

leaving a circular scar when they fall away. Their flowers are disposed in spikes or in simple or branched racemes; and have a small five-lobed or five-parted thin calyx without bracts; a cap-like corolla, which ultimately becomes detached near the bottom and falls away in a single piece; five stamens rising from below the ovary with scales between them; and a five-celled ovary containing numerous ovules hanging from the top of the central column.

R. pandanifolia is in general appearance widely different from the usual character of *Epacrids*, though in the structure of its flowers it perfectly agrees with them. It has a long slender naked stem, marked with circular rings like those of many palms, attaining a height of from thirty to forty feet with a diameter of about nine inches, and crowned with a dense tuft of shining wavy sword-shaped leaves from three to five feet in length, with their edges sharply toothed like a saw—the whole plant having very much the appearance of a screw-pine. [A. S.]

RICHELLE DE MARS. (Fr.) *A. Truttacum*.

RICHWEED. *Pilea pumila*.

RICINELLE. (Fr.) *Acalypha*.

RICINOCARPUS. A genus of small erect euphorbiaceous bushes found in the temperate parts of Australia and Tasmania; and related to *Jatropha*, from which they differ in the numerous stamens of the sterile flowers. *R. pinifolia*, one of the commonest species, is found in Eastern Australia and Tasmania, and is a rosemary-like bush two to four feet high, with numerous alternate rigid linear revolute leaves. The flowers are sterile and fertile on the same plant, and are borne singly in the axils of the upper leaves, the sterile with slender stalks the length of the leaves, the fertile with shorter and stouter stalks. They have a four to six-parted calyx, a corolla of a like number of narrow white petals, a cone of numerous stamens in the sterile, and a three-celled ovary crowned with three forked styles in the fertile flower. The fruits are rough three-celled and three-lobed capsules, with one seed in each cell. The fruits are somewhat like those of *Ricinus*, and from this resemblance the genus receives its name. There are eight species, all very similar in habit. [A. A. B.]

RICINUS. A genus of *Euphorbiaceae*, comprising various species inhabiting tropical Asia and Africa. The principal generic characters are as follows:—Flowers monocious; calyx with three to five segments; corolla absent; stamens very numerous, their filaments combined into a number of separate bundles; style short, divided into three forked feathery stigmate branches; fruit globular, prickly, ultimately dividing into three one-seeded segments.

The best-known species is *R. communis*, the seeds of which yield castor-oil. The plant is a native of India, but is now

widely distributed over the warmer regions of the globe and throughout the Mediterranean region. It is even cultivated in this country as an annual, and is known under the name of *Palma Christi*.



Ricinus communis.

In our climate the stems do not attain a height of more than from three to five feet; in India, however, they grow from eight to ten feet, while in Spain, Crete, Sicily, and elsewhere the plant is stated to become a small tree. The stem is jointed, of a purplish-red colour, and covered with a glaucous bloom like that of a plum. The leaves are large stalked palmate, deeply divided into seven lance-shaped segments; and at the junction of the blade with the stalk of the leaf is a small saucer-like gland. The flowers are in spikes, the males being placed below, the females above.

There are several varieties of this plant, differing in sundry slight particulars, and amongst others in the size of the seeds. These latter are oval, flattened, of a greyish colour mottled with brownish blotches. At the upper end of the seed is a small sponge-like excrescence. It is stated that the best oil for medicinal purposes is derived from the small seeds; that procured from the large seeds is coarser, and in India employed for lamps and in veterinary practice. A still prevalent error is that the acrid purgative principle resides in the seed-coats and in the embryo only, while the albumen is destitute of it. The oil is extracted by boiling the seeds and by pressure in an hydraulic press; the latter process yields the most esteemed oil. After expression the oil is purified by being allowed to stand, by decantation, and by filtration. In India the oil, after having been obtained by pressure, is mixed with a certain proportion of water, and boiled till the water has evaporated. In France the oil is obtained by macerating the bruised seeds in alcohol, but the process is expensive, and the product inferior. The larger

quantity of the oil used in this country is imported from India. Castor-oil is very largely used as a gentle and efficient purgative; its nauseous taste is, however, a great objection to its use. This may partially be overcome by mixing it with



Ricinus communis (fruit and seed).

orange-wine, gin, or peppermint-water, or by making it into an emulsion with the yolk of an egg or mucilage. The leaves are used for various purposes, for which their size and coolness render them serviceable, and topically as an application in rheumatism. [M. T. M.]

RICOTIA. A genus of *Cruciferae*, consisting of annuals from the Levant, with pinnatifid leaves, and purplish flowers having the outer calyx-segments bulging at the base. The pod is oblong or linear-oblong. One species resembles *Lunaria* in the pod and flower. [J. T. S.]

RIEDLE. *Gallum Aparina*.

RIEDLEA. *Onoclea*.

RIEDLEIA. *Melochia*.

RIELLA. A most curious genus of *Elociaceae*, with an erect stem and flat membranous frond twining round it in a spiral. The male and female fruit are on different plants, the former occupying the edge of the frond, and the latter axillary with a perianth and globose sporangium, in which peculiarity it departs from the distinctive characters of the order. *Riella* was named after a distinguished soldier and botanist, Durlieu de Maisonneuve, by whom it was first discovered perfecting its fruit, like *Subularia*, beneath the surface of the water. The frond is attached to the stem exactly in the same manner as the network of the curious seaweed *Dictyurus*, a near relative of *Polysiphonia*. [M. J. B.]

RIESENBAUCHIA. A genus of *Onagraceae*, in which the calyx is of four narrow lanceolate divisions, the posterior one longer than the others. There is no corolla, and but a single stamen, which is opposite the anterior lobe of the calyx. The only species is a Mexican shrub, with lanceolate serrated leaves. [G. D.]

RIGIDELLA. A genus of *Iridaceae*, consisting of Mexican herbs, with equitant plaited leaves and fasciculate terminal flowers. The perianth is three-parted,

the segments imbricated at the base, constricted below the middle, with a concave revolute limb; stamens three, the filaments united in a long exerted tube, and the anthers linear erect; ovary three-celled, with many ovules, and three biparted stigmas with an appendage at the back; capsule papery. They are very pretty plants, especially *R. flammea*, which has flame-coloured flowers marked at the base of the reflexed limb with dark-purple stripes. [T. M.]

RIMA. The cleft-like ostiolum of certain fungi.

RIMOSE. Marked by chinks or cracks on the surface.

RIMU. *Dacrydium cupressinum*.

RINDERA. A genus of *Boraginaceae*, native of South-eastern Russia and Siberia. The plants are herbs, with the leaves lanceolate oblong or ovate, and the inflorescence racemously paniculate. The calyx is five-parted; the corolla tubular, with five narrow lobes to the limb, and the throat without scales; the anthers are nearly sessile in the throat of the corolla; and the nuts four, depressed, with a broad-winged margin, adhering to the style by an internal suture at the base. [J. T. S.]

RINGED. Surrounded by elevated or depressed circular lines or bands, as the roots or stems of some plants, the cupule of several oaks, &c.

RINGENT. The same as *Personate*.

RINGWORM-SHRUB. *Cassia alata*.

RIOCREUXIA *torulosa* is a South African twiner, the only known representative of a genus of *Asclepiadaceae*. It has cordate leaves, and terminal or axillary umbels of flowers. The calyx is small, and divided into five lobes; the corolla is ventricose at the base and five-lobed, the lobes joined together at their tips; the fruit is long slender and twisted. Its nearest ally is *Ceropegia*. [B. S.]

RIPARIOUS. Growing by water.

RIPIDIUM. *Schisaea*.

RIPOGONUM. This name, compounded of two Greek words signifying 'oak-like' or 'flexile twig,' is applied to a genus of *Smilacaceae*, the species of which are climbing plants, natives of Australia and New Zealand. The stem is spiny, the leaves cordate, destitute of tendrils, and the flowers disposed in axillary clusters. The flowers differ chiefly from those of *Smilax* in the segments of the perianth being equal, and in the filaments of the stamens being awl-shaped. Two species are in cultivation as greenhouse climbers. [M. T. M.]

RISHTA, RITAH. Indian names for *Sapindus emarginatus*; also of an Indian medicinal oil obtained from the Soapnut, the seed of *Acacia concinna*.

RITCHIEA. A genus of tropical African climbing shrubs of the *Cappariaceae*,

named in honour of Ritchie the African traveller. The leaves are ternate, and the flowers in terminal racemes. The calyx has four concave sepals; the corolla an equal number of stalked petals, placed on the margin of a hemispherical fleshy receptacle; and the stamens are twelve to sixteen, inserted with the petals; the ovary is placed on the end of a long stalk, and is capped by a sessile orbiculate stigma. *R. fragrans* is a handsome stove-climber with white flowers. [M. T. M.]

RIVACHE LAITEUX, R. DES MARAIS, or R. SAUVAGE. (Fr.) *Peucedanum sylvestre*.

RIVEA. A genus of *Convolvulaceae* found in the tropics of both hemispheres, and composed of about a dozen species, all of which are shrubby climbers of great beauty, generally having cordate leaves and being more or less covered with hair. The calyx has five sepals; the corolla is tubular or funnel-shaped, and often purple; the style is solitary, and bears at the apex a capitate or almost two-lobed stigma; the ovary is four-celled, with one ovule in each cell; and the fruit is succulent and indehiscent, in which respect the genus differs from most other members of the *Convolvulus* tribe. Several species are cultivated in our gardens. [B. S.]

RIVER-WEED. An American name for *Podostemon*.

RIVINA. This genus of *Phytolacnaceae* comprises about ten species, all American, except one which is doubtfully Asiatic. It is characterised by having a corolla-like four-parted calyx, with equal ultimately erect or rarely reflexed segments, and mostly only four stamens, and by its berries at length becoming dry and juiceless. The species are undershrubs, with usually erect stems, alternate stalked minutely stipulate leaves, either quite entire or obsoletely crenulate, and terminal and lateral racemes of small flowers.

R. humilis, a common plant in hothouses, has beautiful racemes of little bright scarlet berries, which before drying up contain a very fine scarlet juice, the colour of which, however, is very evanescent. It is a native of the West Indies and of the continent of America from Texas to Brazil. [A. S.]

RIVULARIA. A genus of green-spored *Algae* belonging to the natural order *Oscillatoriei*, in which the gelatinous element is so predominant that the plant presents itself in masses of a more or less definite form. These are attached to rocks, plants, &c., or float loosely on the surface of the water, and have been sometimes confounded with *Tremella*. The structure is very beautiful. Each branchlet is obtuse at the base, and much attenuated upwards till it becomes a mere colourless hair-like point. The outer coat is very thick and gelatinous, and at the base of each is a large connecting cell, which was diverted from the mother-thread or branch, and

from which it was originally developed. The mass of threads, therefore, exhibits a very curious mode of branching, which it is at first very difficult to comprehend. The species grow both in fresh and salt-water, and where there is much carbonate of lime in solution the frond becomes sometimes very hard and crystalline. [M. J. B.]

RIVASCH. An Eastern name for *Rheum Ribes*.

RIZ. (Fr.) *Oryza*. — D' ALLEMAGNE. *Hordeum Zeocriton*.

ROASTBEEF-PLANT. *Iris foetidissima*.

ROBIN DÉCHIRÉ. (Fr.) *Lychnis Flos-cuculi*.

ROBINET. (Fr.) *Lychnis dioica*.

ROBINIA. A great number of species have been placed in this genus of *Leguminosae*, but it is now restricted to a few North American trees and shrubs, one of which, commonly called *Acacia* in this country, is a well-known object of ornament. All the species have deciduous pinnate leaves, frequently with prickly spines at their bases in place of stipules, each leaf consisting of from five to ten pairs of leaflets and an odd terminal one, the leaflets being furnished with stipels (secondary stipules) at their bases, and usually of an egg-shaped or oblong form. Their flowers, produced in conspicuous usually pendulous racemes from the leaf-axils, vary from white to rose-coloured, and are succeeded by narrow flat thin-shelled pods containing several seeds, and having the seed-bearing edge thicker than the other parts. They have a short five-toothed slightly two-lipped calyx; a pea-like corolla, with the large rounded upper petal turned back in the fully expanded flowers; one free and nine united stamens; and a slender downy style.

R. Pseud-Acacia, the Common or False Acacia, or North American Locust, is a large tree from fifty to eighty feet high, with smooth naked young branches, and loose slender racemes of sweet-smelling white flowers, producing smooth pods. It is a native of the United States, from Pennsylvania southward to Carolina. *R. viscosa*—so called because its young branches, instead of being smooth like those of the last, are covered with a sticky substance—is a much smaller tree, and differs also in having nearly scentless flowers tinged with rose-colour, and crowded together in shorter racemes, and in the pods being covered with glandular hairs. It is a native of the Southern States of North America. *R. hispida*, the Rose Acacia, has large deep rose-coloured scentless flowers in loose racemes; besides which it differs from the above two species in size, seldom growing higher than six or eight feet, and in its young branches and leafstalks being thickly clothed with bristles. It also is a native of the Southern States of America.

The North American Locust or False Acacia has had the most extravagant

praises bestowed upon it as a timber-tree, and was one of the plants which the celebrated Cobbett on his return from America unsuccessfully endeavoured to cultivate as a profitable speculation in this country. It is largely grown in the United States, and its timber is there extensively employed for posts, pales, and similar purposes, and also by carpenters and cabinet-makers, and to a more limited extent by shipwrights; but it is seldom of sufficient size to afford planks suitable for ship-building, its principal use being for the manufacture of treenails, for which it is so admirably adapted, that considerable quantities of these 'locust treenails' are exported to this and other European countries. It is also cultivated in the South of France, where it is used for vine-props. The timber is of a yellowish colour, more or less tinged with reddish-brown in the centre. The roots have the taste and smell of liquorice, but are a dangerous poison, and accidents have occurred from their being mistaken for liquorice-roots. [A. S.]

ROBIN-RUN-IN-THE-HEDGE. *Nepeta Glechoma*.

ROBINSONIA. This genus comprises four species of arborescent *Compositae*, which, with a few others of the same family, give a character to the vegetation of the island of Juan Fernandez. They are branching trees ten to fifteen feet high, having grey bark marked with the semicircular scars of old leaves, these being sessile, linear or lanceolate, and smooth. The small unisexual flower-heads—not unlike those of some groundsel—are arranged in corymbs or panicles, each head having a bell-shaped involucre of numerous scales united by their margins and enclosing a number of florets, the outer row of which are strap-shaped, the inner tubular. The stamens are imperfect in the fertile flowers, the ovary in the sterile; and the cylindrical achenes are crowned with a single series of rough pappus-hairs. From some of the species a resin exudes which is in repute in Chili and Peru as a remedy for headache. *Balbisia*—a nearly allied genus from the same island, differing in having three instead of many flowers to each head—is, like this genus, remarkable in the family in having the seed-lobes (cotyledons) rolled inwards. M. Decandolle has dedicated these plants to Defoe's Robinson Crusoe! (Alexander Selkirk), who was wrecked on the island of Juan Fernandez. [A. A. B.]

ROBLE. A shipbuilding wood obtained from *Catalpa longissima*; also *Platymiscium platystachyum*.

ROCABOLE. *Allium Ophioscorodon*. —, WILD. *Allium Scorodoprassum*.

ROCELLA. A genus of lichens belonging to the unecoid section of *Parmeliaceae*. Like *Ramalina*, they are flat or cylindrical, and are distinguished by the disk, which is open from the earliest stage of growth, being seated on a carbonaceous

stratum. The species are of a dull-grey tint, and spring like seaweeds from a little peltate disk. They are valuable dyewoods. See *ORCHELLA* WARD, *ORCHIL*.

R. fusciformis is said to be very inferior to *R. tinctoria*. The latter afforded the first dye for blue British broadcloths, which were once so universally used, and to this was due their purple tints when viewed against the light. [M. J. B.]

ROCHEA. A genus of *Crassulaceae* inhabiting the Cape of Good Hope, and consisting of fleshy shrubs, with opposite connate and quite entire leaves, and umbellate-cymose flowers of a white pink or scarlet colour. The calyx is five-lobed; the five petals are connate, forming a hypocraterimorphous corolla; the stamens are five in number, and alternate with the petals: there are also five glands and five carpels. Several species are favourites in our gardens, both on account of their strange leaves and bright flowers. [B. S.]

ROCHELIA. A genus of *Boraginaceae* inhabiting Southern Europe, Northern Africa, and Siberia, and differing from the other genera of the order in the ovaries being only two, adnate to the style. They are small hispid annuals or biennials, with the habit of *Echinospermum*, and have a five-parted calyx with the tips incurved after flowering; a funnel-shaped five-lobed corolla, closed by five scales at the throat; and two oblique nuts adhering to the style and to each other. [J. T. S.]

ROCKIST. *Helianthemum*.

ROCKET. *Hesperis*; also *Eruca*, especially *E. sativa*. —, BASE. *Roseda lutea*. —, BASTARD. *Brassica Brucastrium*. —, CRESS. *Vella*. —, DAME'S. *Hesperis matronalis*. —, DYER'S. *Roseda luteola*. —, FALSE. *Iodanthys*. —, GARDEN. *Hesperis matronalis*; also *Eruca sativa*. —, LONDON. *Sisymbrium Iryo*. —, SEA. *Cakile maritima*. —, WHITE. *Hesperis matronalis*. —, WINTER, or YELLOW. *Barbarea vulgaris*.

ROCOU. (Fr.) Annotto, *Bixa Orellana*.

RODDON-TREE. A Scotch name for *Pyrus Aucuparia*.

RODRIGUEZIA. A small tropical American and West Indian genus of epiphytal orchids, with leathery or thin plicate leaves, and a one-sided spiked inflorescence. Its flowers have spreading nearly equal sepals and petals, the lateral sepals joined beneath the lip, which is entire and clawed, and furnished with a horn at its base and a callosity in the middle; the column is terete and bearded at the apex; and the anther is fleshy and one-celled, containing two pollen-masses attached by an elastic caudicle. [A. S.]

RODWOOD. A Jamaica name for *Loxia Guidonia*. —, BLACK. *Eugenia pallens*. —, RED. *Eugenia acillars*. —, WHITE. *Calytranthes Chytracalia*.

ROEA. A genus of *Leguminosae* of the sub-

order *Papilionaceæ* and tribe *Podalyriæ*, consisting of two low herbs or undershrubs from Swan River, with ascending simple almost rush-like stems, and alternate narrow simple leaves. The flowers are yellow, in a loose terminal raceme, of no beauty. They are distinguished from the allied genera, which like them have two ovules only to the ovary, chiefly by the small globular pod, borne on a distinct stalk.

ROEBUCK-BERRY. The fruit of *Rubus saxatilis*.

ROGNERIA. A genus of grasses belonging to the tribe *Festuceæ*. The spikelets are distant, few-flowered; the outer glumes three-nerved, the superior five-nerved; flowering glume subcompressed, lengthened out into a long awn-shaped apex, obsoletely three-nerved, the margin hairy. This genus contains only one species, *R. caucasica*, which inhabits woods in Daghestan. [D. M.]

ROELLA. The name of a genus of *Campanulaceæ*, whose chief character is derived from the capsule, which is elongated and two-celled, opening by a hole at the apex. The species are chiefly undershrubs, rarely herbaceous plants, having alternate narrow and usually rigid leaves. They are natives of the Cape of Good Hope. The genus was named in honour of Roell, an Amsterdam professor. [G. D.]

ROSTELIA. A curious genus of parasitic *Fungi* with an elongated peridium, the component cells of which at length separate from each other so as to form ragged laciniae. In *R. cornuta* and *lacerata*, which grow on the mountain-ash and hawthorn, these are separate at the apex so as to expose completely the mass of spores joined to each other like the beads of a necklace; but in *R. cancellata* they remain attached above, so as merely to leave a passage for the spores between their interstices. All of them produce at the same time, generally on the opposite side of the leaf, little cysts or pycnidia, which are filled with minute naked spores. Some imagine these bodies to have sexual functions. *R. cancellata*, which is the pest of pear-trees, produces curious rugged swellings on the leaves, through each elevation of which a peridium bursts out. The only method of mitigating the evil is to handpick every leaf as soon as it shows any sign of the swellings and burn it. It may be too late if the peridia have made their appearance and dispersed their spores. [M. J. B.]

ROEZLIA. *Pearceoya*.

ROGATION-FLOWER. *Polygala vulgaris*.

ROGERIA. A small genus of *Pedaliaceæ*, having the habit of *Pedatum*, and consisting of annual herbs found in tropical Africa and Brazil. The calyx is five-cleft; the corolla tubular and funnel-shaped; the stamens are four in number, and do not project beyond the border of the corolla; the fruit is almost nut-like, opens towards the point, has from four to eight spines, and appears to be from four to six-

celled, the cells having either an indefinite number or only solitary seeds. Their uses are unknown. [B. S.]

ROGIERA. A genus of *Cinchonaceæ* named in compliment to M. C. Rogier, late Minister of the Interior for Belgium, and an active patron of horticulture. They are shrubs somewhat resembling the laurestine; but the leaves are covered with soft hairs, while the salver-shaped corollas are rose-coloured, and closed at the throats by a tuft of golden hairs. The genus differs from *Rondeletia* in the absence of the thick ring in the corolla-throat. [M. T. M.]

ROHUNA. An Indian name for *Soyimida febrifuga*.

ROI DES ARBRES. (Fr.) *Quercus Robur*.

ROLLANDIA. This name has been given to two shrubby milky-juiced Sandwich Island plants belonging to the *Lobeliaceæ*, which are described as differing generically from *Delissæa* in the staminal tube being adnate to the tube of the corolla on one side, instead of free from it. This is supposed to be an error by Dr. Asa Gray, who unites the genus with *Delissæa*: which see. [A. A. B.]

ROLLINIA. An almost exclusively Brazilian genus of *Anonaceæ*, composed of about twenty species of shrubs or small trees, closely allied to *Anona*, from which, however, they are distinguished by their flowers having the petals cohering and forming an almost globose corolla, which is open and shortly six-lobed at the top, and is drawn out at the back into three very blunt concave wings. They have alternate entire short-stalked leaves, from near the axils of which solitary or rarely several flowers are produced, and are succeeded by scaly fruits formed of a number of one-seeded carpels cohering together.

The arboreous species, such as *R. multiflora*, *R. longifolia*, and others, afford a light tough wood resembling lancewood; that of the first-mentioned being used by the natives of Guiana and Brazil for making spears. They seldom grow above twenty-five or thirty feet high. [A. S.]

ROMAINE. (Fr.) The Cos Lettuce.

ROMANOVIA. A genus of *Hydrophyllaceæ*, consisting of low many-stemmed pilose herbs, with cordate radical leaves on long petioles, small alternate cauline leaves, and terminal one-sided racemes. The calyx and corolla are five-parted; the five stamens are included in the tube of the corolla; and the style, unlike the other members of the order, is simple and furnished with a capitate stigma. They are natives of Arctic America. [W. O.]

ROMARIN. (Fr.) *Rosmarinus*. —, SAUVAGE. *Ledum palustre*.

RÖMERIA. A genus of *Papaveraceæ*, named in honour of J. Römer, a botanist,

and editor of some of the works of Linnaeus. The genus is intermediate between *Papaver*, *Glaucium*, and *Chelidonium*. The distinctive characters reside in the ovary and the fruit. The ovary is elongated cylindrical one-celled, and contains numerous ovules; the stigma is sessile, with two to four divisions; and the fruit is capsular, bursting from above downwards into two or four valves, the thread-like placentas also becoming after a time detached and separate. The species are small herbs, with yellow juice, and divided leaves, whose narrow segments are frequently terminated by a hair-like joint, and large solitary violet flowers. They are natives of the Mediterranean regions, and some are cultivated as annuals in this country, a purpose for which their large purple flowers well fits them. *R. hybrida* is occasionally found in cornfields in this country, having been introduced with foreign seeds; and is said to have been formerly established in Cambridgeshire. [M. T. M.]

ROMNEYA. A genus of *Papaveraceae*, forming a link between *Nymphaeaceae* and *Sauraceae*. The ovary is divided into numerous compartments, and the ovules are distributed over the whole surface of the dissepiments. The only species is a Californian herb, with stalked divided leaves, and handsome white flowers. [M. T. M.]

ROMULÉE. (Fr.) *Trichonema*.

RONCE. (Fr.) *Rubus*.

RONDELETIA. An extensive West Indian and tropical American genus of the many-seeded division of *Cinchonaceae*. Most of the species are shrubs, but a few grow to the size of trees. They have opposite entire leaves, with triangular or narrow lance-shaped stipules between them; and usually dense flat-topped more or less branched heads of flowers, produced either from the angles of the leaves, or at the ends of the branches. The calyx has a nearly globose tube, and is four or five-parted, the segments being either minute and tooth-like, or as long as the tube itself; and the corolla a cylindrical tube slightly swollen towards the top, and a flat expanded part consisting of four or five roundish lobes, which overlap in the bud. The stamens have very short filaments or none at all, and are entirely enclosed within the tube; and the slender style bears a two-lobed stigma. Their fruit is a two-celled roundish capsule, containing minute seeds and splitting, when ripe, through the cells into two pieces.

R. verticillata is so called in consequence of its deep rose-coloured flowers becoming paler after they expand. It is a native of Venezuela in Central America, where it forms a shrub from twelve to fifteen feet high, with an extremely bitter bark. Its leaves are five or six inches long and two or three broad. The sweet-scented *R. odorata*, a native of Cuba and Mexico, is a straggling shrub with brilliant vermilion-coloured flowers having a yellow or orange centre. The perfume sold as *Rondeletia*

takes its name from this plant, but is not prepared from any part of it. [A. S.]

RONDELLE, or RONDETTE. (Fr.) *Azaron europæum*; also *Nepeta Glechoma*.

RONDOTTE. (Fr.) *Barbarea vulgaris*.

ROODPEER. An American name for *Phobos Ecklonii*.

ROOGEE. *Megacarpaea polyandra*.

ROOM. A deep-blue dye obtained in Assam from a species of *Ruellia*.

ROOMAN. An Indian name for the Pomegranate.

ROOT. The same as *Radix*.

ROOT-OF-SCARCITY. The Mangel Wurzel, a variety of *Beta vulgaris*.

ROOTSTOCK. The same as *Rhizome*.

RÖPERA. This genus of *Zygophyllaceae* is so called in honour of a German botanist. The species are New Holland shrubs, with binate stipulate leaves, and yellow stalked solitary flowers in the axils of the stipules. The calyx has four persistent sepals, as many petals, and eight stamens shorter than the petals, with awl-like filaments destitute of scales at their base. The ovary is sessile four-celled, with four little scales at the base; and the fruit capsular indehiscent four-celled, three of the cells generally empty, one containing a single seed. Externally the four angles of the capsule are elongated into four membranous-veined wings. [M. T. M.]

ROQUETTE. (Fr.) *Eruca*. — **BÂ-TARDE.** *Roseda Luteola*. — **DE MER.** *Onkile maritima*. — **FAUSSE.** *Brassica Erucastrum*. — **SAUVAGE.** *Diplotaxis tenuifolia*.

RORIDULA. A genus of *Droseraceae*, comprising two South African shrubs or undershrubs, with long linear crowded leaves covered with glandular viscid hairs. The flowers are white in short terminal racemes, and are chiefly distinguished from those of *Drosera* by their entire style and three-celled ovary. One species, *R. dentata*, which is remarkably viscid, is often hung up in country houses of the Cape Colony to catch flies.

RORIDUS. Dewy; covered with little transparent elevations of the parenchyma, which have the appearance of fine drops of dew.

ROSACEÆ. (*Rosaceae*). A natural order of dicotyledons which, taken in its most extended sense, includes all *Polypetalae* with regular flowers, indefinite perigynous stamens, distinct or solitary carpels, and seeds without albumen. Many botanists, however, separate as distinct orders:—*Chrysobalanaceae*, which are tropical trees or shrubs with solitary carpels, having the style at their base and the fruit usually dehiscent; *Droseraceae*, or Plume and their allies, which have solitary carpels with a terminal style, and a drupaceous fruit; and *Pomaceae*, or Pears and their allies, which have several

carpels enclosed in the calyx-tube and adhering to it by their back. There remain in the *Rosaceæ* thus reduced a large number of genera and species, chiefly abundant in temperate regions, extending into the Arctic Zone as well as ascending to the highest elevations, and more sparingly dispersed within the tropics. They are herbs or shrubs, very rarely trees, with alternate often divided leaves accompanied by stipules, and flowers almost always terminal, solitary or in cymes or panicles; and are distinguished from the above-mentioned smaller orders by their carpels, which when ripe become achenes, or rarely berries follicles or capsules. They are divided into six distinct tribes—*Sanguisorbeæ*: Herbs or low shrubs, with small flowers without petals, and solitary one-seeded carpels, enclosed when ripe in the hardened tube of the calyx. These comprise eleven or twelve genera, including *Alchamilla*, *Poterium*, and *Sanguisorba* represented in Europe, the South American and Antarctic *Acena*, and the South African *Cliffortia*. *Rosæ* proper: with a fleshy calyx-tube closing over the one-seeded carpels, limited to the Linnean genus *Rosa*. *Potentilleæ*: Herbs or weak shrubs, with a herbaceous calyx and numerous achenes in a head. They comprise about twenty genera, of which the most important are *Rubus*, *Potentilla*, *Fragaria*, *Geum*, *Dryas*, and *Agrimonia*. *Spirææ*, or *Spirææ* and a few small genera closely allied to it, with several-seeded carpels opening like follicles. *Quillajeæ*: Three or four South American genera with a capsular fruit. *Neuradææ*: South European or African herbs having ten carpels in a ring, with a single pendulous seed in each.

ROSA. The genus which gives name to the large and important order *Rosaceæ* is distinguished by the following characters:—Leaves with stipules attached to the leaf-stalk; petals five; stamens numerous; seeds (achenes) numerous, enclosed within but not adhering to the fleshy calyx-tube, which is contracted at the orifice. Throughout the civilised world undisputed precedence among flowers has been conceded to the Rose in all ages and by universal consent. In the sacred writings, by classical authors, by the poets of all countries, including our own from Chaucer downwards, this Queen of Flowers is the epitome of beauty and fragrance, the emblem of refined sensual enjoyment. It has been the subject of scientific monographs and of horticultural disquisitions; and its cultivation affords employment to hundreds of human beings, perhaps thousands, if there be taken into calculation the number of persons engaged in the manufacture of rosewater and attar. The species which has been cultivated from the highest antiquity is supposed to be *R. centifolia*, the Cabbage or Provence Rose, a flower which possesses in an eminent degree the admirable qualities of the tribe.

The patient skill of cultivators has for-

tunately been successful in depriving the Rose of one of its attributes—it has ceased to be an emblem of summer. By making careful selections of species and rearing hybrids, varieties deservedly called Perpetual have been obtained, and whoever will may now without difficulty crown himself with roses at any season. A bare enumeration of the groups in which cultivated roses are arranged by growers would occupy too much of our space; but the reader may be interested in knowing that the number of wild species described by botanists exceeds two hundred, to which may be added at least as many more subspecies or varieties; while the list of garden varieties, mostly with double flowers, numbers thousands, and is every year receiving fresh additions. The majority of these are raised on the Continent, though not a few held in high estimation are the production of home rosetums.

From the Burnet Rose, *R. spinosissima*, a native of Britain, as well as many parts of the Continent, all the numerous varieties of the Scotch Rose have been derived. *R. rubiginosa* and *R. micrantha*, indigenous species, are well known under the name of Sweet-brier. *R. canina*, with its varieties, is the common Dog-rose of our hedges. *R. arvensis* is the trailing white scentless rose so common in hedges and the borders of fields. *R. tomentosa* and *R. villosa* are the species, with downy leaves and large deep red blossoms, which love to find their way through hedge-bushes provokingly beyond the reach of the collector of wild flowers. The task of discriminating the species of this large genus is so difficult, even to the professed botanist, that an attempt to furnish the reader with a clue in an elementary work like the present, would be futile. The Rose is the national emblem of England. [C. A. J.]

ROSACEOUS. Having the same arrangement as the petals of a single rose.

ROSADE. (Fr.) *Eugenia malaccensis*.

ROSA DEL MONTE. *Brounea Rosa*.

ROSAGE. (Fr.) *Rhododendron*. — **DU CIEL.** *Viscaria Cœli-rosa*.

ROSOEA. A genus of Nepalese herbs belonging to the *Zingiberaceæ*, and named in honour of William Roseoe, the accomplished author of the *History of the Medici*, and who also published a magnificent volume on the plants of this order. The erect leafy stem springs from a cluster of tuberosous roots, and bears at its upper part a spike of closely-packed large purple flowers. These flowers have a tubular calyx; a six-parted corolla whose segments are in two rows, the two outer lateral segments narrow and spreading, the intermediate one erect and arched, and the two inner lateral ones short, the intermediate one called the lip larger and two-lobed; the filament is very short, and bears a curved anther having two spurs at the base; the style is thread-like; and the stigma globu-

lar. Some of the species are in cultivation as stove-plants; their purple flowers are very handsome. [M. T. M.]

ROSE. *Rosa*. — of the Alps. *Rhododendron hercynicum*, and *R. ferrugineum*. — of Jericho. *Anastatica hierochuntina*; also said to be applied to *Meembryanthemum Tripolium*. — of Heaven. *Viscaria Cæli-rosa*. — of May. *Narcissus poeticus*. —, AYRSHIRE. *Rosa arvensis*. —, BOURBON. A form of *Rosa indica*. —, BRIER. *Rosa canina*. —, BURNET. *Rosa spinosissima*. —, CAB-BAGE. *Rosa centifolia*. —, CHINESE. *Rosa indica*; also *Hibiscus Rosa sinensis*. —, CHANGEABLE. *Hibiscus mutabilis*. —, CHRISTMAS. *Helleborus niger*. —, CORN. *Papaver Rhæas*. —, COTTON. An American name for *Filago*. —, DAMASK. *Rosa damascena*. —, DUB. *Rosa canina*. —, ELDER. Gerard's name for a variety of *Viburnum Opulus*. —, FAIRY. *Rosa Laurenceana*. —, FRENCH. *Rosa gallica*. —, GUELDER. or GUELDERES. The sterile-flowered variety of *Viburnum Opulus*. —, HOLLY. *Helianthemum*. —, HUNDRED-LEAVED. *Rosa centifolia*. —, JAMAICA. *Mertensia*; also *Blakea trinervis*. —, MACAINTNEY. *Rosa bracteata*. —, MALABAR. *Hibiscus Rosa malabarica*. —, MALLOW. *Hibiscus Muscitos*. —, MONTHLY. *Rosa indica*. —, MOSS. A garden variety of *Rosa centifolia*. —, NOISETTE. A hybrid rose of garden origin. —, OFFICIAL. *Rosa gallica*. —, PRAIRIE. *Rosa setigera*. —, PROVENCE. or PROVINS. *Rosa centifolia*. —, ROCK. *Helianthemum*; also *Cistus*. —, SAGE. *Turnera ulmifolia*. —, SCOTCH. *Rosa spinosissima*. —, SOUTH SEA. of Jamaica. *Nerium Oleander*. —, SUN. *Helianthemum*. —, SWAMP. *Rosa carolina*. —, TEA-SCENTED. A variety of *Rosa indica*. —, WILD. *Blakea trinervis*.

ROSE. (Fr.) The flowers of the Rose. — DE CAYENNE. *Hibiscus mutabilis*. — DE CHIEN. *Rosa canina*. — DE CHINE. *Hibiscus Rosa sinensis*. — DE DAMAS. *Rosa damascena*. — DE GUELDERE. The sterile-flowered variety of *Viburnum Opulus*. — DE JERICHO. *Anastatica hierochuntina*. — DE MER. *Althæa rosea*. — DE NOËL. *Helleborus niger*. — DE SÈRANE. *Pæonia peregrina*. — D'INDRE. *Tigretes erecta*. — D'OUTRE-MER. *Althæa rosea*. — DE LA CHINE. *Hibiscus Rosa sinensis*. — DES CHAMPS. *Dipladenia Rosa campestris*. — DU CIEL. *Viscaria Cæli-rosa*. — DU JAPON. *Hydrangea Hortensis*; also *Cinnelua japonica*. — MAUVE, or TRÉMIÈRE. *Althæa rosea*.

ROSEA. A genus of *Cinchonaceæ*, consisting of shrubs natives of Mozambique. The stipules are combined below into a membranous sheath, and above are prolonged into an awl-shaped point. The flowers are nearly sessile, in axillary clusters; the calyx supported by six overlapping bracts; the corolla saucer-shaped, with the tube hairy within, and the limb divided into six or eight spreading lobes; the stamens six to eight, projecting from

the corolla; the style cylindrical, twisted towards the top; the stigma cleft, protruding from the corolla; and the fruit somewhat fleshy two-celled few-seeded, surmounted by the calyx. The name has also been given to a plant synonymous with *Iresine*. [M. T. M.]

ROSE-A-RUBY. *Adonis autumnalis*.

ROSEAU. (Fr.) *Arundo*. — À FLECHES. *Alpina Galanga*. — À QUENOUILLE. *Arundo Donax*. — À SUCHE. *Saccharum officinarum*. — DES LA PASSION, or DES ETANGS. *Typha latifolia*. — DES INDES. *Bambusa*. — ÉPINKUX. *Calamus Rotang*. — ODORANT. *Acorus Calamus*. — PANACHE. *Diglyphis arundinacea picta*; also *Arundo Donax variegata*.

ROSE-BAY. *Epilobium angustifolium*.

ROSEILLE. *Hibiscus Sabdariffa*, the pleasantly acid ripened calyxes of which are used both in the East and West Indies for making tarts and jellies, as well as a cool refreshing drink.

ROSE-MALORS. An Eastern name for the liquid storax obtained from *Liquidambar orientalis*.

ROSEMARY. *Rosmarinus officinalis*. —, AUSTRALIAN. *Lunythia Dampieri*. —, MARSH. *Andromeda polifolia*; also an American name for *Statice caudata*. —, SEA. *Schoberia frutescens*. —, WILD. *Lodum palustre*; also *Andromeda polifolia*. —, —, of Jamaica. *Croton Cascarella*.

ROSENIA. The generic name of two little-known South African bushes belonging to the groundsel tribe of *Compositæ*, and characterised by their many-flowered radiating heads, the ray-florets of which are fertile and strap-shaped, the disk tubular and perfect; by the receptacle, which has chaffy scales; and by the beakless achenes—those of the disk-florets crowned with a pappus of two series of bristles, the outer of which are shorter than the inner, and like those of the ray-florets which are in a single series. The twigs bear small prickles, and obovate querned leaves, more or less clothed above and below with white down; the flower-heads are terminal and yellow. [A. A. B.]

ROSE-ROOT. *Rhodiola rosea*.

ROSETTA-WOOD. A handsomely veined East Indian wood of a lively orange-red colour, and close hard texture.

ROSEWOOD. A valuable South American timber, produced by several species of *Dalbergia*. That most esteemed, obtained from Rio Janeiro, is said to be chiefly produced by *D. nigra*; but inferior sorts are probably yielded by *Macassarum Arum*, *incorruptibile*, and *legale*—trees which bear the name of *Jacaranda* in Brazil; and it is also attributed by Lindley to species of *Triptolemea*. —, AFRICAN. The wood of *Pterocarpus erinaceus*. —, BURMESE. The wood of *Pterocarpus indicus*. —, CANARY. *Rhodorrhiza scoparia*. —,

DOMINICA. The wood of *Cordia Gerascanthus*. — **INDIAN.** The timber of *Dalbergia latifolia* and *sissoides*. — **JAMAICA.** The wood of *Amyris balsamifera*, and *Linociera ligustrina*. — **MOULMEIN.** The timber of a species of *Milletia*. — **NEW SOUTH WALES.** The wood of *Trichilia glandulosa*. — **TASMANIAN.** The wood of one of the *Acacias*.

ROSEWORT. *Rhodiola rosea*.

ROSEWORTS. Lindley's name for the

ROSIER. (Fr.) *Rosa*. — **À ODEUR DE REINETTE.** *Rosa rubiginosa*.

ROBIN-WEED. *Silphium laciniatum*.

ROSMARINUS. The technical name of the plants more familiarly known under the name of Rosemary. The genus belongs to the *Labiata*, and consists of but one species, the Common Rosemary, *R. officinalis*, a bush, native of the South of Europe and Asia Minor, having narrow stalkless greyish leaves, the edges of which are rolled round on to the under-surface; and flowers with a purplish two-lipped calyx, a white or pale-blue corolla, from which protrude two stamens only, each stamen having a toothed filament and a two-celled anther.

Owing to its agreeable fragrance, Rosemary has been used from time immemorial. It was anciently employed in making garlands, and was considered useful in relieving headache and in stimulating the flagging mental powers: whence it was called Herb of Memory and Repentance. Thus in *Hamlet*, Ophelia says—

There's rosemary, that's for remembrance;

and in *Romeo and Juliet* allusion is made to the use of Rosemary as a token of remembrance at funerals—

Dry up your tears, and stick your rosemary
On this fair corpse.—Act iv. sc. 4.

This custom has not wholly disappeared from among us, though the employment of Rosemary in wedding-wreaths as a symbol of fidelity is now obsolete. Rosemary has slight stimulant properties, but is rarely used internally. It is employed in the form of lotion and wash for the hair, and is useful in cases of baldness. Its chief value, however, is as a perfume; it enters into the composition of Hungarian Water, and other perfumes of a like nature. [M. T. M.]

There is a vulgar belief in Gloucestershire and other counties that Rosemary will not grow well unless where the mistress is 'master'; and so touchy are some of the lords of the creation upon this point, that we have more than once had reason to suspect them of privately injuring a growing rosemary in order to destroy this evidence of their want of authority.

The use of a decoction of rosemary-leaves in cider as a remedy for a cold, as also of oil of rosemary in hair-washes, no doubt depends upon the stimulating

essential oil which the plant contains so abundantly. [J. B.]

ROSO DO CAMPO. A Brazilian name for *Kalmeyera*.

ROSSOLIS. (Fr.) *Drosera rotundifolia*.

ROSTELLATE, ROSTRATE. Terminating gradually in a hard long straight point—as the pod of radish.

ROSTELLUM. A narrow extension of the upper edge of the stigma of certain orchids.

ROSTRUM. Any beak-like extension; as in the stigma of some *Asclepiads*.

ROSULA (adj. **ROSULATE**). A small rose; a rosette. A collection of spreading leaves or petals packed one over the other in many rows; as in double roses, or the offsets of house-leek.

ROSULÆ. Little warts on the thallus of lichens.

ROTALA. A genus of *Lythraceæ* from India, Australia, and Mexico, consisting of small herbs, with opposite or whorled sessile spreading leaves, and minute solitary axillary flowers with a tubular three-toothed (rarely five-toothed) calyx; three (rarely five) petals or none; three or five stamens; and a three-valved capsule, one-celled by the obliteration of the partitions, and many-seeded. [J. T. S.]

ROTATE, ROTÆFORM. Resembling a wheel; a monopetalous corolla with a spreading limb and very short tube.

ROTATION. A motion of circulation confined to the interior of the cells of plants.

ROTHIA. A genus of *Papilionaceæ*, of the tribe *Goniatæ*, among which it is exceptional in having uniform anthers. There are two species, annual diffuse herbs, one found in India and tropical Australia, the other in tropical Africa. It is distinguished from *Crotalaria* by its straight style, and from *Argyrobolium* by its lanceolate inflated pod. The flowers are very small, yellow or whitish-violet, solitary, or two to five together on very short pedicels opposite to the trifoliate leaves.

A few composite plants of the Mediterranean region and the Canary Isles, closely related to *Hieracium*, were also at one time ranked as a genus under this name, but they are now included in *Andryala*. They are biennial or perennial herbs, with entire toothed or pinnatifid leaves, often clothed with soft rusty down; and their yellow flower-heads, about the size of those of hawk-weeds, are disposed in a corymbose manner at the ends of the branches. [A. A. B.]

ROTTBOELLIA. A genus of grasses belonging to the tribe *Rotibopliææ*. The inflorescence is in round jointed spikes, the spikelets inserted in notches on alternate sides of the spike, one to two-flowered, the lower male or neuter; pales membranaceous or shining; upper flower hermaphrodite; stamens three; stigmas

feathery. There are twenty-seven species described under this genus by Steudel, and they are widely distributed over the surface of the globe, a large portion of them inhabiting salt-marshes. [D. M.]

ROTTLERA. A genus of *Euphorbiaceae*, comprising about twenty species, of alternate (rarely opposite) leaved bushes or small trees, found in tropical Asia and the warmer parts of Australia. They are characterised by their two to five-parted calyx; by the total absence of corolla or disk; by the numerous stamens in the sterile flowers, with their filaments free or united near the base into a number of parcels; and by the female flowers having an ovary with two to four one-seeded cells crowned with a like number of undivided somewhat feathery styles. The leaves have rather long stalks, furnished with two glands at their point of union with the blades; the latter vary much in form, some few being peltate, others lobed or toothed, and both surfaces in many cases are clothed with soft starry hairs. The inconspicuous green or whitish flowers are sterile and fertile on the same or on different plants, and disposed in axillary or terminal spikes, racemes, or panicles.

R. tinctoria is a very common Indian bush or small tree, also found in the Indian Archipelago, tropical Australia, and, according to Mr. Hanbury, in South Arabia. The leaves are from four to eight inches long, smooth above, and minutely downy below. From the surface of the trilobed capsules of this plant, which are about the size of peas, a red mealy powder is obtained, well known in India as Kámala, and much used by Hindoo silk-dyers, who obtain from it, according to Roxburgh, a deep bright durable orange or flame colour of great beauty. This is obtained by boiling the powder in a solution of carbonate of soda. 'The capsules are ripe in February or March, and the red powder is brushed off and collected for sale, no other preparation being necessary to preserve it.'

The root of the tree is also said to be used in dyeing. From a paper by Mr. Hanbury on this plant in the *Pharmaceutical Journal* for February 1858, to which the reader is referred for a full account of the Kámala, it appears to be used in cutaneous complaints. 'Among the Arabs of Aden it is given internally in leprosy, and used in solution to remove freckles and pustules;' while in this country it has been used successfully in treating the eruption known as wildfire on children, by rubbing the powder over the affected part with moist lint. It appears, however, to be most valued as an anthelmintic, and has been extensively used with much success in India in cases of tapeworm; three drachms being sufficient for a robust person, and half that quantity for one of feeble habit. The genus is dedicated to Dr. Rottler, an eminent Dutch missionary and naturalist. [A. A. B.]

ROTUND. Orbicular, a little inclining

to be oblong; as the leaf of *Lysimachia Nummularia*, *Mentha rotundifolia*, &c.

ROTUNDATE. Rounded off; a term usually applied to bodies which are not round themselves, but only at their ends.

ROUCOU, ROCOUYER. The Arnotto, *Bixa Orellana*.

ROUDON. (Fr.) *Coriaria*.

ROUGE-BE. (Fr.) *Camelina sativa*.

ROUGE-HERBE, or ROUGEOLE. (Fr.) *Melampyrum arvense*.

ROUGEOTTE. (Fr.) *Adonis aestivialis*.

ROUGE-PLANT. *Rivina tinctoria*.

ROUGETTE. (Fr.) A kind of olive.

ROUGH, ROUGHISH. Covered with little hard or sharp elevations, which produce the sensation of roughness; also applied to surfaces covered with coarse stiff hairs.

ROUILLE. (Fr.) *Uredo linearis*, and *U. Rubigo-vera*.

ROULINIA. A genus of *Asclepiadaceae*, composed of about a dozen species, all of which are inhabitants of tropical America, and have a twining habit. Their leaves are cordate, and of a lively green colour; their flowers scented, pale-yellow or whitish, and arranged in racemes: their calyx is five-cleft; their corolla rotate and five-lobed; and their fruit smooth on the surface and ventricose. Nothing is known of their uses. The *Roulinia* of Brogniart is a totally different plant, synonymous with *Dasyliiron*. [B. S.]

ROUM. A blue dye-stuff of Assam, obtained from a species of *Ruellia*.

ROUMA. (Fr.) *Ranunculus asiaticus*.

ROUMEA. *Xylosma*.

ROUPELLIA. A genus of *Apocynaceae*, comprising a climbing plant, native of Sierra Leone. The calyx is five-parted, with a ring of small glands at the base; the corolla is creamy-white in colour, funnel-shaped, its limb divided into five broad twisted segments, while from its throat project ten flesh-coloured or brown processes united into a ring below; the filaments are very short, the anthers pointed; and the style is dilated into a fleshy five-furrowed mass, which is adherent to the anthers. This plant was supposed to yield the cream-fruit of Sierra Leone; but Dr. Thomson, who has had an opportunity of seeing the fruit of the present plant in the Calcutta Botanic Garden, states that it is follicular, and therefore does not correspond with the cream-fruit. *R. grata* is a showy stove-climber, whose flowers, however, scarcely realise in this country the expectations formed of them. [M. T. M.]

ROURE. (Fr.) *Quercus pedunculata*. — **DES CORROYEURS.** *Rhus Coriaria*.

ROUREA. A genus of *Connarus*, comprising upwards of forty species,

distributed chiefly in tropical Asia and tropical America, one occurring in Africa. It belongs with *Connarus* to the arillate-seeded group of the tribe *Connareæ*, and is distinguished from that genus by its sessile capsule, and by its calyx growing on after flowering. They are trees or shrubs, sometimes scandent, with alternate coriaceous imparipinnate leaves, and axillary panicles of small flowers. [T. M.]

ROUREOPSIS. A name proposed by Planchon for two Malayan species of *Roorea*, which have since been reunited with the latter genus.

ROU ROU. A Mexican furniture-wood resembling rosewood.

ROUSSEA (or **ROUSSEA**) *simplex* is a scandent epiphytal shrub inhabiting the Mauritius, with opposite oblong leaves, and axillary flowers, which are white outside and purplish within. The calyx is deeply five-lobed; the corolla monopetalous five-lobed (or, as some would describe it, having five petals growing together); there are five stamens; and a fleshy five-lobed berry, containing numerous seeds. [It has been classed with *Bixaceæ*, with which Bentham and Hooker include it in *Saxifragaceæ*.] [B. S.]

ROUVET. (Fr.) *Ostrya alba*.

ROUVRE. (Fr.) *Quercus sessiliflora*. — **DES CORROYEURS.** *Ilex Cornaria*.

ROWAN-TREE. A Scotch name for *Pyrus Aucuparia*.

ROXBURGHIA, ROXBURGHACEÆ. A genus of monocotyledons presenting so many curious peculiarities in structure as to be generally admitted as a distinct order, the immediate affinities of which are not yet satisfactorily settled. It consists of three or four species from India and the Indian Archipelago. They are all tall twiners, with broad leaves, mostly opposite, and marked by several longitudinal ribs having transverse veins between them. The axillary peduncles bear one or very few green flowers, which are large and handsome but very fetid; the perianth has four divisions; there are four stamens, and the ovary and fruit consist of a simple carpel opening when ripe in two valves, numbers all very unusual among monocotyledons. The seeds are long, hanging from long funicles, covered towards the top with linear pellucid vesicles. The thick tuberous roots, after a previous preparation with lime-water, are candied with sugar and taken with tea, but are said to be insipid.

ROYENA. A Cape genus of shrubs or trees referred to the *Ebenaceæ*, numbering about twenty species, and differing from the true ebony (*Diospyros*), as well as others in the family, in the flowers being fertile and sterile on the same instead of on different plants. They have alternate simple entire smooth or downy leaves, either willow-like spatulate or ovate in form, bearing in their axils one to three-stalked white or yellow flowers not unlike

those of some *Andromeda*. These have a five-lobed calyx, which in some continues to grow after the flower withers; a five-parted bell-shaped corolla with obtuse lobes; ten stamens, two opposite each corolla-lobe; and a hairy two to ten-celled ovary crowned with two to five styles. The fruits are globular or elliptical berries about the size of damsons, usually with five one-seeded cells.

R. lucida is a pretty white-flowered bush sometimes cultivated in greenhouses. Its ovate leaves are at first slightly downy, but glossy when mature; and the white flowers are stalked and solitary in the axils of the leaves. The wood of these plants is of a like nature with ebony; but the trees do not grow to a great size. It was named *Royena* by Linnaeus after Adrien Van Royen, once Professor of Botany at Leyden. [A. A. B.]

ROYLEA. The name of a genus belonging to the *Labiata*, distinguished from its conspecifics by having the border of the calyx in five equal divisions, and the lower lip of the corolla with its middle lobe entire. The only species is *R. elegans*, a native of India, an erect shrub having its branches clothed with fine down, the leaves hairy ovate or subcordate, and the flowers varying in colour from white to pale red. The genus is named in honour of the late Dr. Royle, a well-known botanist, author of *Illustrations of the Botany of the Himalaya*, &c. [G. D.]

ROZELLE. *Hibiscus Sabdariffa*: see **ROSELLE**.

RUAY. Seeds used as weights in India and Burmah, the small Ruay being those of *Abrus precatorius*, and the large Ruay those of *Adenanthura pavonina*.

RUBAN D'EAU. (Fr.) *Spartanium ramosum*. —, **DE BERGÈRE** *Diglyphis arundinacea picta*. —, **GRAND.** *Arundo Donax*. —, **PETIT.** *Diglyphis arundinacea*.

RUBANIER. (Fr.) *Spartanium*.

RUBELLUS, RUBENS, RUBER, RUBESCENS. The same as Red, Reddish.

RUBÉOLE. (Fr.) *Sherardia*.

RUBIACEÆ. Under this name those botanists who think that each whorl of leaves in *Gallium* and its allies should be considered as two opposite leaves and two or more stipules, unite the two orders *Cinchonaceæ* and *Galiaceæ*. The large order thus formed would comprise all monopetalous plants with opposite leaves, interpetiolar stipules, stamens inserted in the tube of the corolla and alternating with its lobes, and an inferior compound ovary.

RUBIA. One of the genera of *Galiaceæ*, so named from the Latin *ruber* red, in allusion to the colour of the roots. The species are perennial herbs, occasionally somewhat shrubby at the base, and rough with stiff hairs. The flowers are axillary or terminal; the limb of the calyx entire

or scarcely developed; the corolla rotate, five-parted; the stamens five, partially protruding from the tube of the corolla; and the styles two, confluent at the base, the stigmas button-like. Fruit somewhat globular, juicy, two-lobed, two or rarely one-celled, each cell one-seeded.

The dye known as Madder consists of the dried roots of *R. tinctorum*. In the living roots the colouring-matter is yellow, but this becomes red on drying. The best madder is imported from the Levant, but some comes from Holland and France; the dye is much used in the latter country under the name of Garance. Some of the Indian species, e.g., Munjeet, *R. cordifolia*, also yield a red dye.

Madder has sometimes been stated to possess medicinal virtues, these, however, are so slight as to be now disregarded. The bones of young animals fed on madder become tinged with a red colour, and phy-



Rubia tinctorum.

siologists avail themselves of this fact in their researches on the mode of growth of the bones. The stem and leaves of *R. tinctorum* are used in France for polishing metal-work, for which purpose their stiff hairs adapt them. The leaves and herbage also are used as fodder for animals.

One species, *R. pergrina*, is native in the South-west of England. It is a straggling herb, trailing over bushes by means of recurved prickles projecting from the edges of the leaves and stem. It greatly resembles the species of *Galium*, to which genus indeed the present is very closely allied; but from which it may be distinguished by the fleshy fruit, destitute of prickles or hairs, and by the five not four-parted flowers. [M. T. M.]

RUBICUND. Blushing; rosy red.

RUBIGINOSE. Brown-red; a term usually employed to denote a surface whose peculiar colour is owing to glandular hairs.

RUBOR, EDO. Redness of any sort.

RUBSEN-CAKE. An oilcake made on the Continent from the seeds of *Brassica praeox*.

RUBUS. The genus of the Bramble, Blackberry, Raspberry, Dewberry, and Cloudberry. The species are mostly shrubs (rarely herbs) trailing or erect, with prickly stems, pinnate quinate ternate or simply lobed leaves, and edible fruit. They belong to the *Rosaceae*, among which they are sufficiently marked by the form of their fruit. The plants of this family, growing in all situations and in every kind of soil, vary greatly, and are consequently most perplexing to the botanist; and so little are authors agreed as to which are species and which are merely varieties, that while Bentham reckons but five species, Babington enumerates forty-five. In a popular work it will be necessary to mention those only which may be considered typical species. Of *R. Idæus* no more need be said than that it is the original of the many varieties of Raspberry, and in its wild state differs from the cultivated kinds mainly in its smaller size. *R. rhamnifolius* and *R. corylifolius* furnish the Blackberries of the hedges, in which the calyx of the fruit is reflexed; *R. fruticosus* has also a reflexed calyx, but the leaves are hoary beneath. *R. cæsius* furnishes Dewberries, distinguished by the large size of the grains, which are covered with bloom and few in number, the whole being closely clasped by the calyx. *R. saxatilis*, the Roe-buck-berry, and the badge of the M'Nabs, is an herbaceous species found in mountainous places in the North, and distinguished by its ternate leaves, and fruit of few red large grains. *R. Chamæmoris*, the Cloudberry, and badge of the M'Farlanes, is also herbaceous, with an erect stem six to eight inches high, lobed leaves, and a single flower which is succeeded by a large orange-red fruit of an agreeable flavour. The double-flowering *Rubus* of gardens is a variety of *R. fruticosus*. *R. laciniatus*, of which the native country is unknown, is a rampant species with deeply cut leaves, and large black fruit, which are highly ornamental during autumn. *R. odoratus*, the American Bramble, is an erect unbranched shrub, with large five-lobed leaves, and rose-coloured flowers. *R. occidentalis*, the Virginian Raspberry, has pinnate and ternate leaves, white flowers, and black fruit. Other species are grown in gardens, and two or three are deemed worthy of the conservatory. French: *Ronce*; German: *Brombeerstrauch*. [C.A.J.]

The Raspberry, *R. Idæus*, is a deciduous shrub with perennial creeping roots, biennial stems, which are round villous or prickly, and pinnate leaves which become trifoliate towards the upper part of the shoots. The stems are technically termed *cane*s. The Raspberry is a native of Great Britain and of most countries in Europe. It grows wild as far north as Lat. 70°, and southward it appears to have been abundant on Mount Ida, in Asia Minor, Lat. 30° 40'. It was known to the ancients,

and Linnaeus retained the classic name of *Ida*, with which it was associated by Dioscorides. It was called in Greek *Batos Idaia*, and in Latin *Rubus Idaea*, the Bramble of Mount Ida. The generic name of *Rubus* is from the Celtic *rub*, red. The fruit is called in German *Hindbeer* or *Himbeer*, in Dutch *Braamboos*, and in Danish *Hindebær*. Gerarde calls it *Raspus* or *Hindberry*; in Scotland the plants and fruits are called *Rasps* very generally, doubtless on account of the roughness of their stems; but it is also known by the older Saxon or German name of *Hindbeer* in some parts, and that term is used by the Ettrick shepherd:

'Twas only to hear the yorling sing,
And pu' the crawflower round the spring,
The scarlet hep and the hindberrie,
And the nut that hang frae the hazel tree.

The Raspberry is much employed by cooks and confectioners in various ways, and also in the manufacture of liqueurs. It has a peculiarly rich aroma, and in this respect none of the many varieties exceeds the Red Antwerp; some others are larger, but inversely in proportion to their size they are deficient in aroma. [R. T.]

It is well known that the barren shoots of most of our British *Rubi*, from being too flexible to keep upright, bend downwards even from the hedges and thickets and root their ends in the soil, thus following that mode of increase which in the strawberry is effected by the scion. The loop thus formed was formerly an object of occasional search, being reputed in some counties (and we have known it so in Gloucestershire) as capable of curing hernia or rupture when used aright, to which end the afflicted child is passed backwards and forwards through the arching bramble. The origin of this custom it is difficult to make out; but, as is remarked in *Notes and Queries*, the passing of children through holes in the earth, rocks, and trees, once an established rite, is still practised in various parts of Cornwall. Children affected with hernia are still passed through a slit in an ash sapling before sunrise, fasting; after which the slit portions are bound up, and as they unite so the malady is cured.

It would appear that in Cornwall the bramble-cure is only employed for boils, the sufferer being either dragged or made to crawl beneath the rooted shoot.

We have heard of cows that were said to be mouse-crope, or to have been walked over by a shrew-mouse (an ancient way of accounting for paralysis), being dragged through the bramble-loop, in which case, if the creature could wait the time of finding a loop large enough and suffer the dragging process at the end, we should say the case would not be so hopeless as that of our friend's fat pig, who, when she was ailing, 'had a mind to kill her to make sure on her.'

[J. B.]

RUBY-WOOD. The Red Sanders wood of commerce, produced by *Pterocarpus santalinus*.

RUCKERIA. A genus of stemless Cape herbs belonging to the thistle group of the *Compositae*, and somewhat intermediate in character between *Oithona* and *Euryops*, differing from the former in the pappus being alike in the ray and disk-florets, and from the latter in the sterile disk-florets having undivided stigmas. The leaves, which arise from the somewhat woody collar of the plant, are pinnately-parted with linear segments, and the rayed flower-head is single on the apex of a naked flower-stalk. *R. tagetoides* takes its name from its outward resemblance to some French marigolds. The cup-shaped involucre consists of a single series of oblong pointed scales; the strap-shaped ray-florets are fertile; the disk-florets tubular and sterile (rarely perfect); and the woolly pappus consists of many series of loosely-bearded white hairs. The three known species are rather showy plants. [A. A. B.]

RUDBECKIA. A well-known North American genus of herbaceous plants belonging to the *Compositae*, and nearly related to *Helianthus*, from which they may be recognised by the cone-shaped instead of flat receptacle on which the florets are seated; and from other of their allies by their four-sided achenes, which are either naked or furnished with a minute crown-shaped pappus, and embraced by the boat-shaped chaffy scales of the receptacle. From among the fifteen known species, at least seven have been cultivated in gardens. *R. laciniata*, very common in herbaceous borders, is a smooth branching plant four to eight feet high, the lower leaves pinnately parted, while those of the stem are three or five-parted, with ovate or lance-shaped toothed segments. The yellow-rayed flower-heads have drooping rays, neutral, and in a single series; and the tubular and perfect disk-florets are of a greenish-yellow colour. *R. hirta* is clothed throughout with rough hairs, the stems slightly branched, one to three feet high, the lower leaves spatulate three-nerved, and the upper ones ovate or lance-shaped and sessile, while the handsome flower-heads with bright-yellow rays and a dark-purple disk are borne on the naked summits of the branches. Both are Canadian as well as United States plants. The species are desirable and suitable for planting in flower-borders. Linnaeus named the genus after the Professors Rudbeck, father and son, who were his predecessors at Upsal. [A. A. B.]

RUDDIES. *Calendula officinalis*; also *Chrysanthemum segetum*.

RUDERALIS. Growing among rubbish, or in waste places.

RUDGEA. A genus of *Cinchonaceae*, consisting of trees or shrubs, natives of Guiana, with greyish hairy branches, large fringed deciduous stipules, and flowers in dense terminal panicles. The limb of the calyx is divided into five sharp segments; corolla funnel-shaped, with an elongated tube, and a limb divided into five narrow

segments abruptly bent downwards; stamens five, included within the corolla; style simple; stigma divided into two plates. Fruit succulent, two-celled, two-seeded. The flowers become black as they dry. [M. T. M.]

RUDIMENTARY. In an incomplete condition.

RUDOLPHIA. Three extremely handsome scarlet-flowered woody leguminous climbers, found in Mexico and San Domingo, form this genus, which is nearly allied to *Erythrina*, though readily distinguished by the simple instead of trifoliate leaves, as well as by the calyx, which is tubular, and rather deeply divided into four teeth, the upper and lower longer than the lateral ones. The glossy entire leaves are somewhat heart-shaped in form; and the handsome flowers—remarkable for their narrow pointed standard nearly an inch in length—are arranged in axillary stalked racemes, which are sometimes more than a foot long. The pods are compressed and many-seeded. None of the species are as yet known in gardens. [A. A. B.]

RUE. *Ruta*. —, COMMON. *Ruta graveolens*. —, FEN. *Thalictrum flavum*. —, GOATS. *Galega officinalis*. —, MEADOW. *Thalictrum flavum*. —, SYRIAN. *Peganum Harmala*. —, WALL. *Asplenium Ruta mararia*.

RUE. (Fr.) *Ruta*. — DE CHÈVRE. *Galega officinalis*. — DE MURAILLE. *Asplenium Ruta mararia*. — DES CHIENS. *Scrophularia cantina*. — DES JARDINS. *Ruta graveolens*. — DES PRÉS. *Thalictrum flavum*.

RUELLIA. A large genus of *Acanthaceae*, consisting of pilose herbs, natives of tropical Asia and Australia. They have opposite leaves, and flowers in axillary and terminal spikes, with leafy bracts. The calyx is five-parted; the corolla somewhat campanulate, with a limb composed of five equal spreading segments; the four didynamous stamens are included; the style is simple, with a subulate stigma; and the capsule is two-celled, with six to eight seeds. Some species are cultivated because of the beauty of their flowers. [W. C.]

Several species of this genus are used in the East in the preparation of a blue colouring-matter of the nature of indigo, but no precise information exists as to the particular species thus employed. One of the most important is a Chinese plant, temporarily named *R. tinctoria* by Mr. Fortune. This is extensively cultivated in the neighbourhood of Ningpo and other parts of the province of Chekiang, and the indigo prepared from it is largely used by the country-people for dyeing their blue cloth. The pigment is prepared from the entire plant by a process somewhat resembling that employed in the preparation of the common indigo. The plant forms a bush a foot or a foot and a half high, and is cut down before the flowers appear. Large quantities of it are thrown into a circular

tank about ten feet in diameter and two feet in depth, covered with water, and allowed to remain for about five days, when they become partially decomposed, and are removed by means of large flat-headed brooms made of bamboo twigs. The water is then well stirred with the brooms, and kept in a rapid circular motion for some time, and about forty pounds of lime thoroughly mixed with it, after which it is beaten with bamboo rakes for about half an hour, and then allowed to settle for three or four days, when the supernatant liquor is drawn off, and the thick paste of blue colouring-matter packed in baskets and exposed for sale—it being used for dyeing while in a wet state. The Chinese name Tien-ching is given to both the indigo of this plant, and to that of *Isatis tinctoria*. In Assam a species of *Ruellia* called Room or Roum, which is probably identical with the Chinese, is used for the same purpose; and others in Pegu, Burmah, and Singapore. [A. S.]

RUEWORTS. Lindley's name for the *Rutaceae*.

RUFESCENS, RUFUS. Pale red, mixed with brown.

RUGA. A wrinkle; hence *rugose*, covered with wrinkled lines, the spaces between which are convex; as the leaves of garden sage.

RUIZIA. The name given to a few shrubs of the *Sterculiaceae* found in the Island of Bourbon, and closely related to *Dombeya* or *Astrapea*, but differing in all the twenty stamens of the flowers being anther-bearing, as well as in their ten-celled ovary. The four species are named respectively *palmata*, *lobata*, *cordata*, and *dissecta*, from their palmate or maple-like, lobed heart-shaped or dissected leaves, which are stalked alternate and downy underneath. The white or rosary flowers, somewhat like minture mallows, are disposed in axillary stalked cymes, each flower having a five-parted calyx with two bracts at its base; five oblong clawed petals; twenty stamens; and a ten-celled ovary crowned with ten short styles. The fruits are ten-celled globular capsules with two seeds in each cell. The name of Dr. Hipolito Ruiz, an eminent Spanish botanist and traveller in Peru and Chili, is perpetuated in this genus. [A. A. B.]

RULINGIA. Under this name are associated about a dozen species of Australian plants belonging to the *Sterculiaceae*, and closely related to *Antiaris* itself, but readily recognised by the absence of the strap-like appendage seen on the back of the petals in that genus. They are small erect branching bushes, the stems and especially the leaves more or less clothed with soft starry hairs, like those seen on *Thomasis* and *Lasiopetalum*. The flowers are small, white, and disposed in axillary or terminal cymes. They have a five-parted calyx with triangular segments; five petals, concave at the base, with the sides incurved

so as to form a little bag, and strap-shaped upwards; ten stamens slightly united at the base into a ring, the alternate ones only bearing anthers; and a five-celled ovary crowned with five more or less united styles. The fruits are smooth or rough five-celled capsules the size of pens, with one seed in each cell. *R. densiflora*, a Swan River species, has from the lobing of its leaves, together with its habit resembling that of *Achillea*, been called *Achilleopsis densiflora*. *R. corytfolia* and a few others are in cultivation, but none of them are remarkable for their beauty, since the white starry flowers do not exceed a quarter of an inch in diameter. [A. A. B.]

RUMBEH. A Malayan name for *Pierardia dulcis*.

RUMBIYA. A Malayan name for the Sago Palm.

RUMEX. The Dock and Sorrel genus—a large and widely distributed group of *Polygonaceae*, occurring chiefly in the temperate zones of both hemispheres. They are herbs, more rarely undershrubs, with alternate leaves, sheathing stipules (ochrea), and verticillate racemose flowers arranged in a paniculate manner. These have a six-leaved perianth—the three outer leaves cohering at the base and herbaceous, the three inner larger, somewhat coloured, increasing much in size after flowering, when they often display a central tubercle; stamens six; styles three, with pencil-like stigmas; nut three-edged, enclosed in the three inner connivent enlarged leaves of the perianth. Many of the species are troublesome weeds. Some have been used as a substitute for Rhubarb-root, and others are cultivated for their pleasant acid foliage.

There are a good many British species belonging to this genus, which may be divided into three sections or subgenera:—

Lapathum: the Dock. In this the flowers are usually perfect, very rarely dioecious, the inner perianth-leaves usually tubercled; styles free, with multifid stigmas. They are insipid herbs, with pinnate-veined leaves, and many-flowered whorls; flowers in two three or five rows in each whorl; pedicels articulated at the base. The British species are *R. maritimum*, *pulchrum*, *obtusifolius*, *conglomeratus*, *sanguineus*, *pratensis*, *crispus*, *aquaticus*, *Hydrolapathum*, and *alpinus*. This latter species is doubtless an introduced plant, but is well naturalised in the mid-Counties of Scotland, where it is known as Monk's Rhubarb.

Acetosa: the Sorrel. In this group the flowers are often dioecious or polygamously monoecious; perianth-segments without tubercles; styles adhering to the angles of the ovary, with multifid stigmas. They are acid herbs or undershrubs, with usually hastate or sagittate leaves, and few-flowered whorls, the flowers in one or two rows in each whorl; pedicels articulated at the base in most of the species. Only two species of this section occur in Britain, *R.*

Acetosa and *Acetosella*; but it includes also the French Sorrel, *R. scutatus*, which has polygamously monoecious flowers, and has escaped from cultivation in a few places.

Rumastrium, the third group, contains no British species. It occurs in Abyssinia and Arabia, and comprises

are usually perfect, rarely monoecious; the styles adhere to the angles of the ovary as in *R. Acetosa*, but the stigmas are not many-cleft. [J. T. S.]

R. obtusifolius, the Common Dock, and several others are well-known as being among the greatest pests to agriculturists. A few species are cultivated for the supposed medicinal properties of their roots, and some as potherbs, the acidity in their leaves rendering them both wholesome and agreeable for such purposes.

The Common Sorrel, *R. Acetosa*, is a perennial, and is generally found in pastures where the soil is inclined to be irony. Formerly this plant was cultivated in gardens for its leaves, which were used as spinach or in salads, and in the time of Henry VIII. it was held in great repute. After the introduction of the French Sorrel, with large succulent leaves, it gradually lost its position as a salad and potherb, and for many years it has been entirely discarded from cultivation.

The Buckler-shaped or French Sorrel, *R. scutatus*, is a hardy perennial, a native of France and Italy, and is stated to have been introduced into this country in 1506. The leaves are blunt, somewhat halbert-shaped, glaucous smooth soft and fleshy. The stems are inclined to spread, but rise from a foot to eighteen inches high, and bear numerous greenish-white flowers disposed in terminal clustered panicles. The leaves are used for the same purposes as those of *R. Acetosa*, and are considered preferable on account of being more succulent, with rather less acidity.

The Sorrels are considered of great importance in French cookery, and are both agreeable to eat and very wholesome, although but little valued in this country, except at some of the most fashionable tables. On the Continent sorrel is extensively cultivated, and in the vegetable markets of Paris it is nearly as abundant during the season as peas are in those of London. It abounds in oxalic acid, and is regarded as a powerful antiscorbutic. The French have several varieties. [W. B. B.]

RUMFORDIA. The only species of this genus, *R. floribunda*, is a handsome opposite-leaved Mexican bush of the *Compositae*, related to the North American *Heliotropis*, and differing chiefly in habit. The whole plant is smooth, and the erect stems, furnished with ample glossy leaves, terminate in a panicle of very numerous bright-yellow flower-heads each about an inch across, and interspersed with oblong bracts. The leaves are ovate, narrowed to the base, shortly pointed, and three-nerved. Each

head is stalked, and has an involucre of fifteen scales—the five outer leafy, the ten inner much smaller, pointed, and embracing by their bases the corresponding achenes of the strap-shaped ray-florets, which bear pistils only; while the central tubular florets are perfect, and have their achenes embraced by chaffy scales somewhat like those of the ray. [A. A. B.]

RUMINATED. Pierced by irregular passages, filled with colouring matter or minute dead cell-membranes, as the albumen of nutmeg.

RUMOHRA. *Polystichum*.

RUMPHIA. The name applied to a tree, native of Malabar, and considered to constitute a distinct genus of *Anacardiaceae*. The leaves are simple, and the flowers in terminal racemes. The calyx is three-cleft, tubular; there are three petals and as many stamens; the ovary is solitary, and the fruit is fleshy, top-shaped, marked with three furrows, and containing a three-celled three-seeded stone. The generic name celebrates a botanist of the last century, known particularly by his work on the Botany of Amboyna. [M. T. M.]

RUNCH. *Raphanus Raphanistrum*.

RUNCINATE. Curved in a direction from the apex to the base; as the leaf of *Leonodon Taraxacum*.

RUNCINATO-LACINIATE. Both runcinate and lacinate.

RUNNER. A prostrate slender stem rooting at its extremity, as in the strawberry.

RUPESTRIS. Growing on rocks, or in rocky places.

RUPICOLA. Inhabiting rocks.

RUPPIA. A submersed aquatic belonging to the order *Juncaginaceae* and distinguished from *Potamogeton* by having the four one-seeded capsules on long stalks. *R. maritima*, the only species, is an unattractive plant with the habit of the smaller pondweeds, remarkable only for the peculiarity of the stalk or spadix which bears the seed-vessels. This in its early stage is included within sheathing bracteae, but as the flowers approach maturity, their stalks become spiral and lengthen five or six inches, thus raising the flowers to the surface of the water. The plant is very widely diffused, being found in Britain and America, and also in the Sandwich Islands, and on the coasts of Southern India and Ceylon, constantly preserving the same appearance. [C. A. J.]

RUPRECHTIA. A genus of *Polygonaceae*, inhabiting the West Indies, Brazil, and Guiana, distinguished from the closely allied genus *Triplaris* by having the fruit pyramidal with three furrows, and the nucleus three-lobed, runcinate. [J. T. S.]

RUPTILE. Bursting irregularly, not in the line of union of parts in cohesion.

RUPTINERVIS. **RUPTINERVICA.**

When a straight-ribbed leaf has its ribs interrupted or swollen at intervals.

RUPTUREWORT. *Herniaria glabra*; also *Alternanthera polygonoides*.

RUPTURING. An irregular not definite mode of bursting.

RUSCUS. Evergreen shrubs belonging to the tribe *Asperageae* of liliaceous plants. Its characters are:—Root not bulbous; flowers six-parted, persistent, imperfect; stamens connected at the base and forming a nectary; fruit a berry. *R. aculeatus*, the Butcher's Broom or Knee-Holly, is a singular plant, growing wild mostly in the South and West of England, but frequently planted in shrubberies. The stems, which are green erect rigid and branched above, grow to about three feet high, and bear numerous small coriaceous leaf-like branches, each terminating in a single spine. The flowers are small greenish-white, and solitary on the disk of the leaves; and the berry is about the size of a small cherry, and of a brilliant scarlet colour. The young shoots are sometimes eaten like those of



Ruscus aculeatus.

asparagus, and the mature plants made into brooms. *R. racemosus* or *Alexandrinus* is a favourite evergreen shrub with the leaf-like branches unarined, and the racemes of small flowers terminal. *R. androgynus*, a native of the Canaries, bears its flowers along the edges of the so-called leaves. In the S. European *R. Hypophyllum*, the flowers are borne on the under side of the flattened branches; and in *R. Hypoglossum*, also from S. Europe, on the upper side under a bract-like branchlet. French: *Fragon piquant*; German: *Muesdorn*. [C. A. J.]

RUSH, POLISHING, or DUTCH RUSHES. The commercial name of *Equisetum hyemale*, which is imported principally from Holland, as a material for polishing wood, ivory, and brass, in consequence of the large quantity of silex it contains in its tissues, which is so abundant that the form may be retained when the plant is burnt. The greater number of the particles,

according to Brewster, form simple straight lines; but the rest are grouped into oval forms, connected together like the pearls of a necklace by a chain of particles forming a sort of curvilinear quadrangle, these rows of oval combinations being arranged in pairs. In the straw and chaff of wheat, &c., which is also good when burnt for polishing, he noticed analogous phenomena, but the particles were arranged in a different manner, and displayed figures of singular beauty. [M. J. B.]

RUSH. *Juncus*. —, BALD. *Peltocarya*. —, BOG. *Schæmus*. —, BULL. *Scirpus lacustris*. —, CLUB. *Scirpus*. —, DUTCH. *Equisetum hyemale*. —, FLOWERING. *Butomus umbellatus*. —, HARESTAIL. *Eriophorum vaginatum*. —, HORNED. *Ceratophyllum*. —, MOSS. *Juncus squarrosus*. —, NUT. *Scleria*. —, PAPER. *Papyrus antiquorum*. —, SCOURING. *Equisetum hyemale*. —, SPIKE. *Eteucharia*. —, TWIG. *Cladium*. —, WOOD. *Lusula*.

RUSOT. A watery medicinal extract prepared in India from the sliced roots stem and branches of *Berberis Lycium*, and *B. aristata*.

RUSSELLIA. A genus of *Scrophulariaceæ*, containing several herbs or shrubs, natives of Mexico and the Antilles. They have angular branches, with entire opposite ternate or whorled leaves, and scarlet flowers in axillary corymbs. The calyx is five-parted; the tube of the corolla dilated upwards, and the limb two-lipped; the four stamens are included, the anthers composed of two divaricate cells: the style is simple; the stigma obtuse; and the globular capsule has an attenuated beak, is two-celled, each of the cells containing several small seeds. [W. C.]

RUSSIAN MATS. An article of commerce manufactured from the inner bark of *Tilia*.

RUSSULA. A genus of gill-bearing *Fungi* distinguished principally from *Lactarius* by the absence of milk. The species are numerous, but so variable in form and colour—which exhibits the brightest scarlet, pink, white, yellow, livid, &c., in one and the same species—that they are often very difficult to distinguish, though when once ascertained they are easy of recognition, even under considerable disguise. The gills are either white or of an apricot-yellow, according to the colour of the spores. Most of them are more or less depressed in age. The gills are mostly brittle and entire, with a peculiar character of their own, which, without inquiry as to the nature of the fluid they contain, at once indicates the genus. Some are extremely acid, while others are mild and esculent. They are much esteemed on the Continent, though seldom used in England. Mrs. Huxley, however, was a great advocate for them, and speaks of one species as giving a daily and welcome supply to an invalid who could neither relish nor digest any other food. [M. J. B.]

RUST. The common name of *Trichobasis Rubigo vera*, a parasitic fungus of the natural order *Pucciniales*, which, with one or two other closely allied species confounded with it by the farmer, preys upon the leaves, glumes, stalks, &c. of cereals. They have been supposed to be mere conditions of *Puccinia graminis*, but this is not fully borne out by closer inquiry. Rust does not appear to be injurious to corn so long as it is confined to the flaggy leaves, as it seldom grows except when they are over-luxuriant, but it is a formidable adversary when it attacks the chaff or seed; and the more so because it is impossible to suggest any remedy. Every protospore is shed long before the grain is reaped, and therefore steeping the seed is useless. The application of any dressing to the soil is almost like breaking a butterfly upon a wheel. White wheat is more subject to have the chaff affected than red; indeed, some varieties are scarcely ever entirely free from the parasite. [M. J. B.]

RUSTY. The s e as Ferruginous.

RUTABAGA. The Swedish Turnip, *Brassica campestris rutabaga*.

RUTACEÆ (*Ruta*, *Diosmeæ*, *Fraxinellæ*, *Ruevorte*). A large order of polypetalous dicotyledons, consisting of trees, shrubs, or rarely herbs, always more or less marked with glandular dots, especially on the foliage, and often strongly scented. The leaves are frequently opposite, simple or more generally compound, entire or rarely toothed, without stipules. The flowers are usually hermaphrodite and regular, sometimes showy and often sweet-scented; the sepals and petals are five each, with the same or double the number of stamens inserted on a hypogynous or somewhat perigynous disk; and the ovary has four or five cells, with two or rarely one ascending ovule in each. The fruit is a capsule or berry, rarely a drupe; and the seeds, whether with or without albumen, have always a large embryo. All the above characters are, however, liable to exceptions, and there is little beyond the glandular dots of the foliage to separate the order on the one hand from *Samarubaceæ*, and on the other from *Berberaceæ*. In its geographical range, the order extends over the tropical, subtropical, and temperate regions of the whole globe; it is, however, scarce in tropical Africa, and disappears entirely in cold climates and at great elevations.

Taken in its most extended sense, the order is now divided into seven tribes, several of which, and not always those which are most distinct in character, are often considered as separate orders. They are—*Ouparides*: natives of tropical America, comprising nine genera of which the most important are *Almeida*, *Golpes*, *Tecora*, and *Monstera*. *Eudes*: dispersed chiefly over the temperate regions of the Northern Hemisphere, with six genera, including *Ruta*, *Peganum*, and *Dicomanus*. *Diosmeæ*: eleven genera all South African, chiefly *Diosma* and small genera sepa-

rated from it. *Boronics*: eighteen genera, all Australian, including *Zieria*, *Boronia*, *Phebalium*, *Crowea*, *Correa*, &c. *Xanthozylus*: dispersed over the tropical regions of both the New and the Old World, seventeen genera, including *Melicope*, *Erodia*, *Choisya*, *Xanthoxylon*, *Esenbeckia*, &c. *Toddalies*: chiefly tropical in both the New and the Old World, comprising nine genera, of which the principal are *Toddalia*, *Hortia*, *Acronychia*, and *Skimmia*. *Aurantias*: also tropical, but almost limited to Asia, thirteen genera, including *Glycosmis*, *Limonia*, *Murraya*, *Clausena*, *Atalantia*, *Citrus*, &c. The five first of the above tribes have their ovary usually lobed, and their fruit capsular or dividing into cocci; whilst *Toddalies* and *Aurantias* differ in their undivided and indehiscent fruit, usually a berry or rarely a drupe. The *Aurantias* have until lately been almost universally admitted as a distinct order: see *AURANTIACEÆ* and *XANTHOXYLÆ*.

RUTA. This genus gives its name to the order *Rutaceæ*. The species are herbs or undershrubs, natives of the temperate regions of the Eastern Hemisphere. The leaves are beset with small glands, containing a powerfully smelling oil; they are pinnate or much-divided. The flowers are yellowish or greenish, and arranged in terminal corymbs or racemes. The calyx has four persistent sepals; the petals are four, concave; stamens eight; ovary four-lobed, on a short thick disk-like stalk, at the base of which is a ring of eight glandular pores; style one; fruit capsular, four-celled, with six to eight seeds in each cell.

The Common Rue, *R. graveolens*, a native of the South of Europe, is commonly cultivated in this country. It is a somewhat shrubby plant, two to three feet high, with pinnately divided bluish-green leaves, and yellowish flowers disposed in corymbs. The first flower that opens has usually ten stamens, the others eight only. These stamens are of unequal length; each is bent inwards in its turn to touch the pistil, and after the pollen has been shed it bends back again. The powerful fetid odour and acrid taste of this plant depends on the presence of a volatile oil.

Rue is used medicinally as a stimulant and narcotic in flatulent colic, hysteria, &c. Its active properties are such as to admit of its much more general use, but practitioners have been perhaps deterred from employing it, by the symptoms of acrid-narcotic poisoning induced by an overdose. Locally applied, Rue is a powerful irritant. One species indeed, *R. montana*, is said to be so powerful that it is dangerous to handle the plant, even when the hands are protected by gloves. Rue was employed medicinally by the ancients: for ages it was considered potent to ward off contagion, and it is still employed to keep off noxious insects. Rue enters into the composition of the French perfume, entitled Vinegar of the Four Thieves. The Italians are stated to eat the leaves in salads. Shakespeare speaks of Rue as Herb

of Grace. Several species besides those mentioned in this notice are cultivated in gardens in this country. The name *Ruta* is from the Greek *rao*, to preserve, in allusion to the effects of the plant on the health. [M. T. M.]

RUTILANS, RUTILUS. Reddish, with a metallic lustre; also brick-red.

RUTOSMA. This name has been applied to a herbaceous plant, *R. texana*, growing in New Mexico, Texas, &c., and constituting a genus of *Rutaceæ*. It is a low-growing plant, sending up many stems from a thick root, having linear entire strong-scented leaves, and flowers whose structure differs from that of *Ruta* and other adjacent genera in the petals being comparatively flat, and in having an eight-lobed disk without pores, a two-celled ovary, and rough seeds. [M. T. M.]

RUTTON-ROOT. An Indian dye-root, *Maharanga Emodi*.

RUTTYA. A genus of *Acanthaceæ*, from South Africa, containing a single species. It has four stamens, the two barren ones being very short; and the base of the anthers is mucronate. The capsule is four-seeded; and the divisions of the calyx are very long and slender. [W. G.]

RYSSCHIA. A genus of *Marcgraviaceæ*, containing about eight tropical American species, mostly forming epiphytal or scandent shrubs, which have thick quite entire leaves, and terminal often very long racemes of flowers. It is distinguished from the two allied genera *Marcgravia* and *Norantea*, by its petals being connate at their bases, and by having only five instead of an indefinite number of stamens. [A. S.]

RYANIA. A genus consisting of half-a-dozen species from tropical America, chiefly Guiana, properly belonging to *Flacourtiaceæ*, but on account of the cupular disk surrounding the ovary in some species, erroneously placed in *Passifloraceæ* by some writers. The *Ryanias* are trees with alternate almost entire leaves, axillary peduncles, no corolla, numerous stamens, a sessile ovary, and a capsule having three to five cells and valves. [B. S.]

RYE. *Secale cereale*. —, **SPURRED.** The grain of Rye, in an ergoted condition. —, **WILD.** *Elymus*.

RYHAN. The Egyptian name for Basil, *Ocimum Basilicum*.

RYKIA. A genus of *Pandanaceæ*, allied to *Pandanus*. Its distinguishing characteristics are: a one-celled fruit, with a columnar top, hollow internally, and separated from the rest of the fruit; while the style grows out into a hard horny mass, and is after a time divided into two branches. *R. jurcata*, a native of Java, is in cultivation under the old name of *Pandanus*. The present genus is named in compliment to a Dutch naval officer. [M. T. M.]

RYSSOPTERYS. A genus of *Malpighiaceæ*, consisting of climbing shrubs, natives

of the Moluccas, one extending to Queensland. The flowers are in branched clusters frequently unisexual, the abortive ovaries being reduced to the condition of villous tubercles. The petals are five, entire; stamens ten, all fertile, united below into a cup by means of their filaments; ovaries three, one-celled, each with a single pendulous ovule; styles three; fruit in three divisions, or fewer by abortion, coherent in the axis of the flower, prolonged at the top into a wing-like process, which is thickened on its upper margin, while its sides are beset with tubercles, whence the name of the genus. [M. T. M.]

RYTIDEA. The name of a tropical African shrub of the family *Cinchonaceae*. The flowers are tufted, in terminal spikes; the bracts and calyx hairy. The corolla is smooth, funnel-shaped, its limb divided into five oval spreading lobes; anthers five, sessile. Fruit somewhat fleshy, crowned by the limb of the calyx, one-celled, one-seeded. [M. T. M.]

RYTIDOPHYLLUM. *Rhytidophyllum*.

SABADILLA. The same as Cevadilla, the seeds of *Asagraea officinalis*. According to Dr. Pereira, the proper form of the word is Cevadilla, from the Spanish *cebada*, barley, the name being given on account of some supposed resemblance between the inflorescence of this plant and that of barley.

SABAL. Next to *Chamaecyparis*, this is the most northern genus of *Palmaeae*, one of its representatives, *S. Palmetto*, reaching in Carolina as far north as latitude 34° 36'. Of this plant Dr. Seeman states that the settlers in the Southern States of America soon found that the trunks were extremely tough, and during the War of Independence they were used for making stockades. Hence the *Palmetto* was introduced into the arms of South Carolina, and the *Palmetto* Flag was, on the breaking out of the Civil War, raised by them to the dignity of a national emblem. Eight or nine species are described, but their botanical characters are very imperfectly known, and even the native country of the species so long cultivated in English gardens is uncertain; though, as all the other species are natives of the West Indies and the southern regions of North America, it is probable that it originally came from one of those countries. Some species have stout stems from twenty to thirty feet high, while others are either stemless or have short creeping stems. Their leaves are large, fan-shaped and plaited, and much cut at the edge, with fibrous threads hanging from between the segments; and their flower-spikes are irregularly branched and bear perfect flowers, possessing a cup-shaped three-cut calyx, three petals, six nearly distinct stamens, and three ovaries, which are at first distinct but at length coalesce and bear a three-sided style and round-headed stigma. They produce round or deeply two or three-lobed dark-green fruits, containing single horny seeds.

The soft interior of the very short stem of *S. Adamsoni* is eaten in the Southern States of America, and its leaves are used for plaiting into hats resembling what are called 'chip-hats' in this country—as also are those of the *Palmetto* (*S. Palmetto*), a native of the same locality. In Mexico the leaves of *S. mexicana* are applied to the same use and are likewise made into mats, the trees being regularly cultivated for the purpose. [A. S.]

SABBATIA. A genus of North American herbs of the gentian family. The flowers are in terminal corymbs. The calyx is divided into from five to twelve narrow segments; the corolla is rotate and deciduous, its limb divided into as many lobes as the calyx; while to its tube are attached an equal number of stamens, which ultimately turn back; stigmas two, linear, ultimately twisted in a spiral manner. The fruit is a one-celled capsule, opening when ripe by two valves, and containing numerous very small seeds. The young stems of *S. angularis* are used in the North American States as a vermifuge. *S. stellaris* is in cultivation. [M. T. M.]

SABDARIFFA. *Hibiscus Sabdariffa*, called Red Sorrel in the West and Rozelle in the East Indies, where it is used in tarts, jellies, and salads, and to form a cooling drink.

SABIACEAE. A small order of dicotyledons, nearly allied to *Sapindaceae* and *Anacardiaceae* in the structure of the ovary fruit and seeds, but differing essentially in the stamens being equal in number and opposite to the petals, two of the stamens being usually much larger than the others and perfect, the two or three others much smaller and often without anthers. The species are all tropical, and form trees shrubs or woody climbers, with alternate simple or pinnate leaves without stipules, and small flowers usually paniculate. They are not numerous, distributed into four genera, of which *Sabia* is Asiatic, *Phoxanthus* and *Ophitocaryon* American, and *Meliosma* common to both the New and the Old Worlds.

SABIA. A genus of *Sabiaceae*, consisting of about ten species, from tropical and eastern temperate Asia. They are all shrubby, with weak or climbing branches, and alternate entire petiolate leaves. The flowers are small, usually greenish, in axillary cymes or panicles or rarely solitary; and are remarkable, in the small order, for their four or five stamens all nearly equal and perfect, and exactly opposite both to the sepals and petals.

SABICU-WOOD. Also called Savicu-wood, and Savico-wood, a hard ship-building wood of Ouba, the produce of *Lytiloma Sabicu*.

SABINE, or SABINIER. (Fr.) *Juniperus Sabina*.

SABINEA. A genus of *Leguminosae*, embracing three West Indian shrubs, having unequally pinnate leaves, somewhat like those of *Robinia*, but with smaller

leaflets, and the pea-flowers as large as those of that plant, but instead of being arranged in many-flowered racemes, disposed in axillary fascicles of two to four flowers. These usually appear before the leaves, and have a shortly bell-shaped five-toothed calyx; a roundish standard the length of the free auricled wings, which are shorter than the blunt keel; and ten stamens, nine united and one free. The pods are compressed, about four inches long, and have a number of seeds. Excepting in the fascicled instead of racemoid flowers the genus hardly differs from *Coursetia*, and it is nearly allied to *Tephrosia*, which has terminal racemes. The genus is named in compliment to Joseph Sabine, Esq., once secretary to the Horticultural Society of London. [A. A. B.]

SABLIER. (Fr.) *Hura*.

SABLINE. (Fr.) *Arenaria*. — DE MAHON. *Arenaria balearica*.

SABOT. (Fr.) *Cypripedium*. — DE VÉNUS. *Cypripedium Calceolus*.

SABUDANA. An Indian name for Sago.

SABULOSE. Growing in sandy places.

SAC, SACCUS. A bag or cup; a term sometimes applied to the corone of *Stapelia*, &c. *Sacculus* is a little bag.

SAC OF THE EMBRYO. The vesicle of the nucleus of an ovule, within which the embryo is formed.

SACCHARATE or SACCHARINE. Having a sweet taste.

SACCHARUM. A genus of grasses belonging to the tribe *Andropogoneæ*. It has the inflorescence in loose panicles, which are often very beautiful; spikelets more or less lanceolate; glumes two-valved two-flowered, neuter with one pale, upper hermaphrodite with two pales; stamens one to three; stigmas woolly thick and generally violet-coloured. Steudel describes sixty-two species, which have a wide geographic range, though chiefly natives of tropical and subtropical countries.

The most important species is *Saccharum officinarum*, the Sugar Cane of commerce, respecting which Loudon has the following observations in the *Encyclopædia of Plants*:—'This grass or reed, though unknown to the ancients, has become of immense importance in modern times. There are many varieties or species, both wild and cultivated, natives of the banks of rivers and meadows in both the Indies, China, Africa, the South Sea Islands, and South America. It is cultivated in a zone extending from 35° to 40° on each side of the equator. Where it was first cultivated is unknown—in all probability in India, for the Venetians imported it from thence by the Red Sea prior to 1146. It is supposed to have been introduced into the islands of Sicily, Crete, Rhodes, and Cyprus by the Saracens, as abundance of

sugar was made in these islands previous to the discovery of the West Indies in 1492 by the Spaniards, and the East Indies and Brazil by the Portuguese in 1497 and 1500. It was cultivated afterwards in Spain, in Valencia, Granada, and Murcia by the Moors, and sugar is still made in these provinces. In the fifteenth century the Cane was introduced to the Canary Islands by the Spaniards, and to Madeira by the Portuguese, and thence to the West India Islands and the Brazils. The Dutch began to make sugar in the island of St. Thomas in 1610, and in Jamaica in 1644. The culture of the Cane has since become general in warm climates, and the use of sugar universal; it forms one of the first articles of commerce throughout the world. It was in use in England in 1466, but chiefly in feasts and as a medicine, till it was brought from the Brazils about 1580 to Portugal, and imported from thence. The quantity consumed in Britain has always kept increasing. The consumption of England alone in 1790 amounted to 169,573,344 lbs., which, taking the inhabitants at eight millions, gives each individual at an average about 20 lbs. a year.' In 1863 there was imported into this country 11,731,979 cwts. [D. M.]



Saccharum officinarum.

The Sugar Cane has been cultivated from time immemorial, and was known to many savage tribes of the Eastern Hemisphere, who grew it for the sake of sucking the stem or sweetening their food with the raw juice. The manufacture of sugar is supposed to have been derived from China. The native country of the Cane is doubtless the Eastern Hemisphere, but the exact locality whence it spread is unknown. India lays claim to it, and our name Sugar is a corruption of a Sanscrit word. New Caledonia, in the South Pacific, has also a peculiar claim to be regarded its native country. There the Sugar Cane not only grows with rapidity and attains an extraordinary size, but the barbarous natives of that large island possess an endless number of varieties. The consumption of sugar is largest proportionally in Australia.

lia, where the European population uses about 100 lbs. per head; while in England 36 lbs., and in Russia only 2 lbs. per head are consumed. Sugar is made into molasses and rum, and is also used medicinally. The leaves of *S. floridum* are employed in the South Sea Islands for thatching houses, and the stems for making arrows, &c. [H.S.]

SACCIFORM. Having the form of a bag.

SACCOCALYX. A low Algerian aromatic shrub, forming a genus of *Labiata*, with the habit, foliage, and most of the characters of *Satureia*, but distinguished chiefly by the calyx, which after flowering enlarges considerably, becoming inflated and globular. The flowers are very small and insignificant.

SACCOLABIUM. A very considerable genus of Indian and Madagascar vanaceous orchids, some of the species of which are amongst the most beautiful of the orchid tribe. It was founded by Blume upon a small Javanese species, and named from *saccus* 'a bag,' and *labium* 'a lip,' in allusion to its flowers having a kind of pouch to the lip. The plants belonging to it are all epiphytes, with stems thickly clothed with two opposite ranks of long leathery leaves, from the axils of some of which the flower-spikes are produced. The flowers are not of large size, but are often extremely numerous and closely set on the spike; they have widely-spread nearly equal and similar sepals and petals, and an undivided spurred lip joined to the base of the erect semicylindrical column; and their partially two-celled anther contains two almost globular pollen-masses attached by a long caudicle to a minute gland. Several species are to be met with in the orchid-houses of this country; indeed one of the most beautiful of them, *S. guttatum*, was introduced and flowered nearly half a century ago, and is still a general favourite. Its flower-spikes are commonly from a foot to a foot and a half long, and very densely clothed with extremely numerous delicate waxy-white purple-spotted flowers on short stalks, the whole spike assuming a tall-like almost cylindrical form. There are several varieties differing merely in the depth of tint of their purple spots. It is a native of many parts of India, and also of Java. [A.S.]

SACCOLOMA. A small group of dactyloid ferns, most of which are now referred to *Microlepia*. [T.M.]

SACCONIA. A West Indian tree forming a genus of *Cinchonaceae*. It has leathery leaves, with white flowers arranged in a terminal cyme. The limb of the calyx is persistent waxy five-toothed; the corolla somewhat funnel-shaped, its limb divided into five obtuse lobes; stamens five, projecting beyond the corolla; ovary two-celled, surmounted by an epigynous fleshy disk; fruit succulent surmounted by the limb of the calyx and

containing a two-celled stone, in each cell of which there is a single seed. [M.T.M.]

SACCOPEPALUM. A genus of Indian and Javanese trees of the family *Anonaceae*. The flowers have a calyx with three sepals; a corolla of six petals, the three outer of which resemble the sepals, the three inner much larger, partially and temporarily united together, velvet-like in texture, and pouched at the base; very numerous overlapping stamens; and distinct ovaries containing several ovules. The parts of the flower are placed on a globular receptacle. [M.T.M.]

SACK-TREE. *Antiaris* or *Lapourandra sacidora*, the bark of which is formed into natural sacks in India, and used for carrying rice.

SADDLE-SHAPED. Oblong, with the sides hanging down like the flaps of a saddle.

SADDLE-TREE. *Liriodendron tulipifera*.

SADLERIA. A genus of polypodiaceous ferns of the section *Lomariae*, in which it is known by the veins anastomosing arcuately at the base so as to form costal areoles, as well as by its tree-like habit, elevated receptacle, and thick indusium. There are some three or four reputed species, all from the Sandwich Islands. [T.M.]

SADR. An Arabian name for *Zizyphus Lotus*.

SADRUS. An Indian name for the aromatic bark of *Cinnamomum malabathrum*.

SAD-TREE. *Nyctanthes Arbor tristis*.

SAFFLOWER. The Bastard Saffron, *Carthamus tinctorius*.

SAFFRON. A commercial name for the dried stigmas of *Crocus sativus*. — **AFRICAN.** *Lyperia crocea*. — **BASTARD.** The flowers of *Carthamus tinctorius*. — **MEADOW.** *Colchicum autumnale*. — **SICILIAN.** *Crocus odoratus*.

SAFFRON-COLOURED. Deep orange-coloured, with a dash of brown.

SAFFRON-WOOD. A South African name for *Elaeodendron croceum*.

SAFRAN. (Fr.) *Crocus*. — **BÂTARD.** *Carthamus tinctorius*. — **DAUTOMNE.** *Crocus sativus*. — **DES FLEURISTES.** *Crocus vernus*. — **DES INDES.** *Curcuma*. — **DES PRÉS.** *Colchicum autumnale*. — **FAUX.** *Carthamus tinctorius*; also *Silenebergia lutea*.

SAFRANUM. (Fr.) *Carthamus tinctorius*.

SAFT. A name applied in the African island of St. Thomas to the fruit of *Pachylobus edulis*, now called *Canarium edule*.

SAGA. A Siamese name for the seeds of *Abrus precatorius*.

SAGAPENUM. A fetid gum-resin supposed by some to be obtained from *Ferula persica*, and by others from *F. Soudanensis*.

SAGE. *Salvia*; also specially applied to

the culinary herbs, *Salvia officinalis* and *S. grandiflora*. — BENGAL. *Meriandra nagiensis*. — BLACK. *Cordia cylindrodactyla*. — JERUSALEM. *Phlomis fruticosa*. — SEASIDE. *Croton balsamiferum*. — WILD. A name in the Cape Colony for *Tarchonanthus camphoratus*; also *Lantana*. — WOOD. *Teucrium Scordonia*.

SAGENIA. A genus of coarse-habited aspidaceous ferns, distinguished from the true species of *Aspidium*—that is, those with compoundly anastomosing veins and peltate indusia, by having the indusia distinctly reniform. There are several species found in the tropical parts of both worlds, one of the most familiar being the *S. macrophylla* of the West Indies. [T. M.]

SAGEREA. A genus of *Anonaceae*, consisting of three East Indian trees, very nearly allied to *Uvaria*, and differing chiefly in the small number of stamens, and in the carpels of the ovary being reduced to six or three.

SAGERETIA. A genus of *Rhamnaceae*, the species of which were formerly referred to the Linnean *Rhamnus*, which contained likewise the *Jujube* and several other groups now regarded as distinct. The *Sageretas* are shrubs with slender sometimes half-climbing branches, commonly armed with thorns. Their leaves are short-stalked alternate or nearly opposite upon the lower parts of the branches, and of a leathery consistency, with small marginal teeth; and their little stalkless flowers are disposed in clusters along small simple or branched spikes produced either from the axils of the leaves or at the terminations of the branches. The species are confined to the tropical and subtropical countries of Asia and America. *S. thecaus*, the *Tia* of the Chinese, is a thorny shrub, with slender angular branches and finely-toothed egg-shaped leaves, smooth and of a shining-green on the upper surface, somewhat resembling those of the tea-shrub. It is a native of Penang and the Philippine Islands, as well as of Southern China; and the poorer classes of the Chinese are said to employ its tea-like leaves as a substitute for true tea. [A. S.]

SAGESSE DES CHIRURGIENS. (Fr.) *Smymbrium Sophia*.

SAGINA. The genus of Pearlworts, consisting of humble herbaceous plants belonging to the suborder *Alismæ* of *Caryophyllaceae*, and of which the characters are:—Styles, four or five; sepals and valves of the capsule equal in number to the styles; petals entire or wanting. *S. procumbens* is the minute perennial weed with slender spreading stems, and short bristle-like leaves, which infests the gravel-walks of gardens, and pertinaciously defies eradication. *S. apetala* forms little tufts on walls and dry banks, and differs from the last principally in its annual erect stems: the flowers in these and several allied species are inconspicuous. *S. nodosa* is

distinguished by bearing tufts of small leaves on the upper part of the stems, and rather large stalked white flowers. None of the species possess properties worthy of notice. French: *Sagine*; German: *Wierling*. [C. A. J.]

SAGINA. A name for Broom corn in Italy.

SAGITTARIA. Handsome perennial aquatics deriving their name from the sagittate or arrow-headed form of their leaves. They belong to the order *Alismaceae*, and are distinguished by having the barren and fertile flowers distinct but on the same plant (monœcious), and by bearing numerous stamens, and one-seeded carpels. [The genus contains about fifteen species of wide distribution in tropical and temperate regions.] *S. sagittifolia* bears directly from the root large glossy leaves which rise out of the water, and numerous delicate white flowers on a branched leafless stalk. This species, one of the last plants to linger on the banks of the Thames in the heart of London, occurs throughout Europe, in North Asia, and in North-West India. The bulbs, which fix themselves in the solid earth below the mud, constitute an article of food among the Chinese, who upon that account cultivate the plant extensively. Representations of it are frequent in Chinese drawings. Several other species are cultivated, mostly inhabitants of warm countries. French: *Sagittaire*; German: *Pfeilkraut*. [C. A. J.]

SAGITTATE. Gradually enlarged at the base into two acute straight lobes, like the head of an arrow; as the leaf of *Rumex Acetosella*.

SAGO. A granulated form of starch obtained from the pith of the trunk of *Sagrus levis* and *S. Rumphii* in Singapore, the former furnishing most of the sago sent to Europe. In India it is obtained from *Phoenix farinifera*, in Java from *Corypha Gebanga*, and it is also produced by *Caryota urens*, and several other palms and *Cycadaceae*. — **PORTLAND.** A kind of arrowroot, manufactured from the corms of *Arum maculatum* in the island of Portland.

SAGUERUS. This genus of palms is almost entirely confined to the islands of the Indian Archipelago and the countries between Malacca and Burmah; only one species, *S. Wightii*, being indigenous to the Indian peninsula, though the common *S. saccharifer* occurs there in a cultivated state. Three of the five described species form handsome trees thirty or forty feet high, but the other two seldom exceed eight or ten feet. Their leaves are large terminal and pinnate, with narrow leaflets; and with the stalks, which are sometimes prickly, furnished at the base with a copious network of stiff black fibres, which remain for some time after the rest of the leaf has fallen away, but at last drops off and leaves a circular scar upon the trunk. Their separate male and female simply branched flower-spikes hang down from amongst the leaves, and somewhat resemble very large horse's-tails. Both sexes have three overlapping sepals

and three not overlapping petals; the males containing an indefinite number of stamens, and the females a three-celled ovary bearing three stigmas. Their fruit is a large roundish usually three-seeded berry, rather flat and somewhat three cornered at the top, and possessing an acrid flesh.

S. saccharifer, the Areng, is a very common palm in the Indian islands, and on account of the variety of its products is of great value to the natives. The black horsehair-like fibre surrounding its leaf-stalks, called Eloo or Gomuti by the Malays, is converted into cordage, employed for thatching, plaited into ornaments, &c.; a large supply of toddy or palm-wine is obtained by cutting off the flower-spikes, and this when inspissated affords an abundance of sugar, or when fermented a capital vinegar: considerable quantities of sago, of a rather inferior quality, is also derived from this palm, and several other products of minor importance. [A. S.]

SAGUS. A considerable number of species have from time to time been placed under this generic name, but Dr. Von Martius, in his celebrated work on the *Palmaceae*, refers them all to *Metroxylon* and *Raphia*. The name *Sagus*, however, is retained for the largest and most important of the two well-marked sections into which the genus is divided. These are distinguished from each other by the manner in which they develop their flower-spikes, and also by the structure of their seeds. Thus, in the section called *Pigafetta*, the spikes are produced from the sides of the stem, and the seeds are homogeneous; while in *Sagus* the spikes are terminal, and the seeds have internal dark-coloured markings like nutmegs. These differences in the mode of flowering, although not regarded as of sufficient importance to warrant the establishment of two genera, exercise an important influence upon the relative duration of the trees: those of the *Pigafetta* section being capable of producing a long succession of flower-spikes, and consequently of living to an old age, while those of the *Sagus* section can only produce one spike of flowers; the flowering season being to them the sure precursor of their dissolution, the tree gradually withering and dying after the solitary flower-spike has produced its crop of scaly-coated fruits.

The word *Sagus* is derived from *Sago* or *Sagu*, which in the language of the Papuan race signifies bread, and is given by them to the two palms, *S. laevis* and *S. Rumphii*, from which the well-known sago of the shops is obtained. The former of these, *S. laevis* (alias *Metroxylon laeve*), the Spineless Sago Palm, from which the greatest part of the sago exported to Europe is derived, grows from twenty-five to fifty feet high, and has a rather thick trunk marked with the scars left by fallen leaves, and usually invested towards the summit with the withered remains of leafstalks; above these the large pinnate smooth-stalked

rather erect leaves form a graceful crown, from out of the centre of which the alternately-branched pyramidal flower-spikes arise, their bases being enveloped by smooth sheaths. *S. Rumphii* (alias *Metroxylon Rumphii*), the Prickly Sago Palm, resembles the former in general appearance, but is usually a much smaller tree, and has its leaf-stalks and the sheaths enveloping the lower



Sagus Rumphii.

part of the flower-spikes armed with sharp spines from half an inch to about an inch long. These trees produce their flower-spikes when about fifteen years old, and the fruit is nearly three years in ripening, after which they die. In order to procure the greatest quantity of sago, the trees must be cut down immediately the flower-spike makes its appearance.

The Sago of commerce is prepared from the soft inner portion of the trunks of these two species, which are sociable palms, growing together in large masses, principally in swampy places. It is obtained by cutting the trunks into pieces about two feet long, the pieces being then split in half, and the soft substance scooped out and pounded in water till the starchy matter separates, when it is drained off with the water, allowed to settle, and afterwards purified by washing. It is then in the form of sago-meal, but before being sent to this country it is made into what is termed pearl-sago. This is a Chinese process, and is carried on principally at Singapore. The rough meal is first repeatedly washed and strained, then spread out to dry and broken into small pieces, which, when sufficiently hard, are pounded and sifted until they are of regular size. Small quantities are then placed in a large cloth or bag suspended from the ceiling, and shaken backwards and forwards for about ten minutes, when it becomes granulated or pearled, and is thoroughly dried and packed for exportation. [A. S.]

SAHEBA. An Indian name for a wormseed, the produce of *Artemisia judaica*.

SALNBOIS. (Fr.) *Daphne Mezereum*.
 SAINFOIN. (Fr.) *Onobrychis sativa*. —
 D'ESPAGNE. *Hedysarum coronarium*. —
 DU CANADA. *Desmodium canadense*.

ST. AGNES' FLOWER. *Erinosema*.

ST. ANDREW'S CROSS. *Ascyrum Cruz Andra*.

ST. CATHERINE'S FLOWER. *Nigella damascena*.

ST. CHRISTOPHER'S HERB. *Osmunda regalis*; also *Actæa spicata*.

SAINTFOIN or SAINFOIN. A fodder-plant, *Onobrychis sativa*.

ST. JAMES'S-WORT. *Senecio Jacobæa*.

ST. JOHN'S BREAD. *Ceratonia Siliqua*.

ST. JOHN'S-WORT. *Hypericum*, especially *H. perforatum* —, MARSH. *H. Elodes*.

ST. MARTIN'S HERB. *Sauvagesia erecta*.

ST. PETER'S-WORT. *Ascyrum*; also *Symphoria*; also *Hypericum Ascyron* and *H. quadrangulum*. The St. Peter's-wort of the old herbals is *Primula veris*.

ST. THOMAS' TREE. *Bauhinia tomentosa*.

SAIRANTHUS. *Nicotiana*.

SAJNA, SUJNA. Indian names for *Moringa pterygosperma*.

SAKA. A colonial name for the Bastard Purpleheart, a timber-tree of Demerara.

SAKACHERA. A Sanscrit name for Henna.

SAKES. The Turkish name for gum mastix.

SAKUR. An Indian name for the small astringent galls formed on some species of *Tamarix*.

SÂL. *Shorea robusta*: see SAUL.

SALACIA. This genus, along with *Hippocratea*, forms the family *Hippocrateaceae*, which is nearly related to *Celastraceae*, differing mainly in having three instead of five stamens to the flowers. *Hippocratea* has fruits consisting of three samaroid carpels, while *Salacia* has a berried fruit. About sixty species are known, distributed over the tropics, though most numerous in India and the Eastern Islands. They are smooth erect or trailing evergreen shrubs, with opposite shining often laurel-like leaves, and in their axils clusters or cymes of minute green or yellowish flowers. India, Africa, and America have each at least one species bearing edible fruit. Thus in Brazil, *S. dulcis* bears a depressed globular fruit, the size of a crab apple, yellowish in colour, sweet and juicy, and (according to Dr. Spruce) much eaten by the Indians on the Rio Negro, who call it *Walatuma*. In India *S. Roxburghii* bears a like-sized dull red fruit whose white pulp is eaten; and in Sierra Leone *S. pyramidalis* affords a sweet-tasted fruit the size of a bergamot pear. The name *Salacia* is that of the wife of

Neptune, in mythology. Among other synonyms of this genus are *Tonlesea* and *Diplosthes*. [A. A. B.]

SALADE DE CHANOINE. (Fr.) *Valerianella olitoria*. — DE PORC. *Hypochaeris radicata*.

SALADELLE. (Fr.) *Statice Litmontum*.

SALAGIT, or SALARAS. Indian names for the bitter stalks of *Ophelia elegans*, often confounded with *Chiretta*.

SALAL. *Gaultheria Shallon*.

SALANQUET. (Fr.) *Chenopodium maritimum*.

SALAXIS. A genus of heathworts, having a four-cleft calyx, the anterior division largest; the stamens varying from six to eight, their filaments free or joined, the anthers connate or approximate; the ovary of two or three cells, each one-seeded, and never opening. The species are shrubs, natives of the Mauritius, having their leaves in whorls of three or six together, their edges rolled back; and the flowers in clusters at the ends of the branches. [G. D.]

SALEP. The fecula of the tubers of *Orchis mascula*, *O. latifolia*, *O. Morio*, and other ophreous orchids, consisting almost wholly of bassorin. The tubers are dried and preserved for use. —, KASHMIR. The fecula of the tubers of a species of *Eulophia*. —, TAHITI. The fecula of *Tacca pinnatifida*. —, NORTH AMERICAN. The fecula of a species of *Hadonaria*.

SALICACEÆ. An order of apetalous dicotyledons, considered by some botanists as a tribe of *Amentaceæ*, and by others distinguished from the two other tribes or orders, *Corylaceæ* and *Betulaceæ*, by their dioecious flowers, the ovaries of the females one-celled, with several ovules on two parietal placentas. They are trees or shrubs with alternate leaves. The seeds, in two-valved capsules, have always a tuft of long white silky hairs. The order only contains the two genera *Salix* and *Populus*.

SALICAIRE. (Fr.) *Lythrum Salicaria*.

SALICARIA. *Lythrum Salicaria*.

SALICOR, or SALICORNE. (Fr.) *Salicornia*.

SALICORNIA. Succulent marine plants belonging to the order *Chenopodiaceæ*, and well distinguished by their jointed stems. The genus is represented in Britain by *S. herbacea*, common in salt-marshes, a leafless plant six to ten inches high, much-branched and jointed: 'The articulations are thickened upwards, shrinking much when dry, in which state the upper extremity of each articulation forms a two-lobed membranous socket or short sheath, which receives the base of the articulation above it. Spikes of flowers dense, lateral and terminal, jointed like the stem, and bearing at the base of every short articulation, on two opposite sides, a cluster of three flowers, each composed of a single perianth, apparently quite closed at the top and

pierced, as it were, by the blind or trifid stigma, and the single or two stamens—when two they appear in succession. The various species of this genus, as well as others belonging to the same family, and growing abundantly on the coasts in the South of Europe and North of Africa, yield a vast quantity of soda, much employed in making both soap and glass, whence comes the English name, Glasswort.—*Hooker and Arnott*. Large quantities of the ashes of these and allied plants were formerly imported under the name of *barilla*; but since the introduction of Le Blanc's process for obtaining soda from common salt, the importance of barilla as an article of commerce has much diminished. French: *Salicorne*; German: *Glasschmalz*. [C. A. J.]

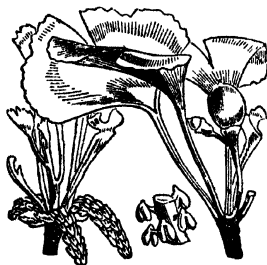
SALIERNE. (Fr.) A kind of olive.

SALIGOT. (Fr.) *Trapa natans*; also *Tribulus*.

SALINE, SALSUS. Growing in salt places; having a salt taste.

SALIQUIER. (Fr.) *Cuphea*.

SALISBURIA. This name commemorates the botanical services of Mr. R. A. Salisbury, and is applied to a genus of *Tazacæ*. The Maidenhair tree, or Ginkgo,



Salisburia adiantifolia.

S. adiantifolia, is a large Japanese tree of much botanical interest, and of singular appearance. It attains a height of sixty to eighty feet, and has a straight trunk with a pyramidal head. The small leaf-bearing twigs are thick and tubercled, and bear a tuft of four or five closely-packed stalked leaves, surrounding a terminal scaly bud. The leaves are fan-shaped, deciduous, leathery, notched, and have numerous closely-set forking veins like those of ferns. The flowers are dioecious. The male catkins are thread-like, stalked, borne at the end of the branches; the anther has two divergent lobes, beyond which the connective is prolonged in the form of a crest. The female flowers are borne on axillary stalks, and consist of an ovule, embedded partially in a shallow fleshy cup formed by the dilata-

tion of the end of the flower-stalk. When ripe the seed has an outer fleshy covering, and a thin woody stone surrounding the fleshy albumen.

This tree is largely cultivated in China and Japan, and also in this country, as an ornamental object. As the leaves decay they assume a yellow tint. The venation is thought to indicate a slight degree of affinity to ferns. The fruits are resinous and astringent; the kernels are thought by the Japanese to promote digestion: an oil is extracted from them. [M. T. M.]

SALISIA. A genus of *Myrtacæ*, so named in compliment to the Countess de Salis, a lover of horticulture. *S. pulchella* is a pretty shrub, native of the Swan River colony, with broad leathery hairy leaves, and rose-coloured flowers, arranged in loose corymbs. The tube of the calyx is prolonged beyond the ovary, the limb five-toothed; the petals five, slightly stalked; the stamens numerous, longer than the petals; the ovary five-celled, the cells opening by a longitudinal cleft even in the flower-bud, and containing numerous ovules. [M. T. M.]

SALIX. The Willows form an important family of trees and shrubs, giving name to the order *Salicacæ*. Both willows and poplars are amentaceous, and have their seeds invested with cottony down; but they are sufficiently distinct not only in the outline of the leaves, but in the form of the scales or bracts of the catkin, which in the poplars are jagged at the extremity, and in the willows are entire.

The Willows constitute so extensive a family that a perfect *Salicetum* or willow-plantation, in which every known species was represented, would assume the dimensions of a small wood; and they are so difficult of discrimination, that not even the experienced botanist ventures to assign individuals to their several species unless he has an opportunity of examining them in their various stages of growth. British botanists are not agreed as to the number of species into which the native willows should be distributed, for while Bentham reckons only fifteen, Babington extends the list to fifty-eight.

The Willows are natives of the temperate regions of the Northern Hemisphere, and are much more numerous in the Old World than in the New. The majority grow by the sides of watercourses, but a few high up in the mountains, and one is found nearer to the North Pole than any other shrubby plant. As far as it is possible to include under a general description so extensive an array of species, they may be characterised as trees or shrubs, varying in height from a few inches to sixty feet. They grow rapidly, and for the most part shoot readily from cuttings. The wood is white; the bark of the trunk rather smooth than otherwise, that of the branches either downy or smooth. In the latter case sometimes to such a degree as to appear varnished. In most species it is stringy and tough, and in all is of a bitter taste, owing

to the presence of *salicina*. The leaves are undivided, either notched at the edges or even, stalked, often furnished with stipules, smooth silky downy or even cottony, and varying in shape from linear to round—some modification of the ellipse being, however, by far the commonest form.

The wood is soft smooth and light, and is applied to a great variety of purposes, especially for building fast-sailing sloops of war, and for making cricket-bats. Split into thin strips it is manufactured into hats. The twigs have from the earliest antiquity been employed in basket-work, and in Pliny's time (as they are indeed at present in the northern countries of Europe) were twisted into ropes. The leaves of several species are on the Continent used as fodder for cattle, being collected in summer, and stacked for winter consumption. In Sweden and Norway the bark is kiln-dried in seasons of scarcity, and is mixed with oatmeal.

Among the willows most worthy of notice is the Huntingdon or White Willow, *S. alba*, so called from the silky whiteness of the underside of the leaf; it grows rapidly, attains a large size, and is one of the most useful of the family as a timber-tree. The Bedford Willow, *S. Russeliiana*, also attains a large size; its leaves are in shape very like those of the white willow, but differ in being larger and smooth on both sides. The timber is even more useful than that of the last, and the bark contains more tannin than the oak; it is in this species also that salicine is most abundant. The Crack Willow, *S. fragilis*, derives its name from the brittleness of the branches, which start from the trunk under the slightest blow. *S. babylonica* (*alagans*, of Koch), the Weeping Willow, is a native of China, and frequently appears in drawings of Chinese ornamental scenery. The willow of Psalm cxxxvii is supposed to be the *Populus euphratica*; but Tristram supposes the willow of Scripture to be, generally, the Oleander. The Goat Willow, *S. Caprea* (the badge of the Cunning), is the common hedge-willow, marked by its purplish-brown branches, which are covered with minute down when young; and by its large broad leaves, which are wavy at the edges, and densely clothed beneath with soft white cottony down.

The species used for basket-making are usually called Osiers. Several kinds are in common cultivation, all agreeing in bearing long flexible tough shoots, and narrow pointed leaves. The species best adapted for wickerwork are *S. viminalis* and *S. triandra*. Large quantities of osiers are now imported from Holland. *S. pentandra*, common in the North of England and Ireland, is remarkable for its large glossy leaves, more like those of the Portugal laurel than of the other willows; the foliage of this shrub is fragrant. The little willow which in some districts is so abundant on commons, trailing its wiry branches along the ground, is *S. fusca*. *S. herbacea*, the least of British trees, rarely exceeds the height of four inches. It is a

native of many parts of Europe and North America, and in Great Britain is the last plant furnished with a woody stem which we meet with in ascending the mountains. French: *Saule*; German: *Weide*, [C.A.J.]

The medicinal properties of the Willow are common to all the species in greater or less degree. The bark is the part usually employed, especially that of *S. Russeliiana*, *S. alba*, *S. Caprea*, and *S. fragilis*. It is valued for its tonic and astringent properties, and is used for the same purposes as cinchona-bark. The active properties depend upon the presence of an alkaloid called *salicine*, which is employed in ague, &c. in place of quinine. In case of a scarcity of the latter drug salicine might advantageously be used as a substitute, though it is scarcely so potent. *S. pentandra*, in addition to the bitter tonic principle, has slight aromatic properties. The sweet-scented male catkins of *S. aegyptiaca* are used in the preparation of Kalaf, a liquid which is used in the East as a stimulant and carminative. *S. chilensis* is said to furnish a kind of manna in Chili. A decoction of the roots of *S. nigra*, a North American species, is considered as purgative and febrifugal. [M. T. M.]

BALLOW. A name for *Salix cinerea*, *S. Caprea*, and the allied species, which are not flexible like the osier, but furnish the best charcoal for gunpowder. *S. Caprea* is called the Great Ballow.

SALMALIA. A genus of *Malvaceae*, consisting of one or two species usually included in *Bombax*, from which they are distinguished by their bell-shaped calyx being divided into three or five unequal blunt lobes; by their egg-shaped more erect petals; by the tube of the stamens being inflated or bulged out, and composed of numerous filaments in several series—the filaments being either simple or two-forked at the top, and the outer ones bearing one and the inner two anthers; and by the stigma being divided into five sharp-pointed spreading lobes. Both species are large trees, natives of tropical Asia, and have large hand-shaped leaves composed of from five to nine leaflets, and large red flowers either solitary or several together on the naked branches. Their fruits resemble those of *Bombax*, and are filled with seeds enveloped in silky cotton.

S. malabarica (alias *Bombax malabarica*), the Simool-tree of India, or Malabar Silk-cotton tree, attains a height of seventy or eighty feet, and has a prickly trunk and branches, leaves composed of five to seven leaflets, and clusters of flowers. The silk-cotton of the Simool, though very beautiful, is like other silk-cottons, not adapted for spinning. It is chiefly used for stuffing cushions, and a kind of quilt or thick cloth is manufactured from it in Assam. The trunk yields a very pure gum and light porous wood, and its bark possesses emetic properties. *S. lasignei* is distinguished from the last by its trunk and branches being unarmed, by its leaves being composed of nine leaflets, and by its

solitary flowers. It is a native of Burmah. [A. S.]

SALMEA. A genus of trailing somewhat shrubby *Compositæ* peculiar to tropical America, and occurring most commonly in the West Indies. The stems are furnished with opposite stalked leaves, having ovate lance-shaped or heart-shaped blades; and the rayless somewhat pear-shaped white or yellow flower-heads are arranged in corymbs at the ends of the twigs. The florets are all tubular and perfect, with the involucrel scales in two series, the receptacle conical and chaffy, and the vertically compressed achenes crowned with a pappus of two awns. These plants are related to *Budens*, from which their shrubby habit at once distinguishes them, but more especially to *Verbesina*, of which again the habit is different, and the style-branches are blunt instead of cone-shaped at the apex. [A. A. B.]

SALOMONIA. Under this name are comprised about eight species of minute annual plants of the *Polygalaceæ*, found in various parts of tropical Asia. In their habit and the appearance of their flowers they resemble *Polygalas*, but have four or five instead of eight stamens to the flowers. Four of the species are little branching plants one to four inches high, the stems furnished with ovate roundish or oblong entire leaves, and the minute white or lilac flowers arranged in spikes at the ends of the branchlets. The remaining four are leafless and parasitical on roots, whence they are separated as a distinct genus by Blume, with the name *Epirhizanthus*. The place of the leaves is supplied by minute brown scales. [A. A. B.]

SALOOP. The name given to sassafras-tes, flavoured with milk and sugar, sold to the working-classes in the early morning at the corners of London streets.

SALPIANTHIUS. A seacoast plant from the western shores of tropical America, proposed by Kunth as a genus of *Nyctaginaceæ*, but which had been previously published by Lagasca under the name of *Boldoa*, one of the *Montiaceæ*.

SALPICHLÆNA. A small group of polypodiaceous ferns nearly related to *Blechnum*, from which it differs chiefly in its scandent habit, and in having the parallel venules combined at the apex by a slight intramarginal veinlet. The only known species is *S. volubilis*. [T. M.]

SALPICHRŒA or SALPICHROMA. A genus of *Atropaceæ*, comprising Peruvian herbs heretofore included in *Atropa*, but distinguished from it in that the calyx does not increase in size as the fruit ripens, and is moreover divided into five linear erect segments. The corolla is narrow tubular fleshy, often contracted at the mouth, and becomes black in drying. The fruit when ripe is of a bright scarlet colour. The name is derived from the Greek words *salpinx* 'a tube,' and *chroma*

'colour,' in allusion to the colour of the trumpet-shaped flowers. [M. T. M.]

SALPIGLOSSIS. A genus of *Atropaceæ*, consisting of herbaceous viscid plants, natives of Chili. The leaves are pinnately lobed, and the flowers in terminal panicles. The calyx is bell-shaped, five-parted: the corolla funnel-shaped, its tube dilated above, its limb five-cleft spreading; the stamens five, four fertile, didynamous, with two-celled anthers opening by a single pore; the style thickened at the extremity with a somewhat two-lobed stigma; the fruit a two-celled two-valved capsule with numerous seeds. The flowers are showy, often with the veins coloured differently from the rest of the petal. Some of the species are cultivated as greenhouse plants, or as bedding plants in summer. The generic name is derived from the Greek words *salpinx* 'a tube' and *glossis* 'a tongue,' in allusion to the tongue-like style in the mouth of the corolla. [M. T. M.]

SALPIGOPHORA. *Campsidium*.

SALPINGA. A genus of one or two South American herbaceous melastomaceous plants allied to *Bertolonia*, but distinguished by the anthers having a tail-like appendage at their base, sometimes as long as the anther itself, and also by the three-sided capsules being invested with the eight or ten-nerved persistent calyx. The flowers are borne in a double scorpioid raceme. [A. S.]

SALPIXANTHA. A genus of *Acanthaceæ* containing a single species from Jamaica, now generally referred to *Goussameria*, from which it differs only in the calyx being less deeply cut, and in the limb of the corolla being regular. [W. C.]

SALSA. An abbreviation for Sarsaparilla.

SALSIFY, or SALSIFY. *Tragopogon porrifolius*.

SALSERPAREILLE. (Fr.) *Smilax*. — D'ALLEMAGNE. *Carex arenaria*. — D'EUROPE. *Smilax aspera*.

SALSIFIS. (Fr.) *Tragopogon*. — D'ESPAGNE. *Scorzonera*.

SALSOLA. The Saltworts form a rather extensive genus of *Chenopodiaceæ*, and are most abundant in the temperate and warm regions of the Northern Hemisphere, principally in the Old World; occurring in the Southern Hemisphere only in Timor, Eastern Australia, New Zealand, Madagascar, and Chili. They are always confined to the seacoast or to salt-marshes, or other places where the soil is impregnated with salt: their generic name being thence derived from the Latin words *sal* 'salt,' and *solum* 'soil.' They are herbaceous or somewhat shrubby smooth or downy plants, with unjointed stems, and usually alternate but occasionally opposite stalkless more or less cylindrical fleshy or prickly leaves, bearing the small stalkless perfect flowers in their axils, together with two floral

bracts resembling the leaves. Their fruit, called an utricle, has a loose thin shell, and contains a horizontal single-coated seed.

S. Kalk, the Prickly Saltwort, is a common seashore plant in most European and many other countries. It is a brittle succulent annual of a pale bluish green hue, with somewhat angular furrowed and striped bristly stems, very much branched, and spreading in all directions so as to form a bush from a foot to a foot and a half high; and has numerous awl-shaped nearly cylindrical spiny-pointed leaves, with broadened bases furnished with little prickles. *S. Soda*, a South European and North African species, is a succulent annual from one to two feet high, but not brittle like the last; and has smooth shining stems and somewhat flexuose branches, with soft nearly cylindrical short-pointed leaves of a bluish-green colour.

An impure carbonate of soda obtained from the ashes of these and several allied and other plants, known under the Spanish name *barilla*, was formerly an article of considerable commercial importance; and large quantities of it were annually imported into the United Kingdom from the Canary Islands, Spain, and other parts of the South of Europe, and employed in soap and glass-making; but since the introduction of soda manufactured from common salt as a commercial article, the imports have greatly decreased, though about a thousand tons of *barilla* and other alkalies are still annually imported, mostly from the Canary Islands and the Two Sicilies. For the preparation of *barilla* these plants are dried in heaps like hay, and afterwards burnt upon a rude grating constructed over a large hole, into which the semifluid alkaline matter flows, and is there left to cool and solidify. *Kali* is the Arabic name for the ashes of these soda-plants, and the term *alkali*, applied by chemists to soda, potassa, and similar substances, is derived either from *kali*, with the Arabic article prefixed, or from a corruption of *sal* (salt) and *kali*. [A. S.]

SALSUGINOSE. Growing in places inundated with saltwater.

SALT-BUSH. The Australian *Atriplex nummularia*.

SALTIA. A genus of *Amaranthaceæ* from Arabia, consisting of a branched undershrub, with alternate leaves, and axillary and terminal spikes of bracted flowers in threes—the central one perfect, the lateral sterile, and at length growing out into straight awns clothed with feathery wool. The perfect flowers have five hairy sepals, five stamens united at the base into a cup, with two-lobed anthers and no staminal tubes; and the utricle is oblong with a vertical seed. [J. T. S.]

SALT-TREE. *Halimodendron argenteum*.

SALTWORT. *Salicornia annua*; also *Salsola*. —, **BLACK.** *Glaux maritima*.

SALVADORACEÆ. A small order of

monopetalous dicotyledons allied to *Oleaceæ* and *Jasminaceæ*. Like the former they are small trees or shrubs, with opposite entire leaves, and small paniculate flowers with a minute four-cleft calyx, and a four-cleft corolla; but there are four stamens, the ovary is one-lobed with a single erect ovule and a sessile simple stigma, and the seed, as in *Jasminaceæ*, is erect without albumen. Only three genera, *Salvadora*, *Monelia*, and *Dobera*, have as yet been referred to the order.

SALVADORA. An unusual amount of interest is attached to this genus, on account of one of the species belonging to it being supposed to be the Mustard-tree of Scripture. It is the typical species of *Salvadoraceæ*, and was at one time the only genus referred to that order. The five described species are shrubs or small trees, and have a geographical range extending from Central Africa, Abyssinia, and Egypt through South-western Asia to India and Ceylon. They have stems with slightly swollen joints, opposite entire leathery leaves with scarcely any visible veins, and loose branching panicles of small flowers, which have a very minute four-leaved calyx, a thin four-parted corolla, with four stamens inserted between the lobes and connecting them together, and a one-lobed ovary bearing an undivided stalkless stigma. Their little berry-like fruits contain solitary erect seeds.

The identification of the plants mentioned in the Bible is a task of great difficulty, and in almost all instances the result of the most learned investigations, whether by Biblical commentators or by botanists, is unsatisfactory and open to doubt. In our English version of the Bible the names of plants have been made to agree with those now in use, and the obvious inference among the unlearned is that the plants are the same. The researches of botanists, however, have shown that the tares, the aloes, the hyssop, and other Scriptural plants differ widely from those so called at the present day; and some writers have therefore thought it probable that the same is the case with the Mustard spoken of in the Gospels, the seed of which St. Matthew says "is the least of all seeds; but when it is grown it is the greatest among herbs, and becometh a tree, so that the birds of the air come and lodge in the branches thereof." (xiii. 32) It is obvious that this description does not agree with the common mustard (*Sinapis*) as seen in this country, and consequently the assertion that the Scriptural plant belonged to a totally different genus has been readily believed. During their travels in the Holy Land, Captains Iriby and Mangles met with a small tree (ascertained by Professor Don to be a *Salvadora*) with a small pungent mustard-like fruit, and they thought it might probably be the tree referred to by Christ. This supposition was afterwards strengthened by Dr. Boyle, who found that the tree in question bore the same Arabic name (*Khardah*) as the

and three not overlapping petals; the males containing an indefinite number of stamens, and the females a three-celled ovary bearing three stigmas. Their fruit is a large roundish usually three-seeded berry, rather flat and somewhat three cornered at the top, and possessing an acrid flesh.

S. saccharifer, the Areng, is a very common palm in the Indian islands, and on account of the variety of its products is of great value to the natives. The black horseshair-like fibre surrounding its leaf-stalks, called Ejo or Gomuti by the Malays, is converted into cordage, employed for thatching, plaited into ornaments, &c.; a large supply of toddy or palm-wine is obtained by cutting off the flower-spikes, and this when inspissated affords an abundance of sugar, or when fermented a capital vinegar; considerable quantities of sago, of a rather inferior quality, is also derived from this palm, and several other products of minor importance. [A. S.]

SAGUS. A considerable number of species have from time to time been placed under this generic name, but Dr. Von Martius, in his celebrated work on the *Palmaceæ*, refers them all to *Metroxylon* and *Raphia*. The name *Sagus*, however, is retained for the largest and most important of the two well-marked sections into which the genus is divided. These are distinguished from each other by the manner in which they develop their flower-spikes, and also by the structure of their seeds. Thus, in the section called *Pigafetta*, the spikes are produced from the sides of the stem, and the seeds are homogeneous; while in *Sagus* the spikes are terminal, and the seeds have internal dark-coloured markings like nutmegs. These differences in the mode of flowering, although not regarded as of sufficient importance to warrant the establishment of two genera, exercise an important influence upon the relative duration of the trees: those of the *Pigafetta* section being capable of producing a long succession of flower-spikes, and consequently of living to an old age, while those of the *Sagus* section can only produce one spike of flowers; the flowering season being to them the sure precursor of their dissolution, the tree gradually withering and dying after the solitary flower-spoke has produced its crop of scaly-coated fruits.

The word *Sagus* is derived from *Sago* or *Sagu*, which in the language of the Papuan race signifies bread, and is given by them to the two palms, *S. lavis* and *S. Rumphii*, from which the well-known sago of the shops is obtained. The former of these, *S. lavis* (alias *Metroxylon laves*), the Spineless Sago Palm, from which the greatest part of the sago exported to Europe is derived, grows from twenty-five to fifty feet high, and has a rather thick trunk marked with the scars left by fallen leaves, and usually invested towards the summit with the withered remains of leafstalks; above these the large pinnate smooth-stalked

rather erect leaves form a graceful crown, from out of the centre of which the alternately-branched pyramidal flower-spikes arise, their bases being enveloped by smooth sheaths. *S. Rumphii* (alias *Metroxylon Rumphii*), the Prickly Sago Palm, resembles the former in general appearance, but is usually a much smaller tree, and has its leaf-stalks and the sheaths enveloping the lower



Sagus Rumphii.

part of the flower-spikes armed with sharp spines from half an inch to about an inch long. These trees produce their flower-spikes when about fifteen years old, and the fruit is nearly three years in ripening, after which they die. In order to procure the greatest quantity of sago, the trees must be cut down immediately the flower-spoke makes its appearance.

The Sago of commerce is prepared from the soft inner portion of the trunks of these two species, which are sociable palms, growing together in large masses, principally in swampy places. It is obtained by cutting the trunks into pieces about two feet long, the pieces being then split in half, and the soft substance scooped out and pounded in water till the starchy matter separates, when it is drained off with the water, allowed to settle, and afterwards purified by washing. It is then in the form of sago-meal, but before being sent to this country it is made into what is termed pearl-sago. This is a Chinese process, and is carried on principally at Singapore. The rough meal is first repeatedly washed and strained, then spread out to dry and broken into small pieces, which, when sufficiently hard, are pounded and sifted until they are of regular size. Small quantities are then placed in a large cloth or bag suspended from the ceiling, and shaken backwards and forwards for about ten minutes, when it becomes granulated or pearled, and is thoroughly dried and packed for exportation. [A. S.]

SAHEBA. An Indian name for a worm-seed, the produce of *Artemisia judaica*.

SAINBOIS. (Fr.) *Daphne Mazereum*.

SAINFOIN. (Fr.) *Onobrychis sativa*. —

DESPAGNE. *Hedysarum coronarium*. —

DU CANADA. *Desmodium canadense*.

ST. AGNES' FLOWER. *Erinosma*.

ST. ANDREW'S CROSS. *Ascyrum Cruz Andrea*.

ST. CATHERINE'S FLOWER. *Nigella damascena*.

ST. CHRISTOPHER'S HERB. *Osmunda regalis*; also *Asplenium platyneuron*.

SAINTFOIN or SAINFOIN. A fodder-plant, *Onobrychis sativa*.

ST. JAMES'S-WORT. *Senecio Jacobaea*.

ST. JOHN'S BREAD. *Ceratonia siliqua*.

ST. JOHN'S-WORT. *Hypericum*, especially *H. perforatum*. —, MARSH. *H. Rhod.*

ST. MARTIN'S HERB. *Sauvagesia erecta*.

ST. PETER'S-WORT. *Ascyrum*; also *Symphora*; also *Hypericum Ascyron* and *H. quadrangulum*. The St. Peter's-wort of the old herbals is *Primula vers.*

ST. THOMAS' TREE. *Bauhinia tomentosa*.

SAIRANTHUS. *Nicotiana*.

SAJNA, SUJNA. Indian names for *Moringa pterygosperma*.

SAKA. A colonial name for the Bastard Purpleheart, a timber-tree of Demerara.

SAKACHERA. A Sanscrit name for Henna.

SAKES. The Turkish name for gum mastic.

SAKUR. An Indian name for the small astrigent galls formed on some species of *Tamarix*.

SÂL. *Shorea robusta*; see SAUL.

SALACIA. This genus, along with *Hippocratea*, forms the family *Hippocrateaceae*, which is nearly related to *Celastraceae*, differing mainly in having three instead of five stamens to the flowers. *Hippocratea* has fruits consisting of three samaroid carpels, while *Salacia* has a berried fruit. About sixty species are known, distributed over the tropics, though most numerous in India and the Eastern islands. They are smooth erect or trailing evergreen shrubs, with opposite shining often laurel-like leaves, and in their axils clusters or cymes of minute green or yellowish flowers. India, Africa, and America have each at least one species bearing edible fruit. Thus in Brazil, *S. dulcis* bears a depressed globose fruit, the size of a crab apple, yellowish in colour, sweet and juicy, and (according to Dr. Spruce) much eaten by the Indians on the Rio Negro, who call it Walatuma. In India *S. Roxburghii* bears a like-sized dull red fruit whose white pulp is eaten; and in Sierra Leone *S. pyramidalis* affords a sweet-tasted fruit the size of a bergamot pear. The name *Salacia* is that of the wife of

Neptune, in mythology. Among other synonyms of this genus are *Tonileia* and *Diplosteia*. [A. A. B.]

SALADE DE CHANOINE. (Fr.) *Valerianella olitoria*. — DE PORC. *Hypochaeris radicata*.

SALADELLE. (Fr.) *Statice Limonium*.

SALAGIT, or SALARAS. Indian names for the bitter stalks of *Ophelia elegans*, often confounded with *Chiretta*.

SALAL. *Gaultheria Shallon*.

SALANQUET. (Fr.) *Chenopodium maritimum*.

SALAXIS. A genus of heathworts, having a four-cleft calyx, the anterior division largest; the stamens varying from six to eight, their filaments free or joined, the anthers connate or approximate; the ovary of two or three cells, each one-seeded, and never opening. The species are shrubs, natives of the Mauritius, having their leaves in whorls of three or six together, their edges rolled back; and the flowers in clusters at the ends of the branches. [G. D.]

SALEP. The fecula of the tubers of *Orchis mascula*, *O. latifolia*, *O. Morio*, and other opheous orchids, consisting almost wholly of bassorin. The tubers are dried and preserved for use. —, KASHMIR. The fecula of the tubers of a species of *Eulophia*. —, TAHITI. The fecula of *Tacca pinnatifida*. —, NORTH AMERICAN. The fecula of a species of *Habenaria*.

SALICACEÆ. An order of apetalous dicotyledons, considered by some botanists as a tribe of *Amentaceae*, and by others distinguished from the two other tribes or orders, *Corylaceae* and *Betulaceae*, by their dioecious flowers, the ovaries of the females one-celled, with several ovules on two parietal placentas. They are trees or shrubs with alternate leaves. The seeds, in two-valved capsules, have always a tuft of long white silky hairs. The order only contains the two genera *Salix* and *Populus*.

SALICAIRE. (Fr.) *Lythrum Salicaria*.

SALICARIA. *Lythrum Salicaria*.

SALICOR, or SALICORNE. (Fr.) *Salsicoria*.

SALICORNIA. Succulent marine plants belonging to the order *Chenopodiaceae*, and well distinguished by their jointed stems. The genus is represented in Britain by *S. herbacea*, common in salt-marshes, a leafless plant six to ten inches high, much-branched and jointed. The articulations are thickened upwards, shrinking much when dry, in which state the upper extremity of each articulation forms a two-lobed membranous socket or short sheath, which receives the base of the articulation above it. Spikes of flowers dense, lateral and terminal, jointed like the stem, and bearing at the base of every short articulation, on two opposite sides, a cluster of three flowers, each composed of a single perianth, apparently quite closed at the top and

pledged, as it were, by the bifid or trifid stigma, and the single or two stamens—when two they appear in succession. The various species of this genus, as well as others belonging to the same family, and growing abundantly on the coasts in the South of Europe and North of Africa, yield a vast quantity of soda, much employed in making both soap and glass, whence comes the English name, *Glasswort*.—*Hooker and Arnott*. Large quantities of the ashes of these and allied plants were formerly imported under the name of *barilla*; but since the introduction of Le Blanc's process for obtaining soda from common salt, the importance of *barilla* as an article of commerce has much diminished. French: *Salicorne*; German: *Glasschmalz*. [C. A. J.]

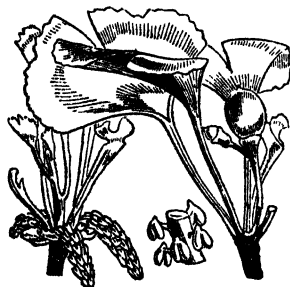
SALIERNE. (Fr.) A kind of olive.

SALIGOT. (Fr.) *Trapa natans*; also *Tribulus*.

SALINE, SALSUS. Growing in salt places; having a salt taste.

SALQUIER. (Fr.) *Cuphea*.

SALISBURIA. This name commemorates the botanical services of Mr. R. A. Salisbury, and is applied to a genus of *Tazaceæ*. The Maldenhair tree, or Ginkgo,



Salisburia adiantifolia.

S. adiantifolia, is a large Japanese tree of much botanical interest, and of singular appearance. It attains a height of sixty to eighty feet, and has a straight trunk with a pyramidal head. The small leaf-bearing twigs are thick and tubercled, and bear a tuft of four or five closely-packed stalked leaves, surrounding a terminal scaly bud. The leaves are fan-shaped, deciduous, leathery, notched, and have numerous closely-set forking veins like those of ferns. The flowers are diculous. The male catkins are thread-like, stalked, borne at the end of the branches; the anther has two divergent lobes, beyond which the connective is prolonged in the form of a crest. The female flowers are borne on axillary stalks, and consist of an ovule, embedded partially in a shallow fleshy cup formed by the dilata-

tion of the end of the flower-stalk. When ripe the seed has an outer fleshy covering, and a thin woody stone surrounding the fleshy albumen.

This tree is largely cultivated in China and Japan, and also in this country, as an ornamental object. As the leaves decay they assume a yellow tint. The venation is thought to indicate a slight degree of affinity to ferns. The fruits are resinous and astringent; the kernels are thought by the Japanese to promote digestion; an oil is extracted from them. [M. T. M.]

SALISIA. A genus of *Myrtaceæ*, so named in compliment to the Comtesse de Salis, a lover of horticulture. *S. pulchella* is a pretty shrub, native of the Swan River colony, with broad leathery hairy leaves, and rose-coloured flowers, arranged in loose corymba. The tube of the calyx is prolonged beyond the ovary, the limb five-toothed; the petals five, slightly stalked; the stamens numerous, longer than the petals; the ovary five-celled, the cells opening by a longitudinal cleft even in the flower-bud, and containing numerous ovules. [M. T. M.]

SALIX. The Willows form an important family of trees and shrubs, giving name to the order *Salicaceæ*. Both willows and poplars are amentaceous, and have their seeds invested with cottony down; but they are sufficiently distinct not only in the outline of the leaves, but in the form of the scales or bracts of the catkin, which in the poplars are jagged at the extremity, and in the willows are entire.

The Willows constitute so extensive a family that a perfect *Salicetum* or willow-plantation, in which every known species was represented, would assume the dimensions of a small wood; and they are so difficult of discrimination, that not even the experienced botanist ventures to assign individuals to their several species unless he has an opportunity of examining them in their various stages of growth. British botanists are not agreed as to the number of species into which the native willows should be distributed, for while Benthham reckons only fifteen, Babington extends the list to fifty-eight.

The Willows are natives of the temperate regions of the Northern Hemisphere, and are much more numerous in the Old World than in the New. The majority grow by the sides of watercourses, but a few high up in the mountains, and one is found nearer to the North Pole than any other shrubby plant. As far as it is possible to include under a general description so extensive an array of species, they may be characterised as trees or shrubs, varying in height from a few inches to sixty feet. They grow rapidly, and for the most part shoot readily from cuttings. The wood is white; the bark of the trunk rather smooth than otherwise, that of the branches either downy or smooth, in the latter case sometimes to such a degree as to appear varnished. In most species it is stringy and tough, and in all is of a bitter taste, owing

to the presence of *salicine*. The leaves are undivided, either notched at the edges or even, stalked, often furnished with stipules, smooth silky downy or even cottony, and varying in shape from linear to round—some modification of the ellipse being, however, by far the commonest form.

The wood is soft smooth and light, and is applied to a great variety of purposes, especially for building fast-sailing sloops of war, and for making cricket-bats. Split into thin strips it is manufactured into hats. The twigs have from the earliest antiquity been employed in basket-work, and in Pliny's time (as they are indeed at present in the northern countries of Europe) were twisted into ropes. The leaves of several species are on the Continent used as fodder for cattle, being collected in summer, and stacked for winter consumption. In Sweden and Norway the bark is kiln-dried in seasons of scarcity, and is mixed with oatmeal.

Among the willows most worthy of notice is the Huntingdon or White Willow, *S. alba*, so called from the silky whiteness of the underside of the leaf; it grows rapidly, attains a large size, and is one of the most useful of the family as a timber-tree. The Bedford Willow, *S. Russelliana*, also attains a large size; its leaves are in shape very like those of the white willow, but differ in being larger and smooth on both sides. The timber is even more useful than that of the last, and the bark contains more tannin than the oak; it is in this species also that *salicine* is most abundant. The Crack Willow, *S. fragilis*, derives its name from the brittleness of the branches, which start from the trunk under the slightest blow. *S. babylonica* (*alapa*, of Koch), the Weeping Willow, is a native of China, and frequently appears in drawings of Chinese ornamental scenery. The willow of Psalm cxxxvii. is supposed to be the *Populus euphratica*; but Tristram supposes the willow of Scripture to be, generally, the Oleander. The Goat Willow, *S. Caprea* (the badge of the Cunning), is the common hedge-willow, marked by its purplish-brown branches, which are covered with minute down when young; and by its large broad leaves, which are wavy at the edge, and densely clothed beneath with soft white cottony down.

The species used for basket-making are usually called Osiers. Several kinds are in common cultivation, all agreeing in bearing long flexible tough shoots, and narrow pointed leaves. The species best adapted for wickerwork are *S. viminalis* and *S. triandra*. Large quantities of osiers are now imported from Holland. *S. pentandra*, common in the North of England and Ireland, is remarkable for its large glossy leaves, more like those of the Portulacae than of the other willows; the foliage of this shrub is fragrant. The little willow which in some districts is so abundant on commons, trailing its wiry branches along the ground, is *S. fusca*. *S. herbacea*, the least of British trees, rarely exceeds the height of four inches. It is a

native of many parts of Europe and North America, and in Great Britain is the last plant furnished with a woody stem which we meet with in ascending the mountains. French: *Saule*; German: *Weide*. [C. A. J.]

The medicinal properties of the Willow are common to all the species in greater or less degree. The bark is the part usually employed, especially that of *S. Russelliana*, *S. alba*, *S. Caprea*, and *S. fragilis*. It is valued for its tonic and astrigent properties, and is used for the same purposes as cinchona-bark. The active properties depend upon the presence of an alkaloid called *salicine*, which is employed in ague, &c. in place of quinine. In case of a scarcity of the latter drug *salicine* might advantageously be used as a substitute, though it is scarcely so potent. *S. pentandra*, in addition to the bitter tonic principle, has slight aromatic properties. The sweet-scented male catkins of *S. aegyptiaca* are used in the preparation of Kalaf, a liquid which is used in the East as stimulant and carminative. *S. chitensis* said to furnish a kind of manna in Chili. A decoction of the roots of *S. nigra*, a North American species, is considered as purgative and febrifugal. [M. T. M.]

SALLOW. A name for *Salix cinerea*, *S. Caprea*, and the allied species, which are not flexible like the osier, but furnish the best charcoal for gunpowder. *S. Caprea* is called the Great Sallow.

SALMALLA. A genus of *Malvaceae*, consisting of one or two species usually included in *Bombax*, from which they are distinguished by their bell-shaped calyx being divided into three or five unequal blunt lobes; by their egg-shaped more erect petals; by the tube of the stamens being inflated or bulged out, and composed of numerous filaments in several series—the filaments being either simple or two-forked at the top, and the outer ones bearing one and the inner two anthers; and by the stigma being divided into five sharp-pointed spreading lobes. Both species are large trees, natives of tropical Asia, and have large hand-shaped leaves composed of from five to nine leaflets, and large red flowers either solitary or several together on the naked branches. Their fruits resemble those of *Bombax*, and are filled with seeds enveloped in silky cotton.

S. malabarica (alias *Bombax malabarica*), the Simool-tree of India, or Malabar Silk-cotton tree, attains a height of seventy or eighty feet, and has a prickly trunk and branches, leaves composed of five to seven leaflets, and clusters of flowers. The silk-cotton of the Simool, though very beautiful, is, like other silk-cottons, not adapted for spinning. It is chiefly used for stuffing cushions, and a kind of quilt or thick cloth is manufactured from it in Assam. The trunk yields a very pure gum and light porous wood, and its bark possesses emetic properties. *S. insignis* is distinguished from the last by its trunk and branches being unarmed, by its leaves being composed of nine leaflets, and by its

solitary flowers. It is a native of Burmah. [A. S.]

SALMEA. A genus of trailing somewhat shrubby *Compositae* peculiar to tropical America, and occurring most commonly in the West Indies. The stems are furnished with opposite stalked leaves, having ovate lance-shaped or heart-shaped blades; and the rayless somewhat pear-shaped white or yellow flower-heads are arranged in corymbs at the ends of the twigs. The florets are all tubular and perfect, with the involucrel scales in two series, the receptacle conical and chaffy, and the vertically compressed achenes crowned with a pappus of two awns. These plants are related to *Bidens*, from which their shrubby habit at once distinguishes them, but more especially to *Verbesina*, of which again the habit is different, and the style-branches are blunt instead of cone-shaped at the apex. [A. A. B.]

SALOMONIA. Under this name are comprised about eight species of minute annual plants of the *Polygalaceae*, found in various parts of tropical Asia. In their habit and the appearance of their flowers they resemble *Polygala*, but have four or five instead of eight stamens to the flowers. Four of the species are little branching plants one to four inches high, the stems furnished with ovate roundish or oblong entire leaves, and the minute white or lilac flowers arranged in spikes at the ends of the branchlets. The remaining four are leafless and parasitical on roots, whence they are separated as a distinct genus by Blume, with the name *Epithizanthus*. The place of the leaves is supplied by minute brown scales. [A. A. B.]

SALOOP. The name given to sassafras-tes, flavoured with milk and sugar, sold to the working-classes in the early morning at the corners of London streets.

SALPIANTHUS. A seacoast plant from the western shores of tropical America, proposed by Kunth as a genus of *Nyctagynaceae*, but which had been previously published by Lagasca under the name of *Boldoa*, one of the *Montiaceae*.

SALPICHLÆNA. A small group of polypodiaceous ferns nearly related to *Blechnum*, from which it differs chiefly in its scandent habit, and in having the parallel venules combined at the apex by a slight intramarginal veinlet. The only known species is *S. volubilis*. [T. M.]

SALPICHROA or **SALPICHROMA.** A genus of *Atropaceae*, comprising Peruvian herbs heretofore included in *Atropa*, but distinguished from it in that the calyx does not increase in size as the fruit ripens, and is moreover divided into five linear erect segments. The corolla is narrow tubular fleshy, often contracted at the mouth, and becomes black in drying. The fruit when ripe is of a bright scarlet colour. The name is derived from the Greek words *salpinx* 'a tube,' and *chroma*

'colour,' in allusion to the colour of the trumpet-shaped flowers. [M. T. M.]

SALPIGLOSSIS. A genus of *Atropaceae*, consisting of herbaceous viscid plants, natives of Chili. The leaves are planately lobed, and the flowers in terminal panicles. The calyx is bell-shaped, five-parted; the corolla funnel-shaped, its tube dilated above, its limb five-cleft spreading; the stamens five, four fertile, didynamous, with two-celled anthers opening by a single pore; the style thickened at the extremity with a somewhat two-lobed stigma; the fruit a two-celled two-valved capsule with numerous seeds. The flowers are showy, often with the veins coloured differently from the rest of the petal. Some of the species are cultivated as greenhouse plants, or as bedding plants in summer. The generic name is derived from the Greek words *salpinx* 'a tube' and *glossis* 'a tongue,' in allusion to the tongue-like style in the mouth of the corolla. [M. T. M.]

SALPIGOPHORA. *Campesidium*.

SALPINGA. A genus of one or two South American herbaceous melastomaceous plants allied to *Bertolonia*, but distinguished by the anthers having a tail-like appendage at their base, sometimes as long as the anther itself, and also by the three-sided capsules being invested with the eight or ten-nerved persistent calyx. The flowers are borne in a double scorpioid raceme. [A. S.]

SALPIXANTHA. A genus of *Acanthaceae* containing a single species from Jamaica, now generally referred to *Geissomeria*, from which it differs only in the calyx being less deeply cut, and in the limb of the corolla being regular. [W. C.]

SALSA. An abbreviation for Sarsaparilla.

SALSIFY, or **SALSIFY.** *Tragopogon porrifolius*.

SALSEPARIELLE. (Fr.) *Smilax*. — **D'ALLEMAGNE.** *Carex arenaria*. — **D'EUROPE.** *Smilax aspera*.

SALSFIR. (Fr.) *Tragopogon*. — **D'ESPAGNE.** *Scorzonera*.

SALSOLA. The Saltworts form a rather extensive genus of *Chenopodiaceae*, and are most abundant in the temperate and warm regions of the Northern Hemisphere, principally in the Old World; occurring in the Southern Hemisphere only in Timor, Eastern Australia, New Zealand, Madagascar, and Chili. They are always confined to the seacoast or to salt-marshes, or other places where the soil is impregnated with salt; their generic name being thence derived from the Latin words *sal* 'salt,' and *solum* 'soil.' They are herbaceous or somewhat shrubby smooth or downy plants, with unjointed stems, and usually alternate but occasionally opposite stalkless more or less cylindrical fleshy or prickly leaves, bearing the small stalkless perfect flowers in their axils, together with two dorsal

bracts resembling the leaves. Their fruit, called an utricle, has a loose thin shell, and contains a horizontal single-coated seed.

S. Kali, the Prickly Saltwort, is a common seashore plant in most European and many other countries. It is a brittle succulent annual of a pale bluish-green hue, with somewhat angular furrowed and striped bristly stems, very much branched, and spreading in all directions so as to form a bush from a foot to a foot and a half high; and has numerous awl-shaped nearly cylindrical spiny-pointed leaves, with broadened bases furnished with little prickles. *S. Soda*, a South European and North African species, is a succulent annual from one to two feet high, but not brittle like the last; and has smooth shining stems and somewhat flexuose branches, with soft nearly cylindrical short-pointed leaves of a bluish-green colour.

An impure carbonate of soda obtained from the ashes of these and several allied and other plants, known under the Spanish name *barilla*, was formerly an article of considerable commercial importance; and large quantities of it were annually imported into the United Kingdom from the Canary Islands, Spain, and other parts of the South of Europe, and employed in soap and glass-making; but since the introduction of soda manufactured from common salt as a commercial article, the imports have greatly decreased, though about a thousand tons of *barilla* and other alkalies are still annually imported, mostly from the Canary Islands and the Two Sicilies. For the preparation of *barilla* these plants are dried in heaps like hay, and afterwards burnt upon a rude grating constructed over a large hole, into which the semifluid alkaline matter flows, and is there left to cool and solidify. *Kali* is the Arabic name for the ashes of these soda-plants, and the term *alkali*, applied by chemists to soda, potassa, and similar substances, is derived either from *kali*, with the Arabic article prefixed, or from a corruption of *sal* (salt) and *kali*. [A. S.]

SALSUGINOSE. Growing in places inundated with saltwater.

SALT-BUSH. The Australian *Atriplex nummularia*.

SALTIA. A genus of *Amaranthaceae* from Arabia, consisting of a branched undershrub, with alternate leaves, and axillary and terminal spikes of bracteated flowers in threes—the central one perfect, the lateral sterile, and at length growing out into straight awns clothed with feathery wool. The perfect flowers have five hairy sepals, five stamens united at the base into a cup, with two-celled anthers and no staminodes; and the utricle is oblong with a vertical seed. [J. T. S.]

SALT-TREE. *Halimodendron argenteum*.

SALTWORT. *Salicornia annua*; also *Salicora*. —, **BLACK.** *Glaux maritima*.

SALVADORACEÆ. A small order of

monopetalous dicotyledons allied to *Oleaceae* and *Jasminaceae*. Like the former they are small trees or shrubs, with opposite entire leaves, and small paniculate flowers with a minute four-cleft calyx, and a four-cleft corolla; but there are four stamens, the ovary is one-celled with a single erect ovule and a sessile simple stigma, and the seed, as in *Jasminaceae*, is erect without albumen. Only three genera, *Salvadora*, *Monetia*, and *Zoehra*, have as yet been referred to the order.

SALVADORA. An unusual amount of interest is attached to this genus, on account of one of the species belonging to it being supposed to be the Mustard-tree of Scripture. It is the typical species of *Salvadoraceae*, and was at one time the only genus referred to that order. The five described species are shrubs or small trees, and have a geographical range extending from Central Africa, Abyssinia, and Egypt through South-western Asia to India and Ceylon. They have stems with slightly swollen joints, opposite entire leathery leaves with scarcely any visible veins, and loose branching panicles of small flowers, which have a very minute four-leaved calyx, a thin four-parted corolla, with four stamens inserted between the lobes and connecting them together, and a one-celled ovary bearing an undivided stalkless stigma. Their little berry-like fruits contain solitary erect seeds.

The identification of the plants mentioned in the Bible is a task of great difficulty, and in almost all instances the result of the most learned investigations, whether by Biblical commentators or by botanists, is unsatisfactory and open to doubt. In our English version of the Bible the names of plants have been made to agree with those now in use, and the obvious inference among the unlearned is that the plants are the same. The researches of botanists, however, have shown that the tares, the aloes, the hyssop, and other Scriptural plants differ widely from those so called at the present day; and some writers have therefore thought it probable that the same is the case with the Mustard spoken of in the Gospels, the seed of which St. Matthew says 'is the least of all seeds; but when it is grown it is the greatest among herbs, and becometh a tree, so that the birds of the air come and lodge in the branches thereof.' (xlii. 32.) It is obvious that this description does not agree with the common mustard (*Brassica*) as seen in this country, and consequently the assertion that the Scriptural plant belonged to a totally different genus has been readily believed. During their travels in the Holy Land, Captains Irby and Mangles met with a small tree (ascertained by Professor Don to be a *Salvadora*) with a small pungent mustard-like fruit, and they thought it might probably be the tree referred to by Christ. This supposition was afterwards strengthened by Dr. Royle, who found that the tree in question bore the same Arabic name (*Kharial*) as the

common mustard, and that it was commonly regarded in Syria as the Mustard-tree of Scripture; though it is to be observed that the *Sinapis* grows to a much greater size in Syria than with us, and is frequently seen as high as twelve or fifteen feet, so that birds might easily lodge in its branches. The species of *Salvadora* growing in Syria is said by both Don and Royle



Salvadora indica.

to be *S. persica*, but that is a plant of small size, not a tree. *S. indica* however, a common Indian and Cingalese species, grows to a considerable height, and is probably the one meant. [A. S.]

SALVER-SHAPED. The same as Hypocrateriform, or Hypocraterimorphous.

SALVERTIA. A monotypic genus of *Polypodiaceae* confined to Brazil. *S. consallortia*, whose blossoms emit a most delightful scent resembling that of our lily of the valley, is a tree with obovate leaves arranged in whorls, and white paniculate flowers. The calyx is five-lobed, one of the lobes being shaped into a spur, whilst two of the five petals are smaller than the rest. The ovary is free; and the capsule three-valved, triangular, and three-celled, each cell containing one seed. [B. S.]

SALVIA. A genus of *Labiatae*, distinguished by its lipped calyx, and two forked stamens. The species are undershrubs or herbs, varying in general habit, and widely distributed over the earth. The name is from the Latin *salvo* 'I heal,' indicative of the supposed qualities of some of the species. Examples of this genus have been long and favourably known as objects of culture, and deservedly occupy a prominent place. It is only necessary to allude briefly to some of them. *S. splendens* is of interest on account of its period of flowering; *S. alba*, a native of Sicily, is hardy, and also desirable on account of its showy violet-and-white flowers; *S. candelebrum* is a hardy perennial, a native of the South of Spain, the upper lip of its

flower greenish-yellow, the lower a rich violet, thus presenting a fine contrast; *S. pratensis* is a well-known ingredient of the hay-crop in some parts of Italy and the Ionian Islands, its blue flowers rendering it a great ornament in the meadows; *S. lyrata* and *S. urticifolia* are equally well known in North America. *S. officinalis* is the Common Sage, a familiar garden herb having aromatic and bitter properties. [G. D.]

SALVINIA. A genus of *Marsileaceae* belonging to the same section as *Azolla*, and by some considered as a distinct natural order, *Salviniaceae*. It has a floating thread-like rhizome containing a central bundle of vessels with several cavities around it, furnished above with fern-like subelliptic floating entire leaves, and below with long rootlets and fluted bladder-like fruit on shortleafless branches. The fruit consists of globular bags composed of a double membrane, at length bursting irregularly. These bags are of two kinds: the one containing spherical antheridia upon branched stalks springing from a central placenta; the other short-stalked single-spored sporangia, seated like the former on a central column. The leaves are not curled up when young, and the upper surface is studded with warts, each of which bear a little crown of bristles. There is sometimes a central rib in the leaves, besides which there are reticulated veins more prominent below than above. The spermatozooids, according to Hofmeister, are furnished with a series of lash-like cilia, and the spores germinate by cell-division at their upper extremity, two or three archegonia being formed in the substance of the prothallus of which one only proves fertile. The young plant closely resembles that of *Salaginella*, apart from the two cotyledon-like processes. All the supposed species are reducible to one, which occurs in the South of Europe in stagnant pools, and is found in all the warmer parts of the world. [M. J. B.]

SALWOOD. *Shorea robusta*.

SALZMANNIA. The name of a Brazilian shrub, forming a genus of *Onchocarpaceae*. The leaves are smooth and shining; and the flowers are borne in axillary heads. The limb of the calyx is cup-shaped, slightly four-toothed; the tube of the corolla short, its limb divided into four oblong lobes; the stamens four; and the fruit dry, one-celled one-seeded, surmounted by the limb of the calyx. This genus is imperfectly known. [M. T. M.]

SAMA. The acrid Abyssinian *Urtica stennis*, which is, however, cooked as a vegetable.

SAMADERA. A genus of trees of the *Simarubaceae*, natives of tropical Asia and Madagascar. The leaves are entire, and the flowers large pinkish, disposed in axillary umbels, surrounded by involucre of small bracts. The calyx is four-parted, its segments frequently provided externally with two glands at the base; petals

four, much longer than the sepals; stamens eight, filaments attached below to a hairy scale; ovaries four or five on a short stalk, each one-celled, one-seeded; styles separate below, above confluent, longer than the petals. *S. indica*, a native of Travancore and Malabar, yields a bark which is employed as a febrifuge. From the seeds is procured an oil used in rheumatic affections. The bruised leaves are likewise employed in erysipelas. [M. T. M.]

SAMANKA DES INDIENS. (Fr.) *Citrullus vulgaris*.

SAMARA. A genus of *Myrsinaceae*, distinguished in the order by the petals being free and distinct as in *Embelia*, with the stamens inserted at their base, but always in fours, not in fives as in that genus; and by the stamens being always longer than the petals. The habit is also different. There are very few species, natives of Eastern Africa and tropical Asia, extending to Southern China. They are shrubs, often half-trailing, with entire evergreen leaves, and small flowers in very short axillary racemes.

SAMARA. An indehiscent fruit, producing a membranous expansion or wing, from its back or end.

SAMARIA-WOOD. *Irica altissima*.

SAMAROID. Resembling a Samara.

SAMBO. *Cleome*.

SAMBUCUS. A genus of small trees shrubs or more rarely herbs, belonging to the *Caprifoliaceae*. The characters are: Corolla with a very short tube; berry three to four-seeded; leaves pinnate. *S. nigra*, the Common Elder, is a well-known tree of rapid growth when young, remarkable for the stoutness of its shoots, which when a year old are as large as those of many other trees at two or three years of age. They are covered with a smooth grey bark, and contain an unusual proportion of pith, which being easily removed, the branches may readily be formed into tubes, and on this account the Elder was formerly called Bore-tree. The wood is white and of a fine close grain, tough, fissile, and easily cut—hence it is used for making skewers and shoemakers' pegs. The leaves have an unpleasant odour when bruised, which is supposed to be offensive to most insects, and a decoction of them is sometimes employed by gardeners to keep off caterpillars from delicate plants. By village herbalists they are employed in making a kind of ointment, and the flowers serve for fomentations, or are made into a medicinal tea; while the berries are the principal ingredient in 'elderberry wine.' These are generally purplish-black, but a variety occurs with berries of a greenish-white hue. *S. Ebulus*, or Danewort, is an herbaceous plant found in many parts of Britain as well as the Continent; it has a nauseous smell, and drastic properties. *S. racemosa*, a native of Central and Southern Europe, is a shrub which towards the end of summer is high-

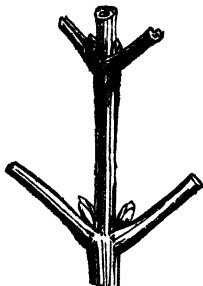
ly ornamental, with large oval clusters of bright scarlet berries. French: *Sureau*; German: *Hohlender*. [C. A. J.]

Evelyn says, speaking of the Common Elder:—"If the medicinal properties of the leaves, bark, berries, &c. were thoroughly known, I cannot tell what our countrymen could all for which he might not fetch a remedy from every hedge, either for sickness or wound." Aubrey tells us that 'the apothecaries well know the use of the berries, and so do the vintners, who buy vast quantities of them in London, and some do make no inconsiderable profit by the sale of them.'

The Danewort, *S. Ebulus*, has purple flowers, but the berries are so much like those of the common elder as to be occasionally used for the same purposes. In accounting for its English name, Sir J. E. Smith says: "Our ancestors evinced a just hatred of their brutal enemies the Danes, in supposing the nauseous, fetid, and noxious plant before us to have sprung from their blood." But we cannot help thinking that both kinds of Elder were not only used medicinally, but were also held in great superstitious reverence. Mr. Jones, in his *Notes on Certain Superstitions in the Vale of Gloucester*, cites the following, which by the way is no unusual case; "Some men were employed in removing an old hedgerow, partially formed of elder-trees. They had bound up all the other wood into faggots for burning, but had set apart the elder, and enquired of their master how it was to be disposed of. Upon his saying that he should of course burn it with the rest, and ordering it to be faggoted, one of the men said, with an air of undisguised alarm, that he never heard of such a thing as burning *Elian Wood*; and, in fact, so strongly did he feel upon the subject, that he refused to participate in the act of tying it up." The word *Elian* (still common with us) indicates the origin of the superstition. In Low Saxon the *Sambucus nigra* is called *Elhorn*. Arnkiel unsuspectingly relates, "Our forefathers also held the Elhorn holy, wherefore whoever need to hew it down (or cut its branches) has first to make request, "Lady Elhorn, give me some of thy wood, and I will give thee some of mine when it grows in the forest,"—the which with partly bended knees, bare head, and folded arms was ordinarily done, as I myself have often seen and heard in my younger years."

There exist many superstitious respecting elder-wands, elder-trees before stables, the shedding of water under them, and the elder-mother, a Danish superstition. The attributed curative effects of elder are well known. Its flowers are an eyewash and cosmetic, and its bark and leaves are used for various purposes, but the most curious use is that which has been recorded by Mr. Jones on the authority of Lord Ducie:—"A small piece cut from a young shoot just above and below a joint, so as to leave the bud projecting at each end of it after the fashion of a rude cross, horse constantly about the person, is a most

certain and effectual cure for rheumatism. It appears, however, that the Elder to be thus efficient must grow in consecrated ground. In Tortworth churchyard (and others in the county of Gloucester) is such



Cross of Elder.

a tree, and we are told that application is frequently made for bits of it from a considerable distance, and that some of its recipients are not only willing but able to give it a good character of many years' standing. We give a cut of a piece of elder of the orthodox form. [J. B.]

SAMOLUS. Small marsh plants with white flowers, possessing no attractive properties, belonging to the *Primulaceae*, and distinguished by the half-superior capsule, and by five imperfect stamens alternating with the lobes of the corolla. *S. Valerandi*, the Brookweed or Water Pimpernel, is an erect plant eight to ten inches high, with bright green somewhat fleshy leaves, and terminal inconspicuous flowers. It is remarkable only for its wide geographical range, there being scarcely any country in which it does not abound where the soil is wet and gravelly. In Great Britain it is most frequent where small streams trickle over rocks on the seashore. *S. littoralis*, a native of Van Diemen's Land, is very similar in habit. French: *Samole*; German: *Samoskraut*. [G. A. J.]

SAMP. A preparation of Indian corn largely used in the United States.

SAMPHIRE. *Orithimum maritimum*, the aromatic saline fleshy leaves of which are used in pickles; also *Borrichia arborescens*. —, **GOLDEN.** *Inula crithmoides*. —, **JAMAICA.** *Batis maritima*.

SAMSHOO. A spirituous liquor extracted from rice by the Chinese.

SAMYDACEÆ. An order of Dicotyledons belonging to Lindley's Violal alliance, consisting of tropical trees or shrubs, with alternate leaves generally marked with pellucid dots; and hermaphrodite flowers, usually small in axillary clusters. The perianth is calyx-like, usually four or five-

lobed, without petals; the stamens are perigynous, often more numerous than the calyx-lobes, but in a single row alternating with small teeth or filaments without anthers; and the ovary is one-celled, with two three or more parietal placentas. The order contains one large genus, *Casearia*, and about half-a-dozen small ones allied to it. Some botanists unite with it *Flacourtiaceæ*, which have petals and a somewhat different arrangement of stamens, while others combine the whole with *Flacourtiaceæ*.

SAMYDA. The type of the *Samydaceæ*, and composed of shrubs or small trees inhabiting tropical America. The branches are often clad with thorns; and the leaves are more or less ovate serrate, and furnished with pellucid dots. The flowers are solitary or fasciculate in the axils of the leaves, and they are white or in some species purplish. The calyx is five-cleft; the corolla entirely wanting; the stamens are fertile (or, as Mr. Bentham expresses it, there are no staminodia or scales intermixed with the stamens), by which latter character *Samyda* is easily distinguished from its allies. *S. suaveolens*, an inhabitant of Brazilian forests, is remarkable for its white deliciously-scented flowers, strongly recalling to mind the odour of orange-blossoms. [B. S.]

SANA. A kind of Peruvian Tobacco.

SANDAL-TREE. *Santalum*.

SANDALWOOD. An odoriferous wood the produce of several species of *Santalum*. That of India is the *S. album*; that of the Sandwich Islands *S. Freycinetianum* and *S. paniculatum*; and that of Western Australia, *S. latifolium*. The name is given among the Russians to the red wood of *Rhamnus dahuricus*, used for dyeing leather. —, **CITRON.** *Santalum Freycinetianum*. —, **QUEENSLAND.** *Eremophila Mitchellii*. —, **RED.** *Adenanthera pavonina*; also *Pterocarpus Santalinus*. —, **WHITE.** *Santalum album*. —, **YELLOW.** *Santalum Freycinetianum*.

SANDALWORTS. Lindley's name for the *Santalaceæ*.

SANDARACH. A white resin not unlike mastic, but brittle, occurring in round or long tears, and obtained from *Ocoteira quadrivalvis*.

SANDBOX-TREE. A local West Indian name for *Hura crepitans*, the seeds of which are a drastic purgative, and contain a very limpid oil.

SANDERS-WOOD. An old name for Sandalwood. —, **RED.** The red Indian dyewood, obtained from *Pterocarpus Santalinus*. —, **YELLOW.** *Bucida capitata*.

SANDBICUM indicum is the representative of a genus of Mollaceous plants found in the Philippine Islands, the Moluccas, and the East Indies, and having an arborescent stem, trifoliate leaves, axillary paniculate flowers, a short five-toothed calyx, five linear petals, ten stamens com-

bined into a tube, a stigma divided into five lobes, and an apple-like berry containing five one-seeded nuts. Properties similar to those of *Melia* are attributed to the root, but the latter has a repulsive odour, whilst *Sandoricum* is aromatic; it is employed against leucorrhœa, combined with the bark of the root of *Carapa obovata*, which is bitter and astringent. [B.S.]

RANDPAPER-TREE. *Curatella americana*.

SANDWEED. *Arenaria*.

SANDWOOD. *Bremontiera Ammocylon*.

SANDWORT. *Arenaria*. —, SEA. A common name for *Honkenya*. —, SPUR-REY. *Spergularia*.

SANFORDIA. A genus proposed by J. Drummond for a rutaceous shrub from Western Australia, allied to *Correa*. It has proved to be the same as *Gelczovia* previously published by Turczaninow.

SANG-DE-DRAGON. (Fr.) *Dracæna Draco*; also *Rumex sanguineus*.

SANGSORBE. (Fr.) *Sanguisorba*.

SANGUINAIRE. (Fr.) *Geranium sanguineum*. — D'ALLEMAGNE. *Scleranthus*.

SANGUINARIA. The Blood-root or Puccoon, *S. canadensis*, commonly found throughout the United States and Canada, is the sole representative of this genus of *Papaveraceæ*. It is an herbaceous plant about six inches high, and has a thick branching rootstock, which creeps along underground; and in early spring sends up from the ends of each of the little side-branches a single long-stalked leaf, and another stalk bearing a solitary flower. The leaf is wrapped round the flower-bud when it rises out of the ground, and is bluntly five to nine-lobed, roundish at first, but afterwards kidney-shaped. The flowers are large and conspicuous, and have two sepals, from eight to twelve white petals overlapping in two or three series, about twenty-four stamens with filaments shorter than the petals, and a short style with a broad two-lobed furrowed stigma. The fruit is an oblong pod-shaped two-valved capsule, containing numerous crested seeds attached to the frame or replum. The root has long been known to possess active medicinal properties, and various preparations of it are commonly prescribed by American doctors; but it has only recently come into use in this country, and that chiefly among the class of practitioners styling themselves 'eclectics.' Its principal use appears to be as an expectorant in diseases of the chest, or, in larger doses, as an emetic; and it would seem to owe its properties to the presence of an acid alkaloid called *sanguinaria*. The American Indians formerly used the orange-coloured juice of the root for smearing their bodies, and for staining various domestic articles. The plant has also been successfully employed by American and French dyers. [A.S.]

SANGUINARY. *Achillea millefolium*.

SANGUINE, SANGUINEUS. Dull red passing into brownish-black.

SANGUINIÈRE. (Fr.) *Sanguinaria*.

SANGUISORBACEÆ. A small order which most botanists consider as a tribe of *Rosaceæ*, distinguished from *Rosææ* proper by the want of petals, and the solitary carpels. See *ROSACEÆ*.

SANGUISORBA. A genus of herbaceous plants giving name to the tribe *Sanguisorbeæ* of the order *Rosaceæ*. The genus is characterised by bearing its flowers, which contain both stamens and pistils, in heads or simple spikes; by the calyx of each flower being four-cleft, with two to three small bracts at its base; by the absence of petals, and by the presence of four stamens. *S. officinalis*, or Burnet, received its name from its supposed vulnerary properties. It is a slender plant one to three feet high, with pinnate smooth leaves, and terminal ovate heads of crowded dark-purple flowers. It grows in moist pastures and by watercourses, chiefly on a calcareous or magnesian soil, and is most frequent in the North of England and the extreme West. There are several other species, some of which are occasionally to be seen in gardens, especially *S. canadensis*, which in habit resembles the Common Burnet, but bears its flowers, rendered conspicuous by their white anthers, in long cylindrical spikes. French: *La grande pimprenelle des prés*; German: *Wiesenknopf*. [C.A.J.]

SANICLE. *Sanicula*. —, BEAR'S-EAR. *Cortusa Matthioli*. —, COMMON. *Sanicula europæa*.

SANICLE. (Fr.) *Sanicula*; also *Prunella*. — BÂTARDE DAMÉRIQUE. *Mitella*. — FEMELLE. *Astrantia*. — DE MONTAGNE. *Geum*.

SANICULA. A small genus of umbelliferous plants represented in Britain by *S. europæa*, the Wood Sanicle, an herbaceous plant two to three feet high, frequent in thickets and woods. The root-leaves are palmate, with three-cleft serrated lobes, smooth and somewhat glossy; the minute whitish flowers grow in heads rather than umbels; the fruit is ovate and densely clothed with thick prickles, by means of which they attach themselves when ripe to the hair or wool of animals, and to the clothes of persons passing through woods where the plant is abundant. French: *Sanicle*; German: *Sanickel*. [C.A.J.]

SANSEVIERIA. A name formerly applied to the plant now called *Besneckia carnea*, the *Sansevieria carnea* of some writers.

SANSEVIERA. The Bowstring Hemp, — as the plants belonging to this genus of *Liliacææ* are called, from the fibres of their leaves being used for bowstrings by the natives of the countries where they are indigenous — are stemless perennial plants, throwing out runners, and having only root-leaves which are thick fibrous and

fleshy, and usually sword or lance-shaped with sheathing bases, either in two opposite rows or tufted; their simple flower-spikes rising from the centre, and bearing the whitish or yellowish-green flowers in clusters along them. In its technical characters the genus is very closely allied to *Dracena*, the flowers differing only in the combined calyx and corolla not being divided further than the middle, and in the long slender erect style being terminated by an undivided round-headed stigma.

A. uincensis, the African Bowstring Hemp, has lance-shaped leaves from one to four feet long and three to four inches wide, flat in the middle, narrower and channelled or rolled in towards the base, and terminated upwards in a short blunt point; when young they are marked with pale-coloured cross-bands, but ultimately assume an uniform shining green.

S. Roxburghiana, the Moorva or Marool of the Indian peninsula, has leaves about the same length as the last, but very much narrower, and concave or channelled along the whole upper surface and convex or keeled below, somewhat approaching a cylindrical form, and terminated by a tapering spine-like point; they are also of a duller green, marked with alternate paler wavy cross-bands. The fibre of the Moorva is very strong and of fine quality, and is suitable for the manufacture of fine string and cordage. This latter plant is frequently confounded with *S. zeylanica*, a much smaller species. [A. S.]

SANTALACEÆ. (*Osyridaceæ*, *Sandalworts*). An order of apetalous dicotyledons, consisting of trees or more frequently shrubs or herbs, often parasitical on roots, with alternate or rarely opposite entire leaves without stipules, the flowers usually small and green in terminal or lateral heads cymes or spikes. The order is well characterised by the stamens being as many as and opposite to the lobes of the perianth; by the inferior one-celled ovary with three to five ovules, suspended from a free central placenta; by the indehiscent fruit with a single seed, and by the straight embryo in a fleshy albumen. The species are dispersed over the tropical and temperate regions of the globe, but are more abundant in the Old World than in America; they are distributed into about twenty genera of which the most important are *Quercanathum*, *Pyralaria*, *Osyris*, *Thesium*, *Leptomeria*, and *Santalum*, to which some botanists add *Hemslowia* and *Exocarpos*.

SANTALIN. The principle of the colouring-matter in *Pterocarpus Santalinus*.

SANTALUM. A genus of sandalworts, distinguished by having a superior calyx, which is four-lobed, furnished with four glands alternating with its divisions, and four stamens opposite to them. The species are trees or shrubs, natives of Asia, Australia, and the Pacific Isles. *S. album* yields the Sandalwood of India; that of the Sandwich Islands is derived from *S.*

Freycinetianum and *S. paniculatum*. The name of the genus is derived from the Persian. [G. D.]

SANTA-MARIA TREE. *Calophyllum Calaba*.

SANTOLINA. A genus of small twiggy undershrubs of the *Compositæ*, peculiar to the Mediterranean region. They have much in common with *Achillea*, from which they are distinguished by their quadrangular achenes being neither winged nor margined, as well as by the lower portion of their compressed corolla-tubes being prolonged into a sort of hood, enveloping the summit of the ovary. The common Lavender Cotton, *S. Chamæcyparissus*, is one of the widest-spread species, and has long been known in gardens, where it may be frequently met with planted along the margins of shrubby borders. It is a neat erect branching bush one to two feet high, the stems and leaves clothed with a hoary pubescence. The small linear leaves, thickly set on the wiry twigs, are furnished with four to six rows of short obtuse teeth; and the yellow flower-heads, which resemble those of a chamomile divested of its white rays, are solitary, and stalked at the ends of the twigs. This plant was once esteemed for its vermifuge and stimulant properties, and the twigs have been used for placing in wardrobes to keep moths from clothes, as well as for their strong rather agreeable odour, which is common to all the species.

All the species have a strong resemblance to the foregoing, with the exception of *S. fragrantissima*, which differs in having the flower-heads in corymbs instead of singly at the apex of the twigs, which are furnished with ovate crenelled leaves. According to Forskal the Arabs use the juice of this plant for bathing the eyes. [A. A. B.]

SANTONINE. The vermifuge principle of the Semen Contra, a medicinal substance obtained from the flower-heads of some of the *Artemisias*, and a most powerful anthelmintic.

SANVITALIA. A genus of *Compositæ*, distinguished by the paleaceous receptacle of its flower-heads; by the achenes of the ray having three awns, those of the outer portions of the disk mucronate, of the inner winged; and by the involucrel scales being flat and imbricated in two or three series. *S. procumbens* is a common annual plant from Mexico, with a procumbent habit, ovate entire leaves, and flower-heads like those of a *Eudbeckia*, with a yellow ray and dark disk. [T. M.]

SANWUCK. An Indian name for *Panicum frumentaceum*.

SAOUARI or **SOUARI-WOOD.** An excellent timber for shipbuilding and other purposes, resembling Mora in its properties. It is obtained from *Coryocar nuciferum* and *C. tomentosum*, which yield also the delicious Souari-nuts.

SAP. The juice of a plant.

SAPALLO. A Spanish name for *Ocurobia Molepepa*.

SAPANWOOD. A dyewood obtained in Malabar and the islands of the Eastern seas, from *Cassipouia Sappan*, *C. coriaria*, and *C. pulcherrima*.

SAP-BALL. A local name for those *Polypteri* which grow on trees, but applied more especially to *P. squamosus*, a species which abounds on decayed ash, and is found occasionally on other trees, the stems of which when large, after the juice has been squeezed out, is sometimes used by boys as their foundation for tennis-balls. The same species is sometimes used, when properly dried and shaped, to form razorstrops, but it is not so good for this purpose as *P. betulinus*. Specimens formed from the latter, received from Denmark, may be seen in the Museum of the Kew Gardens. [M. J. B.]

SAP-GREEN. A vegetable pigment composed of lime mixed with the colouring-matter of the berries of *Rhamnus catharticus*.

SAPID. Having a pleasant taste.

SAPIN. (Fr.) *Abies*. — À FEUILLES D'IF, or ARGENTÉ. *Abies pectinata*. — BAUMIER. *Abies balsamea*. — BLANO. *Abies pectinata*. — COMMUN. *Abies excelsa*. — DE NORMANDIE. *Abies pectinata*. — NORWÈGE. *Abies excelsa*. — PINSAP. *Abies Pinsapo*.

SAPINDACEÆ (*Esculaceæ*, *Hippocastaneæ*, *Soapworks*). A large order of polyptalious dicotyledons, consisting of trees or shrubs, sometimes climbing, and very rarely almost herbaceous, with alternate or rarely opposite leaves, most frequently compound, and usually pinnate; the flowers usually small, paniculate or racemose, or rarely solitary. In the normal genera the sepals and petals are four or five each; the stamens either twice as many or of the same number, or more frequently eight whatever be the number of petals, and inserted within or upon or rarely around a more or less prominent hypogynous or almost perigynous disk. The ovary is several-celled, with one or two ascending ovules in each. The fruit is very various; the seeds usually without albumen, and with an inferior radicle. There are above seventy genera, chiefly tropical, but some are also found in temperate regions of the Northern Hemisphere. They are distributed into five tribes or suborders:—

1. **SAPINDÆÆ** proper, with the stamens inside the disk, albuminous seeds, and leaves rarely opposite, including the large or wide-spread tropical genera *Sorjania*, *Cardiospermum*, *Paulinia*, *Schmidelia*, *Oupania*, *Sapindus*, *Nephelium*, etc., as well as *Kütneria* and *Asterulus* from more temperate regions.

2. **ACERINÆÆ**, scarcely differing from *Sapindææ* proper, except that the stamens are less constantly within the disk, and the

generally considered as a distinct order. It is limited to *Acer* and two small genera separated from it: see **ACERACEÆ**.

3. **DODONÆÆ**, with the stamens outside of or on the margin of the disk, and the seeds without albumen. They comprise *Dodonæa* and five small genera.

4. **MELIANTHÆÆ**, with the stamens inside the disk and seeds with albumen, containing only the two African genera *Melanthus* and *Bersama*.

5. **STAPHYLEÆÆ**, with the stamens outside the disk, seeds with albumen, and opposite leaves. The two last are often considered as distinct orders, and another separate order is frequently adopted for the genera *Æsculus* and *Ungnadia* of *Sapindææ* proper, which have opposite and digitately compound leaves, but differ in no other respect whatever.

SAPINDUS. The typical genus of *Sapindaceæ*, found in both hemispheres, mostly within the limits of the tropics, and consisting of trees or shrubs, with alternate usually pinnate leaves without a terminal leaflet; and panicles of small white or greenish, perfect or unisexual, five- or four-parted flowers. The fruits are fleshy externally, and do not open when ripe. Those of several species are acrid, and are called Soap-berries, from their being used in the tropics as a substitute of soap, their outer covering or shell containing a saponaceous principle (*sapontin*) in sufficient abundance to produce a lather with water; but the assertion of the old Jamaica historian, Patrick Browne, that 'a few of them will cleanse more linen than sixty times their weight of soap,' must be received with caution. Among the species thus used are *S. Saponaria* and *S. inaequalis* in the New World, and *S. Barua* and *S. emarginatus* in the Old. Their excessively hard round black seeds are used for making rosaries, necklaces, bracelets, buttons, &c.; and a medicinal oil is extracted in India from those of *S. emarginatus*. The outer covering of the fruit of some species, such as *S. senegalensis* and *S. esculentus*, is eatable; but their seeds are poisonous. [A. S.]

SAPINETTE BLANCHE. (Fr.) *Abies alba*. — NOIRE. *Abies nigra*.

SAPIUM. A genus containing about a score of trees or shrubs of the order *Euphorbiaceæ*, found in the tropics of both hemispheres, and all of them yielding a milky juice, which in some is very acrid and even poisonous. The leaves resemble those of the willow, the poplar, or the laurel, and at their point of union with the stalk are furnished with two round glands; while the small greenish flowers are disposed in terminal spikes, the lower portion bearing the fertile, the upper the sterile flowers.

S. indicum, a widely distributed eastern species, is known under the name of *Boroo* in Borneo, where, according to Mr. Motley, the leaves are largely used for dyeing and staining rotang of a dark colour. The acrid milky juice produces alarming

sensation like that from a capsicum. The young fruit is acid and eaten as a condiment, while at the same time the fruit is one of the ingredients used for poisoning alligators. The ripe fruits are woody trilobed capsules, about an inch across, with three cells, and one oily seed in each.

The Milkwood of Jamaica, *S. laurifolium*, receives its name from the milky juice which abounds in the stem, and is a source of annoyance to sawyers and others when the wood is green. *S. salicifolium* affords in Paraguay a bark which is used instead of that of oak for tanning. Most modern authors unite this genus with *Stillingia*, from which there are no reliable characters to distinguish it. [A. A. B.]

SAPODILLA. *Sapota Achras*. The West Indian Sapodilla-wood, yielded by this tree, is a fancy wood used for furniture.

SAPONAIRE. (Fr.) *Saponaria officinalis*. — **FAUX-BASILIC.** *Saponaria ocyroides*.

SAPONARIA. A genus of herbaceous plants belonging to the order *Caryophyllaceae*, and allied to *Dianthus*, from which they are distinguished by the absence of bracts at the base of the calyx, and by the seeds not being flattened. *S. officinalis*, or Soapwort, is admitted into the British Flora, but is never found except in the neighbourhood of human dwellings, and is not considered to be a native. In its foliage this plant resembles the sweet-william, but the flowering stalks are stouter and taller; the flowers are of a delicate rose-colour and fragrant, and are collected into a dense terminal panicle. A variety with double flowers is common both in waste places and gardens. The plant takes its name from the peculiarity that its leaves bruised in water may be worked into a lather. French: *Saonniers*; German: *Seisenkraut*. [C. A. J.]

SAPOR. The taste which a thing has.

SAPOTACEÆ. An order of Monopetalous Dicotyledons, belonging to Lindley's Rhuminal alliance, consisting of trees and shrubs chiefly tropical or subtropical, with the juice frequently milky, alternate undivided leaves without stipules, and small flowers, solitary or clustered in the axils of the leaves. It is distinguished from all other *Monopetalas* by the perfect stamens, either opposite to the lobes of the corolla or twice as many; by a superior ovary divided into two or more cells, with one ovule in each; and by the fruit, which is either a berry or a drupe. There are about twenty genera, of which the most important are *Chrysophyllum*, *Lucuma*, *Sapota*, *Sideroxylon*, *Isonandra*, *Bumelia*, *Bassia*, and *Mimusops*.

SAPOTA. A genus that gives its name to the order *Sapotaceae*, and which consists of trees, natives of tropical America and extratropical Australia. The flowers have a calyx of five or six overlapping segments; a somewhat bell-shaped corolla, with an erect five to six-parted limb; twelve stamens, six fertile, six with-

out anthers, the filaments flattened awl-shaped, the anthers extrorse; ovary six to twelve-celled, with a single ovule in each cell; fruit succulent, frequently one-celled, by the suppression of the other cavities. *S. mammosa* (now *LUCUMA*) yields the Marmalade fruit sometimes called the Vegetable Egg. The milky juices of this tree has emetic properties, and is used as a caustic to destroy warts; it is said also to be used to form a kind of sympathetic ink. *S. Achras* yields an edible fruit called in the West Indies the Sapodilla plum. The bark of this tree is astringent and febrifugal; the seeds also are aperient and diuretic. The fruits of the species mentioned are highly esteemed in the West Indies, but those that have ripened in this country have been little esteemed. [M. T. M.]

SAPOTE NEGRO. (Fr.) *Diospyros*.

SAPPADILLE. (Fr.) *Anona*.

SAPPANWOOD. A wood of commerce obtained from *Cesalpinia Sappan*.

SAPROLEGNIÆ. A natural order of doubtful affinity, forming a peculiar group, consisting of *Saprolegnia*, *Achlya*, and one or two other more or less perfectly defined genera, with the habit of moulds and the fructification of *Algae*. They grow for the most part on dead or living animals, and are nearly colourless. The fruit is contained in swollen parts of the threads, which sometimes produce a succession of sporangia by the repeated protrusion of the inner membrane into the cavity, or sometimes by the formation of lateral cysts. In *Pythium* one sporangium only is produced. Impregnation takes place by conjugation between the sporangia and the swollen tips of the lateral branchlets. The reproductive bodies are zoospores, which move by means of lash-like appendages. The cell-walls consist of nearly pure cellulose, exhibiting a brilliant blue when treated with iodine. These plants differ from all known *Algae* in growing principally on animal substances, though their mode of reproduction in some respects strongly resembles that of *Vaucheria*. It is curious that the same animal has been observed, when immersed, to produce a *Saprolegnia*, and when surrounded merely with air to produce a *Mucor*. Were zoospores of the same type known amongst *Fungi*, these productions would doubtless be referred to them; but in the present state of our knowledge, they stand on the confines of both. There is some reason however to believe, from the observations of Hofmeister, that impregnation is effected in truffles much in the same way as it is in *Saprolegnia*. They are great enemies to fish and other animals preserved in aquaria, which are frequently infested with them when living. It is said that doses of carbonate of soda prevent their growth, and if so it is probable that bisulphate of potash may be more effectual from its known effects on obscure cryptogamic growths. [M. J. B.]

SAPROSMA. A genus of cinchonaceous trees, natives of Java, having numerous crowded sessile axillary or terminal flowers, which have a four-toothed persistent calyx; a hairy four-cleft corolla, to the throat of which are attached four stamens; a cleft stigma; and oval smooth fruit, crowned by the limb of the calyx, one-celled, and one-seeded. The fruits and the wood of these trees are said to have a filthy smell, whence the name of the genus, from the Greek words *sapros* 'putrid,' and *osme* 'smell.' [M. T. M.]

SAPUCAYA. *Lecythis Ollaria*.

SAPUTÁ. A Brazilian name for *Tonleuca*.

SARAGEN'S CONSOUD. *Senecio sarracenicus*.

SARACHA. *Witheringia*.

SARAZINE. (Fr.) *Aristolochia Clematidis*.

SARCANDRA. A genus of *Chloranthaceae*, consisting of Cingalese shrubs, with the appearance of that of the species of *Chloranthus*. The flowers are perfect, in loose spikes, concealed within a concave bract; stamen solitary, with a thick fleshy filament, which adheres partially to the ovary; anther two-celled, the cells opening lengthwise, approximate above but diverging below; fruit fleshy, one-seeded. The name is from the Greek, and alludes to the fleshy stamen. [M. T. M.]

SARCANTHUS. Originally this genus of orchids consisted of two or three Chinese species split off the older genus *Vanda*, but several East Indian and Philippine plants have since at various times been added. They are epiphytes, with flat or sometimes terete leaves on opposite sides of the stems, and racemes of small but rather showy flowers growing opposite the leaves. Their flowers have nearly equal spreading sepals and petals, a short three-lobed fleshy lip jointed with the column and spurred, the spur being divided inside, and an erect half-cylindrical column. The anther is two-celled; and the two pollen-masses are lobed or channelled behind. [A. S.]

SARCINA. A very curious production of a somewhat doubtful nature, but of some importance in consequence of its connection with one of the most serious diseases to which the human frame is subject. In cancerous affections of the stomach, which are almost always accompanied by distressing vomiting, the matter thrown up very frequently contains minute quadrilateral bodies connected together in patches consisting of four, or some multiple of four. The mode of multiplication is not uncommon amongst the lower *Algae*, but it is not without example amongst *Fungi*, or even amongst lichens. As however true *Algae* are, as far as we know, never developed in animal substances, the first presumption is that *Sarcinae*, a name derived from the masses

resembling little woolpacks, is some form of fungus analogous to the yeast-form of *Penicillium* and other thread-moulds. Attempts, however, at making these bodies germinate have failed entirely, possibly from not placing them in a fluid favourable to their growth. In diluted syrup they remain perfect for many months, without showing the slightest tendency to increase. *Sarcinae* is not, however, confined to affections of the stomach, but has been found in urine—whether of patients or animals suffering from cancer of the bladder or kidneys we cannot say. A circumstance, however, occurred a few years since which tends greatly to confirm our notion that the matter is of fungous origin. Dr. H. O. Stephens, on examining at Bristol a cargo of bones just imported from South America, observed that many of them were covered with an orange-coloured gelatinous mass, looking like some *Pustulium*. On examination, however, it had exactly the structure of *Sarcina*; and on this as well as on other accounts we believe *Sarcina* to be a fungus and not an alga. [M. J. B.]

SARCINANTHUS. A genus of the order *Pandanaceae*. The species have ascendant or twining stem, with two-lobed stalked leaves crowded together at the ends of the branches. The spadix is stalked and axillary. The genus differs from its near allies *Carludovicia* and *Evoidanthus* in the thick fleshy perianth of the male flowers; its limb is divided into a number of lobes arranged in one row. There are also differences in the insertion of the stamens and the form of the lobes of the perianth in the female flower. The species inhabit Central America. [M. T. M.]

SARCOBASIS. The same kind of fruit as the *Carcerulus*.

SARCOCAPNOS. A genus of *Fumariaceae*, differing from *Corydalis* in the short indehiscent pod, with three-nerved valves, and only two seeds. They are perennial herbs, occurring in the western portion of the Mediterranean region, and have branched diffuse stems, often somewhat shrubby at the base; with alternate long-stalked leaves, usually tripartite or ternate, thick and fleshy, and short few-flowered terminal racemes of rather large yellowish flowers with purple blotches at the tip, upper petal with an obtuse spur. [J. T. S.]

SARCOCARP. The fleshy part of the pericarp lying between the epicarp and endocarp.

SARCOCEPHALUS. The name of a climbing shrub, native of Western Tropical Africa, and constituting a genus of *Chenopaceae*. The flowers are grouped in terminal heads, and are fused together, and with the receptacle, into one large fleshy mass. The free margins of the calyx are very short; the corollas funnel-shaped, five to six-cleft; anthers five or six, sessile within the throat of the corolla; ovaries fused together; styles distinct; stigmas

button-like; fruits succulent, combined into a one-celled berry, surmounted by the limb of the calyx. *S. aculeatus* has pink flowers and an edible fruit, of the size of a peach, whence it has been called the Sierra Leone Peach. The generic name is derived from the Greek, and is significant of the fleshy heads of flowers. [M. T. M.]

SARCOCHILUS. As originally constituted this genus consists of a small number of subropical Australian Feejean and Malayan orchids, but a German orchidologist has recently combined with them numerous Eastern species referred by other botanists to the genera *Arides*, *Dendrocolla*, &c. It is here restricted to the few original species, which are small epiphytal plants, with short stems, narrow distichous coriaceous leaves, and bracteated spikes or racemes of fleshy open sometimes showy flowers. These have nearly equal blunt sepals, the lateral ones adnate to the base of the lip, and similar but smaller petals, a concave fleshy spurless lip continuous with the short erect column, and a terminal anther containing four pollen-masses cohering in globose pairs, and attached to a broad strap-shaped caudicle. [A. S.]

SARCOOLINIUM. A genus of *Euphorbiaceae* of that group in which the cells of the fruit contain but one seed. The three known species, found in Ceylon and the Malayan peninsula, are trees of medium growth, the ends of their branches furnished with a tuft of large glossy simple leaves, accompanied by stipules, and bearing in their axils long racemes of minute flowers, the sterile and fertile on different plants. The leaves, which are of the same form as the leaflets of a horse-chestnut, are of *S. Hookeri* two to three feet long. Of those of *S. longifolium*, which are not so large, Mr. Thwaites remarks: 'As they are of a firm consistence, and do not rapidly decay, they are used by the Cingalese for thatching.' [A. A. B.]

SARCOOCCCA. Small branching evergreen shrubs of the order *Euphorbiaceae*, found in the temperate parts of India, Ceylon and Java. They have glossy lance-shaped or elliptical entire three-nerved leaves; and in their axils short spikes of small white or yellowish unisexual flowers not unlike those of the box, followed by black berries a little larger than cherry-stones. These plants are closely related to the common box of our gardens, but differ in the berried fruit, and the position of the fertile flowers, which are at the base instead of the apex of the spikes, as well as in their trinerved leaves. The generic name refers to the fleshy nature of the fruit, a circumstance uncommon in the family. [A. A. B.]

SARCOCOLLA. One of the few genera composing the small order of *Penaceae*, and, like its congeners, found only in the neighbourhood of the Cape of Good Hope. The four described species are little shrubs, with opposite entire overlapping leaves, furnished with little blackish wart-like

bodies in their axils. The flowers have two small bractlets at their base, and are produced in clusters at the points of the branches in the axils of large leaf-like coloured bracts, which are frequently covered with a greasy resinous exudation. The gum-resin called Sarcocool, now but seldom met with, is generally said to be the produce of *S. squamea* (alias *Penaea Sarcocolla*) and of *Penaea mucronata*, but there is no evidence that such is the case. The Sarcocolla of the ancients, so named from the Greek words *sark* 'flesh' and *kolla* 'glue,' in consequence of its being supposed to possess the property of agglutinating wounds, is said by Dioscorides to have been obtained from a Persian tree, and consequently not from any species of the present genus, which is confined to Southern Africa. Sarcocool occurs in the form of little gravel-like grains, and has a bitter-sweet taste. It contains *sarcocolline*, a peculiar principle convertible into oxalic acid by the action of nitric acid. [A. S.]

SARCODERM. An intermediate fleshy layer in the testa of some seeds; a layer of either the primine or secundine.

SARCODES. A genus of *Ericaceae* of the tribe *Monotropes*, allied to *Pterospora*, but with much larger flowers, an elongated style, and wingless seeds. It consists of a single species, an erect herbaceous parasitical plant from California, with a fleshy stem, succulent scale-like leaves, and a long raceme of pendulous flowers, the whole plant of a blood-red colour.

SARCOGLOTTIS. Under this name are grouped a few West Indian and tropical American terrestrial orchids, which some authors regard as a section of *Spiranthes*, and others as entitled to rank as a distinct genus, characterised mainly by the erect flowers having the lateral sepals decurrent the whole length of the ovary and forming a sort of sac, and by the pollen-masses being stalked. [A. S.]

SARCOGONUM. A section of the polygonaceous genus *Muhlenbergia*, consisting of those Australian species which have fringed stigmas. [J. T. S.]

SARCOLENA. A genus of *Chenaceae* peculiar to Madagascar, and comprising a few species, having a shrubby habit, decumbent branches, ovate leaves (more or less plicate when young), paniculate flowers, a fleshy involucre surrounding the calyx, five petals, an indefinite number of stamens, and a three-celled capsule, each cell containing two seeds. [B. S.]

SARCOLOBUS. A genus of *Acoelphiaceae*, containing three species of glabrous twining shrubs from India and Java. They have opposite oval fleshy or coriaceous leaves, and few-flowered interpetiolar umbels. The calyx is five-leaved; the corolla rotate and five-cleft, with a naked throat, and no staminal corona; the gynostegium is somewhat hemispherical; the pollen-masses are erect, clavate with long stalks; the stigma is five-sided and mamillate;

and the follicles are fleshy, and contain margined seeds without hairs. [W. C.]

SARCOMA. One of the names of the disk.

SARCOPHYSA. A genus comprising a climbing shrub, native of New Grenada. The leaves are alternate and leathery, and the flowers handsome, in pendulous clusters. The calyx is large and brightly coloured, fleshy and distended, tubular and contracted at the throat, the limb divided into five erect persistent segments; the corolla has a long tube, somewhat dilated in the middle, and a shortly five-lobed limb; and the fruit is included within the fleshy calyx. The name of the genus is expressive of the peculiarities of the calyx, from *sarcz* 'flesh' and *phusa* 'a bladder.' [M. T. M.]

SARCOPHYTE. This is one of those curious parasitical plants of the family *Balanophoraceae*, which have been so elaborately described by Dr. Hooker in the *Transactions of the Linnean Society*. It comprises a single species, a fleshy fungus-like plant, found growing in South Africa on the roots of species of *Mimosa*. The inflorescence is branched, with small bracts at the base of the pedicels. The flowers are dioecious, the males panicle, each with a three-lobed perianth, concealing three free stamens, with many-celled anthers; and the females in globose heads, without a perianth. The name, derived from the Greek, signifies 'flesh-plant.' [M. T. M.]

SARCOPODIUM. A genus of tropical Asiatic orchids of the *Dendrobium* group, allied both to *Dendrobium* and *Bobophyllum*, to one or other of which most of the known species, about twenty in number, were at one time referred. The plants belonging to it are creeping epiphytes, with leathery leaves, borne singly upon the pseudobulbs, from the base of which the single or few-flowered peduncles arise. Their flowers are of a thick leathery nature, rather showy, with ringent sepals (the lateral ones enlarged at the base and adnate with the foot of the column), smaller petals, and a short fleshy lip enlarged at its base and moveably jointed with the base of the column, which is short hornless and furnished with a prolonged foot; the two-celled anther contains four nearly equal free pollen-masses. [A. S.]

SARCOSTEMMA (including *Philibertia*). A genus of *Asclepiadaceae*, composed of about forty species indigenous to the tropics of both hemispheres, and consisting of climbing or erect often epiphytal shrubs, which are either leafless or furnished with linear or cordate leaves, and umbellate white yellow or purplish flowers, often emitting a powerful scent. The calyx is five-cleft; the corolla either rotate or urceolate-rotate; the staminal corona double; the pollen-masses in club-shaped cylinders; the follicles smooth; and the seeds furnished with a hairy appendix. *S. glaucum* yields the *Ipecacuanha* of Venezuela, and is

used as a sudorific and in cases of humoral asthma. The young shoots of *S. Porsaltianum* and those of *S. stipitacum* of Arabia are eaten. The pith of *S. pyrotechnicum* is used as tinder. The milky juice of *S. urunale* is slightly and agreeably acid, and used by travellers to allay thirst. [B. S.]

SARCOSTIGMA. This genus consists of two species, natives of Southern India and Java, both climbing or twining shrubs, with alternate simple entire thickish leaves without stipules, and flowers of separate sexes on distinct plants; the long flower-spikes being produced usually in pairs from the sides of the branches, and having the stalkless flowers in little clusters along them. The genus was first referred to the *Thymelaceae*, afterwards to *Phytocrenaceae*, but is now placed in the order *Isocarpaceae*. *S. Klemii*, a native of Courtallum and Cochin on the Malabar coast of India, produces oval somewhat flattened fruits about an inch long and half an inch broad, containing a large seed, from which a thick semifluid oil called *Odal* or *Adul* is expressed. [A. S.]

SARCOTHECA. A genus of *Linaceae*, comprising a shrub, native of the Indian Archipelago, with square branches, entire thick leaves, and elongated axillary or terminal racemes of flowers, occurring either singly or in pairs. The calyx consists of five persistent overlapping sepals; the corolla of five stalked oblong petals, convolute in aestivation; stamens ten, five long, five short, the filaments awl-shaped, connected at the base into a cup; ovary sessile, five celled, with two ovules in each cell; styles five, filiform; capsule globose, five-celled. [M. T. M.]

SARGASSUM. A genus of dark-spored *Algae* belonging to the natural order *Phaeaceae*, characterized by the fruit-bearing



Sargassum bacilliferum.

receptacles being collected in little bundles in the axils of the leaves; the air-vessels, which are merely transformed leaves, with or without a terminal point, being stalked and separate. The species are extremely numerous, and chiefly tropical or subtropical. The great interest of the genus to the general reader consists in the far-famed *Sargassum-sea* owing its origin to one of the species, *S. bacilliferum*. We have no species inhabiting our shores, but *S. vulgare* and

A. basociformis are occasionally brought to us by the waves. [M. J. B.]

SARIBUS. This genus of palms, originally established by Blume, is now combined with *Livistona*, the characters by which it was said to be distinguished from that genus being very slight. Among the species referred to it were *Livistona rotundifolia*, called *Saribus* by Rumphius; and *L. chinensis*, and a species from Cochinchina, now called *Livistona cochinchinensis*. Two Javanese species, *S. oliviformis* and *S. subglobosa*, were afterwards added. [A. S.]

SARMENTACEÆ. See **VITACEÆ.**

SARMENTIDIUM. A group of cymes or spikes arranged centrifugally, as the flowers are in the cyme itself.

SARMENTUM. A runner, such as that of the strawberry; hence *sarmentose*, bearing runners.

SARMIENTA *repens* is the sole representative of a Chilian genus of *Gesneraceæ*, easily distinguished from its allies by having two fertile and three sterile stamens, whilst all other *Gesneraceæ* have one sterile and four fertile stamens. *S. repens* is herbaceous, and climbs by means of its rooting stems over forest-trees. Its leaves are fleshy ovate and dotted; its peduncles are terminal, and bear from one to two scarlet flowers. The calyx is four and five-cleft; and the corolla tubular, ventricose towards the apex, and five-lobed; whilst the capsule is ovate. [R. S.]

SAROTHAMNUS. The generic name now generally adopted for the Common Broom, *S. scoparia*, better known as *Spartium* or *Genista scoparia*, and separated from *Genista* chiefly because the lips of the bell-shaped calyx are minutely instead of deeply toothed. From *Cytisus* the genus differs in the very long curved style and minute stigma.

The Broom grows naturally in the Canary Isles, Western Europe, and Scandinavia, as well as in Britain, and is applied to various economic purposes. Neat little baskets are made from the twigs divested of their bark in Madeira; and in some parts of Europe the green tops are used as winter food for sheep, preventing (according to Withering) the disease called rot, and salutary in dropsy, to which sheep are liable. The Broom has a place in our 'Materia Medica.' Pereira says:—'Broom-tops in large doses are emetic and purgative, in small doses diuretic and laxative. They are used almost entirely in dropies, sometimes with great benefit, and are administered in the form of infusion or decoction. The seeds, which keep better than the tops, are given in the form of a powder, in doses of from ten to fifteen grains, in mint-water. There are other species of the genus, natives of Western Europe, most of them bearing great resemblance to the Common Broom, which is the badge of the Forbes'. Thus, according to Sandford, it was the bonny Broom which the Scottish clan of Forbes wore in their

bonnets when they wished to arouse the heroism of their chieftains, and which in their Gaelic dialect they called *bealada* in token of its beauty.

The *Ordre de la Geneste* was the denomination of an order of knighthood instituted by Louis of France in 1234, and continued till the death of Charles V. The collar of this order consisted of a chain of broom-flowers interlaced with lozenges of gold and fleur-de-lis, with a pendent cross having the inscription 'Exaltat Humiles';—the founder considering the broom as the emblem of humility. 'This humble shrub,' writes Baines, 'was not less distinguished than the rose herself during the civil wars of the fourteenth century; for a sprig of the *Planta Genista* was the adopted badge of Geoffrey Duke of Anjou, father of our Henry II.; and from this recognition he acquired the name of Plantagenet, by him transmitted to his princely descendants, who all bore it from Henry, who has been called the first royal sprig of *Genista*, down to the tyrant Richard, the last degenerate scion of the plant of Anjou.' [A. A. B.]

SARRACENIACEÆ. A small order of polypetalous dicotyledons, consisting of herbs from Northern or tropical America, remarkable for their pitcher-shaped radical leaves. They are characterised by five imbricate sepals; petals also five and imbricate, or sometimes more; numerous hypogynous stamens; a three or five-celled ovary with numerous ovules; a loculicidal capsule, and seeds with a copious albumen and minute embryo. Some of these characters are, technically considered, nearly those of *Ternstroemiaceæ*, whilst the herbaceous stem and the seeds indicate a greater affinity with *Papaveraceæ* and *Nymphaeaceæ*. There are only three small genera known—*Sarracenia*, *Darlingtonia*, and *Heliamphora*.

SARRACENIA. A genus of *Sarraceniaceæ*, distinguished in the order by having



Sarracenia purpurea.

five petals always present; a five-celled ovary and capsule; and by the style being expanded into a large umbrella-shaped

disk, bearing the five minute stigmas underneath at the edge—this peculiar conformation having given rise to the name of *Side-saddle-flower* popularly given to the plants. There are half a dozen species, natives of the marshes of North America. The pitcher-shaped petioles of their radical leaves have a small lamina at the top which has been called a lid, although it never closes over the pitcher. The pitcher itself in the older leaves is usually full of water. It has not yet been ascertained whether this water is derived from rain or dew, or is secreted by the leaf itself; but, however derived, it serves to drown the flies and other insects which these leaves are admirably adapted to catch and retain. At the mouth of the pitcher there is in most species a saccharine exudation which attracts them; the surface immediately below is smooth and polished, and still lower it is beset with sharp reflexed hairs, which allow the insects to descend but effectually obstruct their return. The flowers are large yellowish or purple, on radical leafless scapes. *S. purpurea* has been recommended as a cure for smallpox, and tried without success. It is, together with other species, in cultivation.

SARRASIN. (Fr.) *Polygonum aciculatum*.
— DE TARTARIE. *Polygonum tataricum*.

SARRETTE. (Fr.) *Serratula*.

SARRIETTE. (Fr.) *Satureia*.

SARRON. (Fr.) *Chenopodium* (or *Bittum*) *Donus Henericus*.

SARSAPARILLA. The rhizome of several species of *Smilax*, chiefly imported from South America and Mexico, and employed in medicine. — AMERICAN. *Aralia nudicaulis*. — AUSTRALIAN. *Hardenbergia monophylla*. — BRAZILIAN. *Smilax papyracea* (siphilitica, Mart.). — COUNTRY. *Hemidesmus indicus*. — FALSE. *Aralia nudicaulis*. — GERMAN. *Carex arenaria*, *C. disticha*, and *C. hirta*. — GUATEMALA. *Smilax papyracea*. — HONDURAS. Probably *Smilax papyracea*. — INDIAN. *Hemidesmus indicus*. — ITALIAN. *Smilax aspera* and *S. ecnola*. — JAMAICA. *Smilax officinalis*. — LIMA. *Smilax officinalis*. — LISBON. *Smilax papyracea*. — NEW HOLLAND. *Smilax glycyphylla*. — NEW ZEALAND. *Ripogonum perispermum*. — PERUVIAN. *Smilax obliquata*. — RIO NEGRO. *Smilax papyracea*. — VERA CRUZ. *Smilax medica*. — WILD. *Aralia nudicaulis*.

SARSAPA. A Sanscrit name for Mustard-seed.

SARTORIA. A perennial herb from the chain of the Taurian Taurus in Asia Minor, having the habit foliage and flowers of *Onobrychis* and *Medicago*, but differing from both of these genera in the pod, which is oblong-linear, very flat, thin, and indehiscent, but not jointed, although it usually contains two seeds. It was proposed as a distinct genus.

but is now retained as a section of *Onobrychis*.

SARTWELLIA. The only species of this genus of *Compositae* of the tribe *Flaverie*, called *S. Flaveria*, and peculiar to Southern Texas, is a many-stemmed erect smooth herb, about a foot high, having opposite linear-lanceolate leaves, and corymbs of numerous shortly-stalked small yellow flower heads terminating the twigs. The plant differs from its allies in the presence of a cup-shaped nearly entire pappus, crowning the ten-ribbed achenes. There are three to five strap-shaped pappil-bearing ray-florets, and about a dozen tubular and perfect florets of the disk, all surrounded by an involucre of four or five ovate scales. It is dedicated to H. P. Sartwell, an American botanist. [A. A. B.]

SASA. An Indian name for the oil of Cucumber-seeds.

SASSAPARAS. A genus of *Lauraceae*, consisting of trees, natives of North America and the East Indies. The leaves are deciduous and velvety; the flowers yellowish, dioecious, and appearing before the leaves. The perianth is six-parted; fertile stamens nine, in three rows, the anthers all opening inwardly, four-celled, the three innermost stamens with two glands at the base. In the female flowers there are nine sterile stamens, the innermost often confluent. Fruit fleshy, placed on the thick fleshy top of the flower-stalk.

S. officinale, formerly called *Laurus Sassafras*, is a native of North America, extending from Canada to Florida. The root, wood,



Sassafras officinale.

and bark have stimulant and sudorific properties, which depend partly on the presence of a volatile oil. In medicine various preparations of *Sassafras* are used in rheumatic and skin affections, generally however in combination with other more potent drugs. *Sassafras*-tea mixed with milk and sugar forms the drink known as *Sasap*,

which is still sold to the working-classes in the early morning at the corners of the London streets. In Virginia the young shoots are made into a kind of beer; in Louisiana the leaves are used as a condiment in sauces, while their mucilaginous properties render them useful for thickening soups. The fruits have an agreeable perfume, and with the oil extracted from them are made use of by perfumers. The wood and bark furnish a yellow dye. In *Samatra* & *Parthenoxylon* answers the same purposes. *S. officinale* is frequently grown in this country as an ornamental tree. It is remarkable for the variety it presents in the size and shape of its leaves.

What is known as Orinoco *Sassafras* is the produce of *Nectandra cymbarum*, while Cayenne *Sassafras* is derived from *Licaria guianensis*. *Sassafras*-nuts, which were formerly used as astringents and tonics, are the seeds of one or two species of *Nectandra*. The name *Sassafras* is said to be a corruption of the Spanish word for saffrage. [M. T. M.]

SASSAFRAS. *Sassafras officinale*. —, AUSTRALIAN. *Atherosperma moschatum*. —, BRAZILIAN. *Nectandra cymbarum*. —, CAYENNE. *Licaria guianensis*, which yields an excellent timber. —, NEW HOLLAND. *Doryphora Sassafras*. —, ORIENTAL. *Sassafras Parthenoxylon*. —, ORINOCO. *Nectandra cymbarum*. —, SWAMP. *Magnolia glauca*. —, TASMANIAN. *Atherosperma moschatum*.

SATINE. A cabinet-wood of French Guiana, the produce of *Ferolia guianensis*.

SATINÉE. (Fr.) *Lunaria biennis* and *L. rediviva*.

SATINWOOD. A beautiful veneering wood of India, obtained from *Chloroxylon Swietenia*. —, BAHAMAS. A timber supposed to be the produce of *Maba guineensis*.

SATIRE. (Fr.) *Phallus*.

SATUREIA. A genus of the Labiate, and the type of the suborder *Saturee*. There are several species, of which the most important are *S. hortensis* and *S. montana*, both well known under the more familiar names of Summer and Winter Savory, and highly esteemed in cookery for their powerful aromatic flavour.

The Summer Savory, *S. hortensis*, is a hardy annual, a native of the South of Europe, and supposed to have been introduced into this country in 1662, as both the Winter and Summer Savory were known to Gerard in 1597. The stem is erect branching pubescent, and of a reddish-green colour. The leaves are opposite linear-lanceolate smooth, and of a pale-green. The flowers are small axillary pale lilac, and generally in twos on each foot-stalk. The leaves are used for the same purposes as those of the Winter Savory. Both species were noticed by Virgil as being among the most fragrant of herbs, and on this account were recommended to be grown near beehives. Vinegar flavoured with savory and other aromatic herbs

was as much used by the ancient Romans as mint-sauce is at the present day with us.

The Winter Savory, *S. montana*, is a hardy and very dwarf suffrutescent evergreen, a native of the South of France and other parts of Europe, and known in this country since 1562. The leaves are sessile linear-lanceolate entire, abruptly terminated by a short sharp point. The flowers are axillary small, pale purple almost white, borne two or three together on the same footstalk. The whole plant is highly aromatic, and is employed like other sweet herbs for seasoning in cookery. To preserve a supply, it may be cut just before the flowers expand, and dried in the same manner as directed for basil. [W. B. B.]

SATYRIA. A genus of American shrubs belonging to the *Vaccinaceae*. The flowers are purple, and may be discriminated from those of adjacent genera by their filaments being combined into a tube; by the anthers being alternately long and short, opening by two pores at the top; and by the cells of the ovary containing but one ovule. The fruit is inferior and fleshy. The name is from *saturus*, 'a satyr.' [M. T. M.]

SATYRIDIMUM rostratum. A little terrestrial Cape orchid allied to *Satyrion*, from which it differs in the parts of its flower being more flatly spread out, in its pollen-masses having only one gland, and in its minute one-lipped stigma. [A. S.]

SATYRIUM. An extensive genus of ophrydeous orchids found principally in Southern Africa, the Mascaren Islands, and Northern India, and consisting of testiculate-rooted terrestrial plants in habit resembling some of our common species of *Orchus*. The flowers are what is called ringent or two lipped, the sepals and petals being all directed downwards and connate at the base, forming a kind of lower lip; while the hooded double-spurred or saccate labellum is erect at the back, and forms the upper lip. They have a reversed anther, pollen masses with naked glands, and a two-lipped stigma with the upper much larger than the under lip. [A. S.]

SAUCE-ALONE. *Silybrium Alliaria*.

SAUGE. (Fr.) *Salvia*. — D'AMÉRIQUE. *Tarconanthus*. — DE BETHLÉEM. *Pulmonaria*. — DE JÉRUSALEM. *Pulmonaria*. — DES BOIS. *Teucrium Scorodonia*. — EN ARBRE. *Phlomis fruticosa*. — GRANDE. *Salvia officinalis*. — PETITE. *Salvia japonica*. — SAUVAGE. *Teucrium Scorodonia*.

SAUGH. The Sallow; *Salix caprea*.

SAUL. The Sál, one of the most useful known Indian timbers for building and engineering purposes. It is the produce of *Shorea robusta*, and yields in abundance the resin called Dammar.

SAULE. (Fr.) *Salix*. — À BOIS GLAUC-QUE. *Salix daphnoides*. — AMANDIER. *Salix triandra*. — LAURIER. *Salix pentandra*. — MARCEAU. *Salix caprea*. —

NOIR. *Salix daphnoides*. —PLEUREUR.
Salix babylonica.

SAUMAY, or SAWMAY. An Indian name for *Panicum mitlicaceum*.

SAUNDERS-WOOD. Sanders-wood.

SAURAUJA. One of those genera respecting which considerable diversity of opinion exists as to its position in the Natural System. It was formerly referred to *Ternstroemiaceae*, and is still retained there by some; though it differs from other genera of that order in having a great number of minute seeds with copious albumen and a very small embryo, resembling those of *Dilleniaceae*, to which order other botanists refer it, but from which it is distinguished by its seeds being destitute of the fleshy appendage or aril characteristic of that order. Between thirty and forty species are described, mostly natives of the Indian Archipelago and other parts of tropical Asia, a few only belonging to tropical America. They are trees or shrubs, with the young branches clothed with stiff hairs, and have alternate mostly sharp-toothed thick leaves with strongly marked veins running from the midrib to the margin; and white or yellow flowers, disposed in panicles or several together upon stalks growing from the angles of the leaves. Their five sepals and also their five petals overlap each other, the petals being usually united together at the bottom, and having the numerous stamens adhering to them, the latter having loosely-swinging anthers opening by pores or slits at the top. The ovary is from three to five-celled, with numerous ovules in each cell; and bears from three to five styles, which are free, or more or less united. The fruits are succulent, and very seldom open naturally at maturity. [A. S.]

SAURINE. (Fr.) A kind of olive.

SAUROGLOSSUM *ekatum*. A South Brazilian terrestrial orchid with a very tall spike of densely-set green flowers. It belongs to the *Spiranthes* group, and is, according to Dr. Lindley, nearly allied to *Peziza*, from which it is distinguished by its lateral sepals being incurved, its very long column, triangular undivided stigma, and its narrow free not cucullate lip. [A. S.]

SAUROMATUM. A genus of Indian herbs, of the order *Araceae*. From a glaucous fleshy rootstock proceeds first a spadix on a short stalk, with scales at the base, the spathe being tubular below and spreading above, marked with purple spots. The spadix bears a quantity of club-shaped rudimentary stamens below the fertile ones, the anthers being distinct, their cells opening by an oblique chink. The ovaries are numerous distinct and one-celled, with two ovules from the base of the cavity. The fruits are succulent and one-seeded. The pedately-divided leaf, on a tall stout often mottled stalk, appears after the spadix. *S. guttatum* is an interesting stove-plant, and its handsome foliage and spotted

stem together render it an ornamental object. [M. T. M.]

SAUROPE. This genus of *Euphorbiaceae* contains about eight species, found in tropical India and the Eastern islands. They are small twiggy shrubs having altogether the habit of *Phyllanthus*, their pale-green entire oblong or ovate leaves being arranged in a two-ranked manner, and bearing in their axils clusters of small green or yellow flowers, which are fertile and sterile on the same plant. The calyx consists of six divisions, which are often united nearly to the apex, forming a flat circular flower; in some the calyx is reflexed and umbrella-like, but what is characteristic of the genus is the disk, which consists of six glands arising from near the base of the calyx-segments immediately surrounding the three stamens in the sterile flower, and the three-celled ovary crowned with its three reflexed styles in the fertile flower. The fruits are three-celled capsules sometimes a little fleshy, with one or two seeds in each cell. *S. trinervia*, called also *Phyllanthus trinervia*, is notable in the genus from its three-nerved leaves, which are ovate-lanceolate in form. [A. A. B.]

SAURURACEÆ. A small order of apetalous dicotyledons allied in some respects to *Piperaceæ*, consisting of herbs usually simple or little branched, with alternate stipulate entire leaves, and small flowers in dense terminal spikes or racemes. There is no perianth, although sometimes the coloured bracts at the base of the spike assume the appearance of petals. There are from three to six or seven stamens usually united with the base of each ovary, which is three or four-lobed, and consists of as many carpels, with two or more ovules to each. The fruit is a small capsule or a berry. There are very few species, natives of North America or of Central or Eastern Asia, distributed in four or five genera, which, however, might perhaps all be reduced to the two original ones, *Saururus* and *Houttuynia*.

SAURUROPSIS. A name proposed by Turczaninow for the *Saururus Lourerii* from Northern China, which he considers sufficiently distinct to form a separate genus. It is, however, scarcely adopted by other botanists.

SAURURUS. An herbaceous perennial, a native of the marshes of North America, constituting the genus which gives its name to the small order *Saururaceæ*. It has alternate broad heart-shaped leaves, and small white flowers, nearly sessile in a slender naked terminal spike, from which the plant has derived the popular name of Lizard's-tail. Each flower consists of six or seven stamens, with rather long distinct filaments round the base of the ovary. The fruit is somewhat fleshy, consisting of three or four carpels united at the base, each with a single seed. A second species from North-eastern Asia is by some considered as a distinct genus.

SAUSSUREA. A genus of herbaceous alpine plants belonging to the thistle group of compound flowers, and distinguished by the pappus being of several rows, the inner feathery and much the longest, and by the anthers being furnished with two bristles at the base. There are several species. *S. alpina* is found on snowdon, and in the highlands of Scotland. It is a well-marked plant eight to twelve inches high, with oblong root-leaves which are cottony below, a simple erect woolly stem almost bare of leaves, and terminating in a crowded tuft of rather large purple flowers. [C. A. J.]

SAUTELLUS. A deciduous bulb formed in the axils of leaves, or round the summit of a root.

SAUVAGESIACEÆ, or SAUVAGEÆ. A tribe of *Violaceæ*, considered by some botanists as a separate order, distinguished by the presence of staminodia in the shape of a ring of filaments or a tube or cup round the five perfect stamens. The group has also considerable affinity with some *Ochnaceæ*.

SAUVAGESIA. The type of the order *Sauvagesiaceæ*, by some botanists classed with *Violaceæ*. It is a genus confined to the tropics, and composed of small annual or biennial herbs found on roadsides and amongst the grass of tropical meadows. Their leaves are alternate lanceolate, and their flowers regular, white or pink, and either axillary or in terminal racemes. The calyx consists of five sepals, and the corolla of five petals, opposite to which latter are five fertile stamens alternating with five scales. The style and stigmas are simple, the capsule ovate three-cornered, one-celled, and three-valved. Some of them are scarcely an inch high when beginning to flower. *S. erecta*, the Herb of St. Martin, is very mucilaginous: it has been used in Brazil for complaints in the eyes, in Peru for disorders of the bowels, and in the West Indies as a diuretic. [B. S.]

SAUVÉ-VIE. (Fr.) *Asplenium Ruta-*

SAVANNAH FLOWERS. A West Indian name for various species of *Echites*.

SAVIA. A genus of the group of *Enphoraceæ*, in which the cells of the fruit are two-seeded. The eight or ten known species found in the East and West Indies and Madagascar are evergreen shrubs, with somewhat laurel-like leaves, bearing in their axils a few stalked or sessile inconspicuous flowers, which are either sterile and fertile on the same or on different plants. [A. A. B.]

SAVIGNYA. A genus of *Cruciferae*, consisting of a small annual Egyptian herb, with thickish leaves, the lower ones stalked oval and bluntly toothed, and the upper sessile narrow and entire; the racemes of small pale-purple flowers are opposite the leaves; stamens all free; pouches divaricate, the lower ones often deflexed ob-

long or elliptical, with flattish valves, and a septum of two laminae, crowned by the short four-sided style; seeds numerous, compressed, with broad margins. [J. T. S.]

SAVIN. *Juniperus Sabina*.

SAVIN-TREE. *Casalpinia biflora*; also *Fagara lenticifolia*.

SAVONETTE-TREE. *Pithecolobium micradenum*.

SAVONIEH. (Fr.) *Sapindus*. — **PANICULÉ.** *Kolreuteria paniculata*.

SAVONNIÈRE. (Fr.) *Saponaria*.

SAVORY. *Satureja*. — **GARDEN or SUMMER.** *Satureja hortensis*. — **MOUNTAIN or WINTER.** *Satureja montana*.

SAVOY. *Brassica oleracea bullata major*, a rough-leaved hardy winter cabbage.

SAWWORT. *Serratula*.

SAXATILIS, OSUS, ICOLUS. Living on rocks or stones.

SAXE-GOTHÆA. This coniferous genus takes its name from a German title of the late Prince Consort of England. The only species, *S. conspicua*, is a native of Patagonia, where it forms a small tree having the appearance of a yew; though its botanical relationship is with the juniper, its fruit being what is called a galbulus, consisting of the scales of the female cone consolidated into a fleshy irregular mass, enclosing a single nut-like seed. Its male inflorescence consists of a short spike or catkin of two-celled anthers furnished with a reflexed appendage at their apices. [A. S.]

SAXIFRAGACEÆ. An order of poly-petalous dicotyledons, whose limits are as yet far from being settled. Many botanists would include in it all *Calycifloræ* with definite stamens, a partially inferior ovary with two or more distinct cells, and as many distinct styles, many ovules, and albuminous seeds; but several genera have at various times been associated with it which have exceptionally indefinite stamens, consolidated styles, or seeds without albumen. Taken, however, in the above-mentioned general sense, it would include the three following suborders:—

1. *Saxifragæ* proper: Herbs inhabiting chiefly temperate or cold regions, with alternate or rarely opposite leaves, without stipules, containing besides the large genus *Saxifraga* about twenty others, including *Chrysosplenium*, *Vahlia*, *Heuchera*, &c.

2. *Hydrangæ*: Shrubs chiefly extratropical, from Asia or America, with opposite undivided leaves without stipules, comprising *Hydrangea*, *Adiantum*, and about six other genera.

3. *Cunostaceæ*: Tropical or Southern trees or shrubs, with opposite leaves and interpetiolar stipules, containing about twenty genera, of which the best known are *Weinmannia*, *Ceratopetalum*, *Acrophyllum*, *Callicoma*, *Omonia*, &c. Besides these *Braziliacæ*, *Escalloniaceæ*, *Philadelphaceæ*, and some others with consolidated

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styles are often added as suborders to *Saxifragaceae*. See CUYONIACEAE and HYDRANGEAEE.

SAXIFRAGA. Under this name are included those plants of the order *Saxifragaceae* which have five petals, and a two-celled two-beaked many-seeded capsule. The genus is a large one, containing upwards of 150 species, most of which are dwarf herbs with tufted foliage, and panicles of white yellow or red flowers. Of these twelve or more are natives of Britain, and numerous others are cultivated either as border plants or to decorate rockeries. *S. granulata*, frequent in meadows and pastures, is well marked by its clustered tubers, angular stems about a foot high, and showy pure white flowers. *S. umbrosa*, well known under the name of London Pride, is abundant on the Irish mountains, as is also *S. Gerani*, an allied species. *S. stellaris*, a small species with white flowers, is common on the margins of mountain-streams in the North. *S. aizoides* grows in similar localities, and is distinguished by its panicle of yellow flowers spotted with orange. *S. tri-dactylites* is a small plant with viscid stems, and leaves which are generally tinged with red, and small white flowers; it is common on dry ground and wall-tops, and rarely exceeds the height of three inches. *S. hypnoides*, frequent in rocky mountainous situations and a very common garden plant, may be considered as the type of a group which agree in having moss-like tufted foliage and panicle of white flowers; as is *S. oppositifolia* of another group of alpine species with purple flowers. Other kinds, more or less resembling the above, abound in the alpine districts of both hemispheres. French: *Saxifrage*; German: *Steinbrech*. [C. A. J.]

SAXIFRAGE. *Saxifraga*. —, BURNET. *Pimpinella Saxifraga*. —, GOLDEN. *Chrysosplenium*. —, MEADOW. *Seseli*. —, PEPPER. *Silva pratensis*.

SAXIFRAGE DORÉE. (Fr.) *Chrysosplenium*. — **TUBÉREUSE.** *Septas capensis*.

SAXO-FRIDERICIA. A handsome reed-like plant from the marshes of the Savannah, about Mount Roraima on the borders of British Guiana, described by Schomburgk as a genus of *Juncaceae* allied to *Rapatea*. It has long linear radical leaves, and a tall scape, flattened and terminating in a dense head of flowers as in *Rapatea*; and the flowers have a nearly similar structure, except that each cell of the ovary and capsule has several ovules or seeds instead of a single one. The flowers are also more closely sessile in the head, and the leafy bracts form a close spathe bursting laterally as the head protrudes.

SATAVER. (Fr.) *Oldenlandia umbellata*.

SAYERNE. (Fr.) A kind of Olive.

SCAB. A noxious disease in potatoes, in consequence of which the tubers are deeply pitted, the pits often producing an olive-green dust, the spores of a species of *Tu-*

buercina. The quality of the potato does not always suffer much injury, as by a curious process a new growth is formed beneath the scab, so that when boiled and peeled the scabby appearance in great measure vanishes. The saleable value is, however, in all cases much diminished. It is certainly more frequent where cinder-dust has been used as manure, but it occurs in poor scaly ground where no manure has been applied. See *TUBERCINIA*. [M. J. B.]

— **SCABER, SCABROUS.** Rough to the touch.

SCABIEUSE. (Fr.) *Scabiosa arvensis*. — **VEUVE.** *Scabiosa atropurpurea*.

SCABIOSA. A genus of herbaceous plants with slender erect stalks, and terminal heads of flowers which are often radiated like those of the *Compositae*, with which they are indeed allied. They belong to the *Dipsacaceae*, and are distinguished by having a common scaly receptacle, and a bristly calyx, which is permanent and crowns the fruit. The most familiarly known species perhaps is *S. atropurpurea*, called Mournful Widow in cottage gardens, where it is a favourite, and where it has been so long in cultivation that its native country is unknown. The Devil's Bit, *S. succisa*, is common on heathy pastures, growing to the height of two feet or more, and distinguished by its prostrate fleshy roots, ovate undivided leaves, and button-like heads of purple flowers. Many of the foreign species are ornamental. German: *Skabiosa*. [C. A. J.]

SCABIOUS. *Scabiosa*. —, SHEEP'S *Jasione*.

SCABRID, SCABRISCULOUS. Slightly rough to the touch.

SCABRIDÆ. One of the Linnean natural orders, comprising the figs, &c.

SCABWORT. *Insula Holentum*.

SCÆVOLACEÆ. A name by which the genus *Scævola*, and some others with only one ovule in each cell of the ovary, have been distinguished from other *Goodeniaceae*, but they are not generally adopted as a distinct order.

SCÆVOLA. The greater number of the species of this the most extensive genus of *Goodeniaceae* are peculiar to Australia and the Sandwich Islands. Two, however, have a very wide geographical range, being found growing on the seashores of Tropical Asia, Western Africa from Senegal to the Cape of Good Hope, Mauritius and Madagascar, the West Indies, Mexico, and the Pacific Islands. All are herbaceous plants or small shrubs, with nearly always alternate leaves, bearing in their axils usually white or blue flowers, either solitary or in racemes or cymes. They have a superior five-lobed calyx; a corolla split open to the base on the upper side; stamens with unconnected anthers; a one to four-celled ovary with solitary ovules; and a stigma surrounded by a fringed cup. The

fruit is dry or fleshy, not opening at maturity.

A. Lobelia (alias *S. Königii* and *S. Tacodae*), the *Tacoda* of India and Ceylon, is one of the widely dispersed species, being commonly found on the seashores of tropical Asia and the islands of the Indian and Pacific Oceans. It is an erect shrub from two to five feet high, with a thick succulent stem, full of pith when young but ultimately becoming hard and woody, as also do the branches. The pith of the young stems and branches is beautifully fine and white, and resembles that of the Rice-paper plant, with which it has been confounded; but it is seldom obtainable in pieces exceeding three-quarters of an inch in thickness. It is much used by the Malays and Siamese for making artificial flowers, small figures, and other articles used as decorations at feasts and on festivals. The young leaves are eaten as pot-herbs. [A. S.]

SCALARIFORM. Ladder-shaped; the name of the tubes of vascular tissue found in ferns.

SCALD-BERRY. *Rubus fruticosus*.

SCALDWEED. A name for Dodder.

SCALES (adj. **SCALY**). Small rudimentary close-pressed leaves, resembling minute scales.

SCALLION. *Allium ascalonicum majus*.

SCALPELLIFORM. Having the form of a common penknife-blade, but planted vertically on a branch.

SCAMMONÉE. (Fr.) *Convolvulus Scammonia*. — D'ALLEMAGNE. *Calystegia sepium*. — D'AMÉRIQUE. *Batatas Jalapa*. — DE MONTPELLIER. *Oryzanthum monspeliacum*.

SCAMMONY. A cathartic gum-resin obtained from the root of *Convolvulus Scammonia*. — MONTPELLIER. A drug obtained from *Oryzanthum monspeliacum* and its ally *C. acutum*.

SCANDENS. Climbing—by whatever means, except by twisting.

SCANDIX. A genus of *Umbelliferae*, known by its laterally compressed fruit with a long beak, each half of it having five equal blunt ridges, without vittae or oil-vessels. The species are annual herbs, natives of Europe and Eastern Asia. The name is adopted from the *Scandix* of the ancients, the designation of an unknown edible plant. [G. D.]

SCAPE. A long naked or nearly naked peduncle, which rises up from the crown of a root.

SCAPUL. The caulicle, or neck formed between the root and cotyledon at the time of germination.

SCAPHIDIUM. A hollow case containing spores in algae.

SCAPHIUM. The carina or keel of papilionaceous flowers.

SCAPHIUM. The generic name given to a tree of Malacca better known as *Sterculia Scaphium*, but differing from most species of *Sterculia* in the fifteen stamens of the sterile flowers, and especially in the singular boat-shaped foliaceous fruits, which are papery in texture, and marked with parallel nerves running from base to apex. The follicle bursts early, leaving fully exposed the solitary erect seed which is attached to its base, and when fully matured and dry is of an elliptical form and deeply wrinkled. Mr. Hanbury, writing of the seeds of this plant in the *Pharmaceutical Journal* for July 1861, observes that they have been imported into France as a certain specific against diarrhoea and dysentery; they have been tested, but no good results have been obtained. When macerated in water they swell enormously in volume, forming a large gelatinous mass; and this mucilaginous property gives a value to the fruit in the eyes of the Siamese and Chinese, in both which countries the jelly is sweetened and used as a delicacy. The Siamese names of the fruit are *Bostam-paijang* and *Bungtalai*. The leaves of the tree are smooth entire, oblong or ovate, pointed at the apex, and rounded or heart-shaped at the base. The flowers are imperfectly known. [A. A. B.]

SCAPHYLOTTIS. A small genus of Peruvian and Brazilian vanilaceous orchids remarkable for their peculiar habit, the greater number of the species having slender straggling stems bearing narrow pseudobulbs in the axils of the leaves. Its little axillary flowers have connivent sepals, the lateral ones prolonged at the base and connate with the foot of the column; similar but smaller petals; a narrow lip continuous with the column but turned up so as to be parallel with it; a slightly prolonged thin-edged column; and four rounded pollen-masses cohering in pairs, and attached by narrow caudicles to a broad gland. [A. S.]

SCARIOUS. Having a thin dry shrivelled appearance, as the involucre leaves of many species of *Centaurea*.

SCARLET. The same as *Coccineus*.

SCARLET-RUNNER. *Phaseolus multiflorus*.

SCARLET-SEED. *Ternstroemia odorata*, and *Latia Thymia*.

SCAROLE, or ESCAROLE. *Ochrorhiza Andivia latifolia*.

SCARRED. Marked by the scars left by bodies that have fallen off. The stem, for instance, is scarred at the points whence leaves have fallen.

SCATTERED. Dispersed: used in opposition to whorled, opposite, ternate, or similar terms.

SEAU DE NOTRE DAME, or DE LA VIERGE. (Fr.) *Tamus communis*. — DE SALOMON. *Polygonatum officinale* and *P. multiflorum*.

SCENTWOOD of Tasmania. *Alyxia buxifolia*.

SCOPACEÆ. An order founded by Lindley on the genus *Scopa* or *Aporosa*, from tropical Asia, which has, however, since been united with the large order *Euphorbiaceæ*.

SCOPA. This genus, long considered as the type of a distinct family to which it gave the name, is now generally placed in the *Euphorbiaceæ*, among the genera of which it is readily known by its sterile flowers being disposed in axillary drooping catkins, somewhat like those of the birch, and the fertile flowers (borne on different plants) arranged in short axillary racemes or fascicles, each flower having a two-celled four-ovuled ovary crowned with two entire or forked styles. The name *Scopa* should, however, give place to that of *Aporosa*, which has the precedence. About a dozen species are known, all from the eastern hemisphere, and mostly from India and Java. They are trees or bushes with laurel-like leaves placed alternately on the stem, and accompanied by minute stipules. *Aporosa* (or *Scopa*, or *Lepidostachys*) *Roxburghii*, known in India as Kokra, affords, according to Dr. Roxburgh, a hard wood, which is useful for various purposes. [A. A. B.]

SCEPTRE-FLOWER. *Sceptanthus*.

SCHÆFFERIA. A genus of *Celastraceæ*, comprising two rigid glabrous shrubs from the West Indies, Texas, and New Mexico. The leaves are alternate or clustered, small obovate or spatulate, and entire; the flowers are small and insignificant, dioecious solitary, or in clusters in the axils of the leaves. They have four sepals, petals, and stamens, a small disk, a free two-celled ovary with two ovules in each cell, and a small pea-shaped drupe containing two one-seeded nuts.

SCHAFFNERIA. A curious fern of Mexico, considered by Fée as the representative of a distinct genus of scolopendroid ferns, characterised by its reticulated veins and radiately disposed short double sort. The fronds are simple, with a black stipes, rotundly flabellate or obovate, the veins radiately forked, with the venules anastomosing in several series of unequal elongated areoles. [T. M.]

SCHAKAR. A Persian name for *Saccharum officinarum*.

SCHANGINIA. A small genus of *Chenopodiaceæ*, consisting of about four species, natives of Egypt, Arabia, and North-western Asia. These are herbaceous or rarely shrubby plants from six to eighteen inches high, smooth, and having narrow alternate rather fleshy leaves, bearing in their axils solitary or clusters of small stalkless flowers, with minute scale-like bracts at their bases. The flowers are either perfect or of the female sex only, and have the calyx cut at the top into five lobes. The fruit is half enclosed in the

fleshy or berry-like tube of the calyx; and the seeds are vertical, double-coated, having a flat spiral embryo without albumen. [A. B.]

SCHAPZIGER, SCHABZIGER. A kind of Swiss cheese, flavoured with the leaves of *Melilotus coruleus*.

SCHARKARA. A Sanscrit name signifying hard, stony: from which, according to Humboldt, the generic name *Saccharum* is derived.

SCHAUERIA. *Hyptis*.

SCHÉELEE. A few tropical American palms have recently been formed into a genus under this name, but the characters by which it is distinguished from the older and better-known genera *Attalea* and *Maximiliana*, to which two at least of the so-called species of *Scheelea* were formerly referred, are very slight even if constant, which is doubtful. With the exception of one dwarf stemless species, they are lofty palms with thick cylindrical trunks from forty to eighty feet high, crowned with magnificent pinnate leaves composed of numerous narrow sharp-pointed leathery leaflets. Their large flower-spikes are enclosed in single thick woody spathe tapering to both ends and eventually splitting open along the back; some species have both sexes of flowers on the same spike, while others produce them on separate trees. The flowers are distinguished from those of *Attalea* by the petals being tapered instead of flat, and by the stamens being only six in number instead of ten or more; and from those of *Maximiliana* by the shape of the petals, and by the shorter stamens. Their fruits contain a single hard bony stone, surrounded by a fibrous and often oily husk. [A. B.]

SCHÉEERIA. A genus of *Gesneriaceæ* named in honour of F. Scheer, who introduced the two species composing it from Mexico, where they are diminutive herbs, with perennial catkin-like rhizomes and small flowers, giving little promise that under cultivation they would become the ornamental plants we find them in our hothouses. Of *S. meiziana* we possess two varieties, one having purple, the other blue flowers; it is perhaps handsomer than its congener, *S. lanata*. *Scheeria* belongs to the *Achimenes* tribe, and has a five-cleft calyx, a funnel-shaped corolla, a mouth-shaped (stomatomorphous) stigma, and a dehiscent capsule. The leaves are opposite, more or less heart-shaped and serrated, whilst the flowers appear in the axils of the leaves. [B. S.]

SCHIEDWEILERIA. One of the forty-two genera into which Klotzsch has attempted to separate the 300 or more species of the extremely natural genus *Sagotis*. It is much better regarded as a section of the latter than as a distinct genus. [A. B.]

SCHLHAMMERA. This not very euphonious name commemorates Professor Scheibhammer of Jena, and is applied to a

genus of *Melanthaceae*. The species are perennial herbs, natives of eastern extra-tropical Australia. The roots are fibrous; the leaves broad, amplexicaul; and the flowers purple, terminal, solitary, stalked, without bracts. The bell-shaped perianth consists of six stalked segments, each with a shallow pit at the base; style central; stigmas three, central spreading; fruit a three-valved capsule containing a few seeds. One or two species are in cultivation, and are pretty purple-flowered greenhouse plants. [M. T. M.]

SCHELLOLEPIS. *Gontophlebium*.

SCHENKIA. The name of a genus of *Gentianaceae*, comprising an herbaceous species, with rose-coloured flowers in spike-like cymes. In the structure of the flowers the genus resembles *Sebera*, but the anthers are not bent downwards, and are unprovided with glands at their tips. The capsule also differs in being partially four-celled. The species is a native of the Sandwich Islands. [M. T. M.]

SCHERBET, or SHERBET. An Eastern beverage consisting of water in which jelly or syrup has been dissolved. It is also made with honey and various flavouring ingredients, and is coloured by the juice of the berries of *Phytolacca decandra* and of *Cornus mascula*, the latter of which are an esteemed fruit in Asia Minor.

SCHEUCHZERIA. A curious rush-like marsh-plant belonging to the order *Juncaginaceae*, of which the characters are: Perianth of six reflexed leaves, the inner ones narrower; filaments slender; ovaries three; capsules three, singularly inflated; flowers greenish, in a flexuose bracteated raceme. *S. palustris* grows in marahe, but is rare in Britain. [C. A. J.]

SCHIAKA. A Caroline Island name for *Macropiper methysticum*.

SCHIEDEA. A genus of *Caryophyllaceae*, consisting of small shrubs from the Sandwich Islands, with knotted forked branches, the younger ones four-sided; leaves small opposite connate lanceolate; flowers small white in paniculate cymes; parts of the flower in fives, the stamens twice as many as the small bifid scale-like petals; capsule ovoid, three or four-valved, with numerous black globose tuberculated seeds without a strophiole at the hilum. [J. T. S.]

SCHILLERA. *Eriolana*.

SCHIMPERA. A genus of *Orucifera* from Arabia. It is a small herb with the habit of *Vallis arvensis*, having runcinate leaves, flowers with entire petals, and a one-celled indehiscent pouch crowned by the oblique leaf-like style, and containing a solitary pendulous seed. [J. T. S.]

SCHINUS. The Greek name for the mastic-tree, *Platanus Lenticulus*, but now applied to a genus of *Anacardiaceae*, consisting of trees and shrubs, natives of tropical America, &c. The leaves are unequally pinnate, the terminal leaflet very

long. The flowers are small white, in terminal or axillary panicles, dioecious; calyx five-parted, persistent; stamens ten, inserted beneath a wavy fleshy disk; ovary solitary; styles three or four, terminal, very short; fruit succulent round, the stone one-celled one-seeded, its outer surface traversed by six longitudinal channels filled with oil.

The leaves of some of the species are so filled with a resinous fluid, that the least degree of unusual repletion of the tissue causes it to be discharged; thus some of them fill the air with fragrance after rain; and *S. Mollis* and some others expel their resin with such violence when immersed in water as to have the appearance of spontaneous motion, in consequence of the recoil. — *Botanical Register*, t. 1880.

S. Arorea is said to cause swellings in those who sleep under its shade. The fresh juicy bark of this shrub is used in Brazil for rubbing newly-made ropes, which it covers with a bright dark-brown varnish. The juice of this plant is used in diseases of the eyes. The root of *S. Mollis* is used medicinally in Peru, while the resin that exudes from the tree is employed to astringe the gums. From the fruits is prepared a kind of wine in Chili. The small twigs serve for toothpicks. The specific name *Mollis* or *Mulli* is an adaptation of the Peruvian name for the shrub. [M. T. M.]

SCHISMATOPERA. The plant bearing this name, *S. distichophylla*, only differs from *Pera* in the four to eight stamens of its sterile flowers being supported on the end of a column formed by the union of the filaments, which are nearly free in *Pera*. The latter genus is remarkable among *Euphorbiaceae* for its minute flowers, which are sterile and fertile on different plants, being enclosed in a small round involucre that in the young state might readily be mistaken for a leaf-bud, arising as it does from the axil of the leaf. *S. distichophylla* is a small tree of Brazil and Guiana, having alternate two-ranked glossy leaves in size and form like those of the Portugal laurel, and bearing in their axils round involucre the size of small peas, containing three or four minute greenish-white sweet-scented blossoms. [A. A. B.]

SCHISMATOPTERIDES. A group of ferns proposed by Willdenow, for those genera in which the spore-cases are pseudogyrate dehiscing by a cleft, or the fructification is disposed in spikes or panicles instead of on the under-surface of the frond. It included such genera as *Gleichenia*, *Todes*, *Schizaea*, and *Comunda*. [T. M.]

SCHISMUS. A genus of grasses belonging to the *Poaceae*, the inflorescence of which is in simple panicles, the spikelets of which contain from five to seven florets; outer glumes two; flowering glumes the length of the florets or longer; lower pale emarginate, with a short awn at the point; upper pale entire; stamens three; style lengthened out. This genus contains only a few species, all annuals save one, *S. pe-*

tens, which is a native of Chili, the others being African and Persian. [D. M.]

SCHISTACEUS Slate-grey.

SCHISTANTHE. A genus of *Scrophulariaceae*, containing a single species, an imperfectly known herb from South Africa, which in habit and general structure resembles the South American genus *Alonsoa*, except that the posterior lobes of the corolla are separated to the base. [W. G.]

SCHISTOGYNE. A genus of *Asclepiadaceae*, containing a single species, a twining shrub from Southern Brazil. It has velvety cordate leaves, and few-flowered extra-axillary peduncles. The calyx is five-parted. The corolla is rotate-campanulate, clothed with a white villous covering on the inside, and the limb is divided into five spreading linear-lanceolate segments. The five-leaved staminal corona is inserted at the base of the included gynostegium; the anthers are terminated by a membrane; the ovoid pollen-masses attached below the apex; and the enlarged stigma divided into subulate segments. [W. G.]

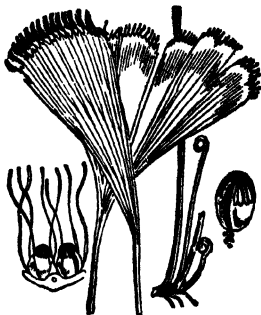
SCHISTOSTEGA. A beautiful genus of acrocarpous annual mosses, consisting of a single species, with minute often frond-like stems springing from a mass of green threads, and bearing a small capsule without any peristome, containing spores radiating in lines from the columella as in *Sphegnum*. The only species, *S. osmundacea*, occurs in several parts of England in caverns, which are illuminated by a golden-green light from the refractive property of its conferva-like shoots. The leaves are reduced at the base of the stems to mere threads; above they are vertical, two-ranked, and more or less confluent with each other or the stems, or leafy only at the tip, where they form a rose-like tuft, so that in the same species there are transitions from the more simple to the usual horizontal eight-ranked insertion. The name alludes to a supposed splitting of the lid, but this is not a constant character. [M. J. B.]

SCHIVERECKIA. A genus of *Cruciferae* from Russia, with the habit of *Draba*, but the longer stamens having dilated and toothed filaments; pouch elliptical, with convex valves, depressed longitudinally in the middle; seeds numerous, compressed not margined; seed-stalks free. [J. T. S.]

SCHIZÆINEÆ. A tribe of polypodiaceous ferns, distinguished by having the horizontal ring apical on the spore-cases, so that they appear to be crowned by its convergent strise, and thus become radiate-striate at the apex. It consists of two subtribes—the *Lygodieæ*, ascendent plants in which the strise are united at the apex so as to leave no vacant space; and the *Schizææ*, dwarf herbaceous plants, in which the strise are disjoined so as to form an orbicular apical vacuity. [T. M.]

SCHIZÆA. The typical genus of the *Schizæineæ* of the group *Schizææ*, and distinguished by having its fructifications

seated on special contracted converging pinnate appendages. They are very curious plants, with dichotomously-branched wiry-looking fronds; and are widely dispersed, occurring in North and South America, the West India, India, New Holland, the Pacific Islands, and the Cape of



Schisma flabellum.

Good Hope. In some cases (as in *S. flabellum* of Brazil) they form very handsome fan-shaped fronds, with a fringe of the fertile appendages on the upper margin. The segments of these appendages are beautiful objects under a magnifier. [T. M.]

SCHIZANDRACEÆ. A group of scandent shrubs, considered by some botanists as a distinct order, distinguished from *Magnoliaceæ* chiefly by their usually climbing habit, want of stipules, and unisexual flowers. Lindley places them in his Menispermical alliance. Other botanists place them as a tribe of *Magnoliaceæ*, under the name *Schizandreeæ*. They extend over tropical and Eastern Asia and North America, the principal genera being *Schizandra* and *Kadsura*.

SCHIZANDRA. A genus of *Schizandraceæ*, consisting of climbing shrubs, with entire leaves marked with transparent dots, no stipules, and solitary axillary flowers which are unisexual, red white or yellowish. The sepals and petals, varying in number from nine to twelve altogether, pass gradually the one into the other. The stamens in the males are more or less united in a globe or a ring. The carpels of the females are in a head when in flower, which as the fruit ripens becomes a long loose spike. There are six species known, one from North America with red flowers. The others, from tropical Asia, the Indian Archipelago, North-eastern Asia or Japan, have been distinguished, from differences in their stamens, into two or three genera, or united into one under the name of *Sphaerostema*. One, the *S. grandiflora* from

Nepal, is handsome, with rather large white sweet-scented flowers, and all are more or less aromatic.

SCHIZANTHUS. A genus of *Scrophulariaceae*, containing a few annual more or less viscid herbs, natives of Chili. The leaves are mostly pinnatisect, and the handsome flowers are borne on one-sided terminal cymes. The calyx is deeply five-cleft; the spreading limb of the corolla is elegantly divided into numerous segments; the two fertile stamens have two-celled anthers; the style has an obtuse apex; and the capsule is membranaceous. [W. C.]

SCHIZOCÆNA. A name proposed for a few Indian ferns now referred to *Cyathea*, in which the involucre or cup is split into a few broad lobes.

SCHIZOCALYX. A genus established by Hochstetter and placed in *Mollaceae*, but more recently referred to *Salvadoraceae*. The same name was given by Berg to a myrtaceous plant from Brazil, which he distinguished from *Calycotome* by the calyx when young being not entirely closed, but minutely four to five-toothed at the apex. The fruit is not known, so its position remains uncertain.

SCHIZOCHITON. A genus of *Mollusca*, containing eight species, natives of tropical India and the Malayan Archipelago, and consisting of trees with paripinnate leaves, oblong and at the base oblique leaflets, paniculate flowers, an almost entire and urishaped calyx, five linear petals, from six to eight anthers, a club-shaped style, and a three or by abortion one or two-celled capsule, each cell containing a solitary seed. [B. S.]

SCHIZOCODON. *Shortia*.

SCHIZOGRAMMA. *Gymnogramma*.

SCHIZOGYNE. The only species of this genus of *Compositae*, *S. sericea*, is a much-branched little bush about a foot high, found growing on maritime rocks in the Canary Islands. The stems are furnished with alternate linear leaves about an inch in length, and terminate in corymbs of numerous small yellow flower-heads. There are two varieties, one in which the stems and leaves are covered with a white tomentum, and another in which they are quite smooth. The genus differs chiefly from *Jussia* in the entire instead of fringed or lacinated anther-tails. [A. A. B.]

SCHIZOLENA. A genus of *Chenopodaceae* peculiar to Madagascar, and composed of elegant small trees, with ovate glabrous leaves, and paniculate or racemose flowers, either terminal or growing out of the old wood of the trunk. The involucre is not fleshy as in *Scarolaena*; there are three sepals, five petals, an indefinite number of stamens, a three-celled capsule, and numerous seeds in each cell. [B. S.]

SCHIZOLEPTON. A small genus of ferns sometimes referred to *Schizolema*, but differing in not having a membranaceous indusium, and hence proposed as one of the *Tenitoides*, ranking near *Tenitis*,

which it resembles in its uniform veins without free veinslets, but from which it differs in the sori being immersed in a groove, the exterior margin of which is thickened. *S. cordatum*, the typical species, is a Molucca plant. [T. M.]

SCHIZOLOBIUM. A genus of the *Leguminosae* closely related to *Casalpinia*, of which it has the flowers, but differing in the pods, which are described as obovate compressed one-seeded, each of the two valves readily splitting into two portions, the outer coriaceous in texture, and the inner, which encloses the seed, membranaceous. The only known species, *S. excolatum*, is a noble tree of Brazil and Panama, attaining a height of 150 feet, the branches furnished towards the apex with large and handsome twice-pinnate leaves like the fronds of some large fern, and terminating in great panicles of pale-yellow flowers. The leaves vary from two to five feet in length, and are made up of about eighteen pairs of pinnae, each bearing about twenty pairs of oblong leaflets clothed beneath with a white or yellowish pubescence. The individual flowers have a shortly tubular calyx, with a five-parted reflexed border, five-clawed notched petals, ten perfect stamens, and a shortly-stalked many-ovuled ovary crowned with a simple style. [A. A. B.]

SCHIZOLOMA. This genus of ferns differs from *Lindaea* only in having the veins netted instead of free; the fructification is in all respects the same. It contains a few species found in India, Malacca, New Holland, and South Africa, but does not occur in America. [T. M.]

SCHIZOMERIA. A genus of *Coniaceae* from Eastern Australia. It forms a tree, with simple stalked oblong-elliptical acute serrate leaves, undivided caducous stipules, and small white flowers in terminal panicles; petals five, lacinate; stamens ten, with head-shaped anthers; ovary free, two-celled, with numerous ovules. [J. T. S.]

SCHIZONEMA. A curious genus of diatomaceous *Algae*, which, from the abundance of the gelatinous element, is characterized by its forming variously fissured branched threads containing several chains, or in the ultimate divisions a single chain of frustules. The species are, with one or two exceptions, confined to salt water. [M. J. B.]

SCHIZOPETALON. A genus of *Cruciferae*, consisting of Chilean annual herbs with pinnatifid leaves, and long bracteated racemes of white flowers, which are remarkable for their pinnatifid petals. The embryo has four green cotyledons, which are spirally twisted; the pod is narrowly linear, beaded. [J. T. S.]

SCHIZOPHRAGMA. A Japanese shrub forming a genus of *Saxifragaceae*, of the tribe or suborder *Hydrangeae*. It has the habit and almost all the characters of *Hydrangea* itself, with similar small flowers in a broad compound cyme or

corymb, the outer ones much enlarged and barren; and only appears to differ from that genus in the ovary and fruit having four or five cells instead of two only.

SCHIZOPHYLLUM. A remarkable genus of gill-bearing *Fungi*, in which the coriaceous gills are split through their whole length along the central substance or trama, the two divisions turning back and becoming involute. The pileus is white, or slightly tinged with red or amber, and is more or less rough with little bundles of short threads, the margin variously lobed, and the surface zoned. The species are few in number and essentially tropical, *S. commune*, the most universal of tropical fungi, extending, though rarely, into temperate regions. It is one of the fungi which frequently make their appearance on imported wood in hothouses, and is always in such situations a pleasing object. In a natural situation it is one of our rarest fungi, and has been seen by very few mycologists. [M. J. B.]

SCHIZOPELURA. The name of a genus of shrubs of the family *Myrtaceæ*. The species are natives of Swan River, and are closely allied to *Beaufortia*, the points of distinction being these:—Flowers interterminal heads; calyx detached from the ovary; anthers opening horizontally; ovary free; capsule parchment-like, included within the thickened calyx-tube. [M. T. M.]

SCHUKURIA. A genus belonging to the *Compositæ* and the subtribe *Heleneæ*, and comprising about a dozen species, which are spread over Mexico and South America. All are much-branched slender annual weeds of little beauty, having pinnately cut or tripartite leaves, and solitary yellow flower-heads arising from the axilla of the leaves or the ends of the branchlets. The involucre of about five obtuse scales encloses from four to ten florets, from one to five of which are strap-shaped and pistil-bearing, the others tubular and perfect. The achenes are three to four-angled, and crowned with a pappus of six or eight broad membranaceous scales, which are either all rounded at the apex, or all bristle-pointed, or the alternate pointed and the others blunt. *Achyropappus* and *Hopkirkia* are synonyms of the genus, which bears the name of Ch. Schkuhr, a German botanist. [A. A. B.]

SCHLAGINTWEITIA. The *Hieracium albidum*, a well-known hawkweed of the Alps of Southern Europe, has been separated under the above name, mainly, as it would appear, from its having a few foliaceous bracts surrounding the flower-heads. It is a herb about six inches high, all its parts clothed more or less with dark glandular hairs; the stems are simple or slightly branched, furnished with lanceolate distantly toothed leaves, and terminating in solitary pale-yellow flower-heads about an inch across. It was named in honour of the brothers Schlagintweit, who travelled in North-western India and Central Asia,

where one of them met a cruel and untimely fate. [A. A. B.]

SCHLECHTENDALIA. A rather handsome erect perennial herb of Montevideo, remarkable in the tribe *Mutiseæ* of the *Compositæ* for its peculiar habit. Its unbranched rather robust stems, from six inches to two feet high, are more or less clothed with soft rusty hairs, and furnished (chiefly at the base) with rigid grassy leaves like those of *Luzula alba*, whence the plants receive the specific name of *luzulaefolia*. The stems terminate in from one to five stalked flower-heads, each furnished with an involucre of numerous straw-coloured narrow slender-pointed scales, enclosing a goodly number of yellow florets; these are all tubular, perfect, and deeply divided into five equal narrow portions, clothed outside with short silky down. The top shaped achenes are clothed with soft hairs, and crowned with a pappus of broad slender-pointed unequal pales. It has been named after Dr. F. L. Schlechtendal, an eminent German botanist. [A. A. B.]

SCHLEGELIA. A name given to some plants now referred to *Tanacetum*. [B. S.]

SCHLEICHERA *trijuga*, the tropical Asiatic plant upon which this genus of *Sapindaceæ* is founded, was formerly combined with the closely allied American *Melicocca*, from which, however, it is distinguished by its flowers having a five-toothed calyx, no petals, from six to ten stamens inserted between the ovary and the disk, and occupying the centre of the flower, a three-celled ovary terminated by a style, and a three-cleft stigma. It is a large tree, and has abruptly pinnate leaves composed usually of three pairs of leaflets, and spike-like racemes of small flowers, succeeded by round one two or rarely three-celled fruits, with a solitary seed covered with a pulpy arillus in each cell. It is common in the peninsula of India (where it is called *Koosumbia*), in Ceylon, and also in Burmah, where its timber is employed for purposes requiring great strength and solidity. In India and Ceylon the lac-insect (*Coccus*) frequents this tree; and considerable quantities of stick-lac, from which part of the shellac and lac-dye of commerce is prepared, are collected from its young branches. An oil also is expressed from the seeds, and used both for burning in lamps, and also as a cure for the itch. [A. S.]

SCHLEIDENIA. A genus of *Boraginæ*, consisting of small prostrate Brazilian herbs, with alternate narrow entire leaves, and small axillary white or yellow flowers, solitary or in spikes. The genus is closely allied to *Heliotropium*, and has the habit of some of its smaller tropical species, and indeed scarcely differs except in its fruit, which is a small drupe enclosing four nuts, instead of separating into two or four distinct dry nuts. There are four species, all of a very weedy aspect.

SCHLIMMIA *jasmiodora*. An extremely fragrant Central American orchid forming a genus of the vanudeous suborder. It is an epiphyte with long slender single-leaved pseudobulbs, and radical bracted flower-stalks about a foot high, bearing on one side and towards the summit three pure white flowers. These have fleshy unequal sepals, the upper one being narrow straight and free, and the two lower much larger and completely combined into a deep sack, beyond the mouth of which the two narrow reflexed petals project; the very minute lip is fleshy and warted at its base, and thin and trowel-shaped above, and is articulated with the column, which is eared on each side of its apex, and has its prolonged base connate with the lateral sepals; the two pollen-masses are attached by a long wedge-shaped caudicle to a minute moon-shaped gland. [A. S.]

SCHMIDELIA. A genus of *Sapindaceæ* distributed through the tropics of both hemispheres, and consisting of a considerable number of species, either trees or shrubs, with leaves composed of three leaflets, or rarely of only one; and producing from their axils, simple or divided racemes of small white flowers, having four sepals, as many petals (one of them always abortive), and four glands opposite the petals; the ovary is two or sometimes three-lobed. In most cases only one of the lobes ripens, and forms a globose fleshy or dry fruit, containing a single thin-shelled seed.

The fruits of *S. africana* form one of the many remedies employed in Abyssinia against the tapeworm, which in that country is a common complaint. The dried fruits are pounded and mixed with flour, and then made into cakes. The species is a native of both East and West tropical Africa, and forms a tree of from twenty to thirty feet high. The sweet pulpy part of the fruit of *S. edulis* is eaten in Brazil, where the fruits are called Fruta de Paraó; but the seeds of most of the genus possess unwholesome properties, and those of *S. Cobbe*, a Cingalese species, are reputed to be poisonous. [A. S.]

SCHOBERIA. A genus of marine plants belonging to the *Chenopodiaceæ*, and closely allied to *Chenopodium*, from which they are most obviously distinguished by their small fleshy semicylindrical leaves. *S. frutescens*, the Shrubby Sea-Blite, abundant on the muddy coast of Norfolk, is an erect shrub two to three feet high, locally known by the name of Sea Rosemary. It grows also on other parts of the eastern coast of England, but is rare. *S. maritima* is a procumbent annual species with a branched diffuse stem, and is of frequent occurrence on most parts of the coast. All the species abound in soda, and in all the flowers are inconspicuous. [C. A. J.]

SCHONIA. A genus of *Compositæ*, nearly allied to *Helichrysum*, *Helipterum*, and *Pteropogon*, from which it is described as differing, in the inner scales of the invo-

lucre being appendaged and radiant, in the many-flowered heads, and in the central florets being truly male. The flowers are always tubular, but they are surrounded by a scarious involucre in many series, the inner of which have petaloid appendages, which spread out so as to appear like ray-florets. The receptacle is without scales, and the achenes are obovate with a setose pappus in a single series. They are Swan River annuals. [T. M.]

SCHENOCAULON. *Asagrea*.

SCHENOPRASUM. *Allium Schenoprasum*.

SCHENORCHIS *juncifolia* is a Javanese epiphytal orchid, with fleshy subulate leaves, allied to *Saccolabium*, from which it is distinguished chiefly by its column being furnished with a couple of long slender erect horn-like processes at its base. Two other Javanese species were originally placed in the genus by Blume, but they are now removed to *Saccolabium*. [A. S.]

SCHENUS. A genus of sedge-grass belonging to the tribe *Rhynchosporæ*. It has the inflorescence in heads or crowded panicles, the spikelets of which are one or many-flowered; glumes in two rows, the lowest three or four empty, the upper having flowers in their axils; flowers hermaphrodite, with bristles round the ovary. There are upwards of thirty species described in Steudel's *Synopsis*; these have a wide geographical range. *S. nigricans* is the only European species. [D. M.]

SCHENUS, WHOLE. *Scirpus Holoschænus*.

SCHOMBURGKIA. A small tropical American genus of epidendroous orchids of the tribe *Blitideæ*, named in honour of the late Sir Robert Schomburgk, the well-known scientific explorer of Guiana. The plants belonging to it have generally very large long pseudobulbs rising from naked ring-scarred creeping rootstocks, and each furnished with two or three leathery leaves. They are also remarkable for the great length of their slender terminal flower-stems, which are clothed with great dry spathaceous sheaths, and bear at their extremity a short roundish raceme of long-stalked showy flowers. Generically it is nearly allied to *Epidendrum*, from which, however, its eight pollen-masses at once distinguish it. The flowers have quite similar spreading free sepals and petals, and a membranous three-lobed half-curcullate lip, connate at its base with the edge of the winged column.

In one species, *S. tibicincta*, a native of Honduras, the pseudobulbs are between one and two feet long and quite hollow and smooth inside, and are commonly used by the native children as trumpets, whence it is called the Cowhorn orchid. At their base too there is always a small hole, and masses of ants and other insects take advantage of it in constructing their nests. [A. S.]

SCHÖPFIA. A genus of *Oleaceae*, consisting of tropical American or Asiatic shrubs, or small trees, with alternate entire leaves, and white flowers, often large for the order, in short axillary racemes or clusters. Their structure is in some respects curious, and has given rise to differences of opinion. A small outer cup is considered by some as an involucre, by others as a calyx, whilst the disk adnate to the base of the ovary which bears the corolla is thought by some to be the true calyx. The petals are united into a campanulate or tubular corolla as in the true *Monopetala*, and the lower part of the ovary to which the above-mentioned disk is adnate is the only portion which enlarges after flowering; and its margin shows a ring round the top of the ripe drupe, thus offering the anomaly of a superior ovary and an inferior fruit. There are about ten species known, of which rather more than half are Asiatic.

SCHOTIA. A South African genus belonging to the *Cesalpiniæ* section of *Leguminosæ*, in which the flowers are regular instead of papilionaceous. The genus is related to *Cassia*, but may at once be recognised by the ten perfect stamens of the flowers, which do not open by pores at the apex but by slits along their whole length. *S. tamarindifolia* (or *speciosa*) is a scrubby bush of eight to ten feet, having simply pinnate leaves, and terminal panicles of deep crimson blossoms; and from the calyx being slightly tubular, and coloured like the petals, the flower bears some resemblance to that of a short-tubed *Fuchsia*. According to Dr. Atherstone, the beans from the pods of this plant are roasted and eaten in the Albany districts, where they are called Boerboom, and the powerfully astringent bark is used medicinally as well as in tanning. The genus was named in honour of Richard Van der Schot, the travelling companion and friend of Jacquin. [A. A. B.]

SCHOUWIA. A genus of *Cruciferae* from Arabia, distinguished from *Psychine* by their oval pouches with a narrow ring at the back of each valve. [J. T. B.]

SCHRADERA. A genus of *Olinchonaceæ*, consisting of tropical American pseudo-parasitical shrubs, bearing their flowers in terminal stalked heads encircled by an involucre. The limb of the calyx is slightly five-toothed; the corolla funnel-shaped, with a slender tube, a hairy throat, and a limb divided into five to eight spreading lobes, which have a thickened keel-like ridge on the outside, and sometimes a small thick hook like process within; anthers sessile, partially projecting from the tube of the corolla; fruit succulent pea-shaped, two to four-celled; seeds numerous, small, embedded in pulp. [M. T. M.]

SCHRANKIA. A genus of *Leguminosæ*, with flowers like those of *Mimosa*; but the pods, instead of being flat as in that genus and jointed between the seeds, are four-sided with continuous valves, linear in

form, and covered with slender recurved prickles. There are about a dozen species, all American, and ranging from the Southern States to Brazil. Most are straggling perennial herbs, with slender angular stems, covered with numerous recurved prickles like those on some roses, and bearing twice-pinnate leaves, which are much like those of *Mimosa pudica*, and have the same singular property of closing when touched. The pink flowers are borne in round balls or spikes in the axils of the leaves. The genus was named in honour of F. Schrank, an eminent German botanist. [A. A. B.]

SCHREBERA. A genus of doubtful affinity, placed by some with *Bignoniaceæ*, by others with *Jasminaceæ*, but with neither of which natural orders it seems intimately connected. There is only one species, *S. swietenoides*, the Mucraay or Mogalinga-marum of India. It is a tall tree, deriving its specific name from a certain resemblance to *Swietenia Mahagoni*. The leaves are pinnate; the flowers dirty-white, and arranged in panicles; the calyx tubular, and irregularly divided into three or five lobes; the corolla hypocrateriformous, and divided into from five to seven lobes; the stamens two in number; and the fruit, a pear-shaped capsule, two-celled, and enclosing in each cell four winged seeds. The tree is found in valleys in various parts of India. [B. S.]

SCHUBERTIA. A genus of *Asclepiadaceæ*, containing several species of twining hairy and milky shrubs from tropical South America. They have opposite leaves, and fleshy flowers in handsome umbels. The calyx is deeply five-parted; the corolla funnel-shaped, the tube swollen below, and the limb divided into five linear spreading lobes; the anthers terminated by a short membrane; the pollen-masses obovate compressed and pendulous; and the stigma turbinate. [W. C.]

SCHUERMANIA. This genus comprises an Australian myrtaceous shrub, with solitary axillary flowers, each provided with two opposite membranous bracts. The five-ribbed tube of the calyx is somewhat fleshy, adherent to the ovary; its limb divided into five petaloid membranous lance-shaped segments; petals five, roundish concave; stamens nine or ten, alternating with an equal number of barren stamens; anthers opening by pores; style thread-like protruding, twisted spirally at the end; ovary one-celled, enclosed within the calyx. [M. T. M.]

SCHULTZIA. The name of a genus belonging to the order of Umbellifera, and distinguished from its congeners by its fruit being cylindrically prismatic, compressed laterally, each half of it with five narrow ridges; and by having a single oil-vessel in each groove, and two at the line of junction. The only species is *S. crinita*, a native of the Altit mountain range. The genus was named in honour

of John Henry Schultz, a German botanist. [G. D.]

SCHUURMANSIA. A genus of *Violaceae* of the tribe *Sauvagesiae*, distinguished in the tribe by all the staminalia being free and linear or subulate, and by the winged seeds. There are two species known, trees or shrubs from the Indian Archipelago, with alternate entire or serrate leaves, and yellow flowers in a terminal panicle.

SCHWÄGRICHENIA. *Chelid.*

SCHWANNIA. A genus of Brazilian climbing shrubs, belonging to the *Malpighiaceae*. The flowers are red, placed in panicles on the ends of the branches; the calyx is deeply five-cleft, four of the segments having at their base two glands; petals five, stalked fringed; stamens six, all fertile, the filaments combined at the base, the anthers hairy at the back; ovaries three, style single. The fruit consists of three winged carpels, each with a single seed. [M. T. M.]

SCHWEIGERIA. A genus of *Violaceae*, so named in compliment to Professor Schweigger, author of a *Flora of Erlangen*. The species are Brazilian shrubs, with narrow finely-toothed leaves, and solitary stalked axillary flowers. The calyx is divided into five unequal segments, the three hinder ones hastate, and much larger than the two narrow anterior segments; petals five unequal, the uppermost or hindermost very large, and spurred at the base; stamens partially attached to the calyx, unequal in size, the anthers crested, the crest of the two anterior ones larger than that of the others, and concealed within the spur of the petal. The fruit is capsular, surrounded by the withered remnants of the flower. *S. pauciflora*, a species with white flowers, is in cultivation. [M. T. M.]

SCHWEINITZIA. The name of a genus of fir-trees, distinguished by the following characters:—The corolla is bell-shaped, five-lobed, with five dilatations at the base, and as long as the concave pieces of the calyx; and the bag-like cells of the anthers open by a pore. The only species is *S. odorata*, a native of North America, and parasitical on the roots of different plants. The name was given in honour of L. D. von Schweinitz. [G. D.]

SCHWENKIA. A curious genus referred to *Scrophulariaceae*. The species are tropical American herbs with panicked flowers; calyx tubular; corolla tubular, its limb five-toothed, with two to five club-shaped glands placed between the teeth; stamens five, inserted at the base of the tube of the corolla, opposite to its segments, two only fertile, the remainder antherless; ovary two-celled, the placentas and ovules attached to the partition between the two cavities; fruit capsular, two-valved. *S. americana*, a species with lilac flowers, is in cultivation. Dr. Schwenk was Professor of Medicine at Jena. [M. T. M.]

SCHWERNIA. This genus, founded

upon an erroneous observation, is absolutely identical with *Meriania*. [B. S.]

SCIADOCALYX. A gesneraceous genus consisting of only one species, *S. Warszewiczii*, a native of New Granada, and cultivated in hothouses on account of its ornamental qualities, and flowering during the winter months. Its rhizome is catkin-like; its stem densely covered with hairs, as are also its ovate crenate leaves and axillary flower-stalks; its calyx is proportionally large and bell-shaped, whilst the tubular corolla is somewhat inflated towards the top, and of a bright pinkish-scarlet colour. [B. S.]

SCIADOPHYLLUM. A genus of ivy-worts, distinguished by a peculiarity of the corolla, the petals of which cohere at the apex; in other respects it is nearly allied to *Aralia*. The species are trees or climbing shrubs, natives of Asia and tropical America. The name is from the Greek words signifying 'shade' and 'leaf', in allusion to the great size of the leaves in some species. [G. D.]

SCIADOPITYS verticillata is the representative of a singular genus of *Coniferae* peculiar to Japan, and closely allied to the North American *Sequoia*. It has recently been introduced to our gardens, and has been cultivated from time immemorial by the Japanese around their temples. It belongs to the tribe *Chamaedraceae*, and chiefly differs from its nearest ally, with which it shares the free seeds, in having cones with bracteate scales and five to eight seeds. The trunk is erect, from a hundred to a hundred and fifty feet high, and of pyramidal habit; the branches verticillate; and the leaves linear, from thirty to forty scale and crowded at the ends of the branches. The flowers are probably dioecious, the stamens numerous, and the cones are nearly globose, and ripen in the second year. [B. S.]

SCIADOSERIS. The generic name given by Kunze to a perennial herb belonging to the *Compositae*, cultivated in the Berlin Botanic Garden, and supposed to be of Chilian origin. Its stems are one to two feet high, irregularly branched above, and terminating in corymbs of white flower-heads; the lower leaves thrice pinnatifid, with sheathing bases, and upwards of a foot long, the sheathing portion only of the upper leaves developed; involucre of two series of lance-shaped scales, enclosing twenty to thirty tubular and perfect five-parted florets, which are seated on a frilled receptacle; achenes four or five-angular, and crowned with a uniseriate pappus of unequal rough white hairs. The specific name, *saginata*, refers to the sheathing bases of the leaves. The plant is said to be related to *Veronica*. [A. A. B.]

SCIAPHILA. A genus of *Triuridaceae*, consisting of small slender leafless herbs, usually erect and simple, of a white or reddish colour, which are found in tropical countries growing on moist decaying

vegetable matter or leaf-mould. The small flowers, in a terminal raceme, are monocious, with a perianth of six divisions and three stamens; the ovary consists of several distinct carpels with lateral styles, and one ovule in each, and the fruit is a little head of small seed-like nuts like that of some *Alismas*. There are eight species known—four from tropical America, four from Ceylon, Java, or the Philippine Islands.

SCILLA. A genus of bulbous plants giving name to the suborder *Scillales* of liliaceous plants, distinguished from *Alium* by having the flowers inserted one above the other on the scape, and from *Ornithogalum* by having the petals deciduous. Two species are indigenous to Britain: *S. verna*, a beautiful little plant four to six inches high, with long narrow leaves, and dense corymbs of bright-blue fragrant flowers, very abundant on the cliffs of Cornwall, and frequent also in the Orkney and Shetland Isles; and *S. autumnalis*, which grows also in Cornwall and in other parts of England, not being exclusively confined to the seashore. In this species the corymbs of flowers, which are of a dull purplish-blue, are elongated, and the leaves and flowers do not appear simultaneously. Of the cultivated species, *S. præcox*, *S. sibirica*, and *S. bifolia* are most prized, as they put forth their brilliant blue flowers at the very beginning of spring. *S. italica* and *S. peruviana* are far more pretentious plants, but they bloom later in the season, when flowers are more abundant; the former is a native of Switzerland and Italy, the latter of the Spanish peninsula, from whence it was introduced to South America by the early colonists, and naturalised in various parts of Chili and Peru. French: *Scille*; German: *Meerzwiebel*. [C. A. J.]

SCIMITAR-SHAPED. The same as Actiniform.

SCINDAPUS. A genus of Indian herbs belonging to the *Orontiaceae*. The species have a scrambling stem, and perforated or pinnately-divided leaves on long channelled stalks. The spadix is sessile or nearly so, with female flowers at the lower part and perfect flowers above, encircled by a spreading spathe, which soon falls off; ovaries one-celled, with one or two erect styles. *S. officinalis* is cultivated at Malabar, in Bengal, for the sake of its fruit, which is cut into pieces, dried, and employed medicinally. The fruit of *S. peruvianus* is likewise employed as a remedy in skin-diseases, rheumatism, &c. Several species, known for the most part under the name of *Pothos*, are in cultivation. The holes in the leaves of some of these plants have been taken as the indications of future lobes, but Trécul, who has examined them carefully as to this point, says that the perforations depend upon the distention of certain portions of the tissue of the leaf with gas, and upon the subsequent bursting of the skin of the leaf. As the

leaves increase in size and age, so the gaps grow larger. [M. T. M.]

SCIPOULE (Fr.) *Urginea Scilla*.

SCIRPUS. A genus of sedge-grasses belonging to the tribe *Scirpæ*. It has the inflorescence in solitary spikes or several together, clustered and forming heads; glumes imbricated on every side, none of the scales empty; style jointed at the base, and deciduous; the flowers furnished with bristles beneath the ovary. This genus, as adopted by some authors, is extensive, and contains many species, which have a wide geographical distribution. Steudel has described them under different genera, and only retained a few under the original. There are fourteen of them natives of the British Isles, nearly all growing in situations where they are frequently covered by water during the winter. *S. lacustris*, the well-known Bulrush, is extensively used for making bottoms of chairs, floor-mats, &c., in most parts of Europe. [D. M.]

SCITAMINEÆ. A large order of monocotyledons, which, taken in a comprehensive view, corresponds with the monal alliance of Lindley. It is almost entirely tropical, and includes many plants of considerable size, and all remarkable among monocotyledons for their leaves (which are often large, and have pinnate or diverging veins), and for their unsymmetrical flowers; their perfect stamens being always reduced to five or fewer, whilst the perianth divisions are of the normal number, six. The ovary is usually three-celled, and the seeds albuminous. The whole group comprises three tribes or orders—*Muscaceæ*, with more perfect anthers than one; *Zingiberaceæ*, with only one perfect two-celled anther; and *Marantaceæ*, with only one perfect one-celled anther—the other stamens (if present) being always converted into barren mostly petal-like staminodia.

SCLAREA. *Antea Sclarea*.

SCLARÉE (Fr.) *Salvia Sclarea*.

SCLERACHNE. A genus of grasses belonging to the tribe *Agrostidæ*. The inflorescence is in contracted shining panicles, the spikelets of which are linear and one-flowered; glumes two equal, or the lower a little the smaller; pale with a short awn at the apex. This small genus contains only two species, which are annuals, and natives of the Southern States of America. [D. M.]

SCLERANTHACEÆ. The genus *Scleranthus* and two or three others belonging to the *Paronychiaceæ* have been proposed as a separate order under the above name, on account of their deep calyx-tube bearing the stamens at the top, and hardening round the nut when in fruit; but the separation is not generally adopted.

SCLERANTHUS. Unimportant giving name to the order *Scleranthaceæ*. They rarely exceed a few inches in length, and have much-branched diffuse stems, opposite linear leaves (which are united

at the base by a membrane), and inconspicuous green flowers, of which the calyx is contracted at the mouth, and becomes rigid when in fruit. The segments of the calyx are edged by a narrow white membrane, which gives the flowers a variegated appearance. There are two British species—*S. annuus*, the annual Knawel, a common weed in cornfields; and *S. perennis*, which scarcely differs except in having perennial roots. French: *Gnauvèle*; German: *Wilde Knauel*. [C. A. J.]

SCLERIA. A genus of sedge-grasses belonging to the tribe *Sclerineæ*. The inflorescence is in spikes, male female or

stamens three, rarely one to two; female spikelets one-flowered; styles three-cleft; androgynous spikelets with the lowest flower female, the others male. Steudel describes 149 species, which have a wide geographical distribution, chiefly within or bordering on the tropics of the southern Hemisphere. [D. M.]

SCLEROCHITON. A genus of *Acanthaceæ*, containing a single species from the Cape of Good Hope. It is an erect undershrub, with small rigid subovate leaves, and solitary axillary flowers. The persistent calyx is five-parted; the corolla has a single lip with an incurved tube and five-lobed limb; the four stamens are exserted, and the anthers consist of a single semi-ovate cell which has a ciliated margin; the style is persistent; the stigma is bidentate; and the capsule is two-celled, the lower half compressed, the two seeds being borne above the middle. [W. C.]

SCLEROCHLOA. A genus of grasses belonging to the *Festuceæ*, the species of which are arranged by Steudel under *Glyceria*, and by Bentham under *Poa*. [D. M.]

SCLERODERMA. A genus of puffballs with a hard coriaceous coat, which contains a mass of spores here and there divided by thin filmy partitions. In an early stage the component threads produce swollen sporophores, which bear about four rugged spores on as many papillæ. The threads except in the partitions soon vanish, and the spores seem to acquire their full size and structure when free. In general the peridium bursts irregularly at the summit, but in *S. Geaster* it opens in a stellate manner, exposing a globular mass of seeds. *S. vulgare*, which is neat subglobose and about the size of an onion, is common in woods and on lawns, the surface being variously cracked or warty. Some of the species, when growing in sand, and assuming a subterraneous habit, are occasionally mistaken for truffles, but they are too tough to be good articles of food in any condition. One of them is subject to be infested by *Boletus parasiticus*, which is abundant in the pleasure-grounds at Kew, though rare elsewhere. [M. J. B.]

SCLEROGEN. The hard matter depo-

sited by some plants in the interior of their cells, as in those forming the shell of the walnut.

SCLEROGENEA. A condition in cultivated plants, consisting in a tendency to revert to their natural condition, which is indicated by a hardening of the tissues, accompanied frequently by a diminution of cellular development and of the nutritious matters of which it is the object of the cultivator to promote the formation. It is in fact exactly analogous to what is called grittiness in pears, which is exhibited exactly in proportion to the approach of any especial variety to the wild condition. It is the vascular bundles more especially which are affected, and in consequence such roots as carrots, beet, turnips, &c., become almost uneatable, potatoes are stringy, and even fruits like apricots (especially the variety called Breda) become more or less disagreeable. This condition may either belong to particular individuals produced from seed, or it may be dependent on peculiarly dry seasons or other conditions unfavourable to rapid growth. The cellular tissue or its richness in fecula is not always affected. Stringy potatoes, for example, are sometimes more mealy than others. This affection is totally different from one in which the tissues are hardened from an alteration in the structure of the walls due to some chemical change, or from the condensation of the contents of the cells from some similar cause. Good cultivation and well-selected seed are the only remedies, and even these are not always efficient. [M. J. B.]

SCLEROID. Having a hard texture.

SCLEROLOBIUM. A genus of *Leguminosæ* of the tribe *Cassipiniæ*, comprising ten species of forest-trees peculiar to Brazil and Guiana. They have alternate equally pinnate leaves, and small yellow odoriferous flowers, disposed in great profusion in large terminal racemed panicles. The essential characters of the genus are: a shortly tubular five-parted persistent calyx; five very narrow petals; ten perfect stamens, their filaments free and bearded at the base; and a sessile ovary which, when ripe, is a compressed elliptical woody pod with a few seeds. *S. tinctorium* has, according to Mr. Spruce, a rough bark which abounds in tannin, and is used as a dye about Cayana, in Brazil. *S. chrysophyllum*, so called from the golden-yellow silky hairs on the under-surface of the leaflets, is a North Brazilian species, growing to a height of sixty or a hundred feet. Its white wood is used for making charcoal and for other purposes. The name of the genus alludes to the hard woody nature of the pod, which does not open when ripe like most others. [A. A. B.]

SCLEROÏON. A genus of *Verbenacæ*, containing a single species from Mexico. It is a shrub with opposite entire leaves, and flowers in axillary few-flowered cymes. The calyx is campanulate and four-toothed; the corolla funnel-shaped, with a quadrid-

limb; there are four stamens; the ovary is four-celled, with one ovule in each cell; the short style has an obtuse stigma; and the indehiscent drupe is covered by the persistent calyx. [W. C.]

SCLEROPHYLAX. A curious genus of small Chilean plants having affinities with *Nolana*, *Ehretia*, and *Myoporaceae*. The stems are branched, bearing spatulate geminate leaves, and axillary sessile flowers in pairs; calyx five-parted, with a very short tube, two or three of the segments being elongated into triquetrous spines or leaf-like expansions; corolla funnel-shaped, contracted at the mouth with a bell-shaped five-parted limb, somewhat two-lipped, resembling that of the small-flowered *Petunia*. [J. T. B.]

SCLEROSCIADIUM. A genus of umbellifers, distinguished by having the tips of the petals two or three-toothed; the fruit roundish ovate, each half with five thick equal ribs; and one oil-vessel in each of the narrow grooves, and two at the line of junction. The only species is *S. humile*, a native of Mogador. The name is derived from two Greek words signifying 'hard' and 'umbel', in allusion to the habit of the plant. [G. D.]

SCLEROSTYLIS. This genus of *Aurantiaceae* consists of trees or shrubs natives of India, Java, &c. Professor Oliver, the most recent investigator of the order, is of opinion that the genus should be cancelled, and its species referred to *Glycosmis* and *Alantia*. [M. T. M.]

SCLEROTHAMNUS. The generic name of a small much-branched wiry-stemmed bush of West Australia belonging to the *Leguminosae*, and closely related to *Pultenaea*, differing chiefly in the minute two-seeded pods being stalked instead of sessile. The specific name, *microphyllus*, alludes to the minute heath-like leaves, which are closely set, and bear in their axils the solitary inconspicuous pale-yellow pea-flowers. It is now united with *Eutaxia*. [A. A. B.]

SCLEROTIUM. A spurious genus of *Fungi*, but not without interest, so far as it shows the strange forms which under particular circumstances may be assumed by various species. The productions referred to *Sclerotium*, as the name implies, consist of a mass of cells compacted into a solid body, attached occasionally at the base by a few delicate threads. Sometimes the outline of the external cells is wavy, as in the cuticle of many phanerogams. These productions are either entirely free, or more or less imbedded in the substances on which they grow—sometimes being merely covered by the cuticle, sometimes slightly immersed, but occasionally deeply imbedded in the pith or other soft structures. They occur on decaying agarics, on herbaceous stems, rotten wood, amongst moss or dung, on putrefying roots or fruit, or even on decomposed animal matter. A few—as the *Sclerotium* of *Pisiza tuberosa*, *Agaricus tuberosus*, &c.—are mere dormant

winter states of more perfect plants. Some, on the contrary, as the *Sclerotia* of onions, peas, &c., are peculiar conditions of filamentous moulds, induced by too great moisture, or a too liberal supply of nutriment. Such assertions, however evident, are difficult of proof, and therefore subject to contradiction; but by placing thin slices in closed cells containing a proper fluid they may sometimes be induced to fructify, as was done in the case of a *Sclerotium* abounding frequently on onions by Mr. Hoffman and Mr. Berkeley. The rose-coloured *Sclerotium* of rush-pith when placed in a moist situation uniformly produces *Peziza Curreyi*, exactly as ergot develops different species of *Cordyceps*. A few authors still consider these productions true species, but no fruit has ever been found in them, and indeed the development of mere conidia would not be decisive on this point. [M. J. B.]

SCOBIFORM. Having the appearance of fine sawdust.

SCOBINA. The zigzag rachis of the spikelets of grasses.

SCOKE. *Phytolacca decandra*.

SCOLIOSORUS. A Mexican fern formerly referred to *Antrophyum*, but having neither netted veins nor netted sori as in that genus. The fronds are simple, and the veins reduced to an obscure midrib. It has been referred to the *Tenillideae*, in consequence of having non-indusate linear interrupted flexuose sori lying between the midrib and margin. [T. M.]

SCOLOPENDRE. (Fr.) *Scolopendrium*.

SCOLOPENDRIUM. A genus of polypodiaceous ferns, typical of that group of *Asplenice* in which the sori are double, opening face to face. The veins are free and parallel-forked, terminating in club-shaped apices. The typical species is *S. vulgare*, the Common Hartstongue fern, which has normally long strap-shaped simple fronds, but occurs in a monostrous state in almost every conceivable form. A few other species are recorded, some of them pinnate, but these are sometimes regarded as abnormal forms of other totally distinct plants. [T. M.]

SCOLOPIA (including *Phobosia*). A genus of *Flacourtiaceae* inhabiting tropical Asia and Australia, and composed of spiny shrubs and trees, with alternate leathery simple glabrous leaves, and bearing inconspicuous racemose hemaphrodite flowers. The calyx is from eight to ten-lobed, the corolla wanting, the stamens indefinite, the style simple, and the fruit a leathery berry filled with a jelly-like pulp. We know nothing of the properties of the fifteen species composing this genus. *Scolopia* being the older name, it has been adopted in preference to *Phobosia* by lending botanists. [B. A.]

SCOLYMUS. A genus of *Compositae* numbering four species, natives of Southern Europe and Northern Africa. These plants,

having all the florets of the flower-head strap-shaped, belong to the *Cichoraceae*, and from all others of that group are at once distinguished by their thistle-like appearance. The leaves are lance-shaped in outline and deeply toothed, the teeth again divided, and all the divisions ending in rigid spiny points, while the nerves are white in some of the species, as in milk-thistles, and give the leaves a handsome appearance. The flower-heads are solitary at the ends of the branches or the short axillary shoots, small for the size of the plants, surrounded by leafy bracts, and of a rich saffron colour. *S. maculatus* is sometimes cultivated for the sake of its spotted variegated leaves. [A. A. B.]

SCOPARIACEÆ. A name under which Link proposed to establish a distinct order for *Scoparia* and a few other *Scrophulariaceæ* allied to it, but which has not been adopted.

SCOPARIA. A genus of *Scrophulariaceæ*, containing several branching herbs or shrubs from South America, one of them having, however, established itself in all the temperate regions of the globe. The leaves are opposite or verticillate, and the single-flowered pedicels rise generally in pairs from the axils. The calyx is four to five-parted; the rotate corolla is quadrifid; there are four stamens; the two cells of the anthers are united above but diverging below; the capsule dehisces septically, with entire valves; and the seeds are numerous and reticulated. [W. C.]

SCOPOLIA. Scopoli was a distinguished Austrian naturalist, who died towards the end of the last century. The genus named in compliment to him comprises a perennial plant, native of the mountains of Eastern Europe. The leaves are in pairs, one larger than the other. The flowers are solitary, placed on axillary pendulous stalks; in their structure they resemble those of *Hyoscyamus*, but may be distinguished by the following characters:—Corolla funnel-shaped, traversed by fifteen nerves, the limb divided into five very short lobes; stamens equal in length, the filaments short dilated and hairy at the base, cylindrical above; ovary surrounded by a five-lobed fleshy disk; fruit similar to that of henbane. *S. carniolica* is a pretty spring-flowering plant, with dull purple flowers. The name has been at various times given to other genera. [M. T. M.]

SCORDIUM. *Teucrium Scordium*.

SCORIAS. A most curious genus of *Fungi* which has hitherto occurred only in the United States of America, where it forms large spongy clinder-like masses (whence the name) amongst fallen leaves, consisting of intricate necklace-like dark threads, which here and there produce cysts containing asci and spores. It is nearly allied to *Omphodium*, of which it seems to be an exaggerated form, with

the mycelium more gelatinous and more highly developed. [M. J. B.]

SCORODONIA. *Teucrium Scorodonia*.

SCORODOSMA. *S. fasciata*, the only known species of this genus of *Umbelliferae*, is, as its name imply, a powerfully smelling plant. Its leaves are deeply cut, its umbels very large, and its flowers unisexual; the males with an indistinct calyx, five yellow petals, as many stamens, and two rudimentary styles; and the females with white petals, five small glands occupying the position of the stamens, and styles bent downwards and terminated by large stigmas. The fruit is circular in outline, compressed from back to front, each of its halves marked by three ridges, the lateral ones being expanded into wings; there are no vittæ. From its near allies, *Pernia* and *Dorema* (in the former of which it is now usually placed), it is distinguished by the inconspicuous calyx, the petals, and the want of vittæ.

It is a native of the desert region of Central Asia, from which circumstance, conjoined with its odour and a resemblance to Kämpfer's figure of the plant yielding *assafoetida*, it was surmised that it might be the plant producing that drug, a surmise now known to be incorrect. It was first introduced to the notice of botanists by Prof. Bunge of Dorpat. [M. T. M.]

SCORPIOID. An inflorescence which is rolled up towards one side like a crozier, unrolling as the flowers expand.

SCORPIONE. (Fr.) *Myosotis*.

SCORPION-PLANT. *Renanthera arachnitis*; also *Genista scorpius*.

SCORPIURUS. A small genus of herbaceous plants belonging to the *Leguminosæ*, and distinguished by bearing their fruit in the form of a jointed pod, each division containing a seed, which as it approaches maturity becomes revolute, and has a fancied resemblance to the tail of some reptile—whence its name, Scorpion's-tail. Unlike most of the plants with which they are associated, they have simple leaves, and they bear axillary one to four-flowered peduncles, which are longer than the leaves, with yellow rarely purple flowers. The species are mainly distinguished by the number of flowers seated on the same stalk, and by the external condition of the pod, whether scaly tuberculated or prickly. They are natives of the Mediterranean regions. [C. A. J.]

SCORSONERE. (Fr.) *Scorsonera*.

SCORZONERA. A genus of *Compositæ* indigenous to the south of Europe and temperate parts of Asia, consisting of perennial herbs, with undivided lanceolate leaves, simple or branched stems, and distinct terminal heads of flowers of a yellow or purple colour. The heads are many-flowered, the florets being all perfect, containing both stamens and ovary; the involucre is many-leaved, the leaves being much imbricated on each other, and the

receptacle is naked. The corolla of all the flowers is ligulate; the achenes are all of the same form, beakless, smooth or slightly hairy, having a lateral areole; and the pappus is in many rows, feathery, and in part interwoven.

Among the species of this genus, which are very numerous, is one the properties of which, although it is much esteemed as an esculent vegetable, should be more generally known. This plant, *S. hispanica*, is distinguished by its branching stem terminating in single heads of flowers, its lanceolate smooth or very slightly pubescent leaves, and its involucre, which encloses the heads of flowers, being oblong and smooth, and the scales of which it consists acuminate. It is a native of Spain, but is cultivated in this country; and its root is sold in the markets as Scorzonera, a name derived from *escorza*, the Spanish name for a serpent, in allusion to its cooling antifebrile effects, it having formerly been employed in Spain on account of these properties for the cure of serpent-bites. It has also sometimes been called Viper's-grass. It is perennial, standing five or six years, and is very easy of cultivation, growing vigorously in good ground, and bearing the hardest winters of this country without injury. Unless, however, the ground is good and favourably situated, the root is likely to be small the first year. It will also bear transplanting without any apparent injury, and will grow with its usual vigour after it has been exposed in the market or lain out of the ground for some weeks, or even months. The root is nearly the shape of a carrot, but smaller and dark-coloured, while internally it is pure white. The taste is sweetish and agreeable, something like that of the roots of certain umbelliferous plants or the common hazel-nut, and a variety with a paler skin has a still more agreeable flavour.

Its effects on the digestive organs are to increase the flow of gastric juice and bile, and as it acts as a deobstruent generally, it is slightly aperient. Its antibilious power is scarcely inferior to that of dandelion, if at all so, being, it is believed, superior in this property to any other esculent in use in this country; and it is on this account one of the best remedies in many (if not in most) cases of indigestion, and especially for that state of the digestive organs called bilious.

These good effects, however, cannot be insured unless the vegetable is properly cooked, as its medicinal qualities may be quickly destroyed. It should be cut as little as possible, and washed not scraped, as the abundant milky juice on which its salutary properties depend then escapes. After boiling for about twenty or twenty-five minutes, or till it is quite soft (rather more salt being added to the water than usual in cooking vegetables), it is to be taken out and peeled, as the dark skin then comes off as readily as that of a boiled potato. When fresh from the garden a quarter of an hour may be sufficient, which

it is of some importance to the invalid to know, because after it has become quite soft all further boiling is injurious to its medicinal qualities, and soon destroys them; but when it has lain out of the ground for a long time and become hardened, it may require twice the time boiling, the rule then being to boil it till it is soft. It is usually eaten in the same way as asparagus, which is the preferable mode for the invalid. As it is one of the most agreeable of vegetables in point of flavour, it undoubtedly deserves to be much more cultivated.

S. hispanica is not the only species in use as an esculent vegetable, *S. deltoidea*, a native of Sicily, being much valued in its native country. It is there in most extensive cultivation on account of its sweet, very grateful flavour, and its cooling effects. [B.C.]

SCOTCH ATTORNEY. *Clusia*.

SCOTCH BONNETS. The name in some districts for *Marasmius Oreades*, or the true Champignon; also applied to the Bonnet-pepper, *Capsicum tetragonum*.

SCOTINO. An Italian name for *Rhus Cotinus*.

SCOTTIA. Two Australian *Leguminosae* of the tribe *Gentieae* formed this genus, which is now united with *Boscawia*. *S. dentata* and *S. angustifolia*, are branching diffuse bushes, with slender stems bearing simple opposite leaves, which are heart-shaped and toothed or almost linear in form. The flowers are brick-red tinged with green, and nearly an inch long, sessile and solitary in the leaf-axils; they have a five-toothed bell-shaped calyx with five bracts at its base; and the upper petal or standard is shorter than the side-petals or wings, which are as long as the lower petal or keel; the stamens are united into one parcel, and the flat pods contain a number of seeds. The name commemorates Dr. R. Scott, once Professor of Botany at Dublin. [A. A. B.]

SCRATCHWEED. The Cleavers, *Galium aparine*.

SCREW-TREE. *Helicteres*.

SCRIPTUREWORKS. A name applied to the species of *Opegrapha*, or Letter Lichen.

SCROBICULATE. Marked by little depressions: the same as Pitted.

SCROPHULARIA. (Fr.) *Scrophularia*.

SCROPHULARIACEÆ (*Scrophularinæ*, *Poranæ*, *Rhinanthaceæ*, *Linariadæ*). A large order of Monopetalous Dicotyledonous, belonging to Lindley's Bignonial alliance, generally distributed over the world, consisting of herbs or rarely shrubs, with opposite or alternate leaves without stipules, and irregular flowers either axillary or in terminal racemes or panicles. They are distinguished from other irregular *Monopetalæ* by the free calyx of five or rarely four parts or lobes; the corolla of five or four lobes; two or four perfect stamens; a superior two-celled ovary, with several usually nu-

merous ovules in each cell; and by albuminous seeds. The latter character is the most positive to separate them from *Bignoniaceae* and *Acanthaceae*, which often closely resemble some of their genera. From some *Solanaceae* with slightly irregular flowers, the *Salpiglossidae*, a tribe of *Scrophulariaceae*, can only be separated by a fine-drawn arbitrary line. The motivation or arrangement of the lobes of the corolla has suggested the division of the order into three suborders, which have been sometimes considered as distinct groups, viz.: 1. *Salpiglossidae*, with a centrifugal inflorescence, the activation of the corolla either altogether plaited or partially imbricate, with the two upper lobes outside. These include *Browallia*, *Urinsfelsia*, *Salpiglossis*, *Schizanthus*, and a few others.—2. *Antirrhineae* (or *Personate* proper of some authors), with an inflorescence either centripetal or compound, and the corolla bilabiate, in reactivation with the upper two lobes outside. To these belong above ninety genera, among the most important of which are *Calceolaria*, *Verbascum*, *Antirrhinum*, *Scrophularia*, *Pentstemon*, *Mimulus*, *Herpestis*, *Gratiola*, *Torenia*, &c.—3. *Rhinanthideae*, with the inflorescence of *Antirrhineae*, but the corolla imbricate, with the upper two lobes (sometimes united into one) always inside. There are nearly seventy genera, including *Silthorpin*, *Scoparia*, *Veronica*, *Buchnera*, *Gerardia*, *Bartsia*, *Euphrasia*, *Rhinanthus*, *Pedicularis*, *Melampyrum*, &c. *Buddium* (which see) and its allies, formerly included in *Scrophulariaceae*, are now referred to *Loganiaceae*.

SCROPHULARIA. A genus of *Scrophulariaceae*, containing nearly one hundred species of herbs or undershrubs found scattered over the extratropical regions of the Old World, one species only having been found in the New World, probably carried thither from Europe. The leaves are opposite, or alternate above; the calyx is five-lobed or five-cleft; the corolla subglobose, its limb minute with two short lips—the upper with two straight lobes and frequently a small scale or abortive stamen within it, the lower with three lobes, the two lateral straight, the middle one decurved; the style simple, thickened at the apex, the stigma emarginate; and the capsule two-celled, dehiscing septicidally by two valves with their margins turned inwards.

The plants of this genus have generally an unpleasant smell. The generic name is derived from the property which the roots were supposed to have of curing scrofula. A decoction of one of the common British species, *S. nodosa*, is sometimes used by farmers to cure the scab in swine. [W. C.]

SCROTIFORM. The same as Pouch-shaped.

SCROTUM. A pouch; the volva of some fungi.

SCURF. The loose scaly matter that is found on some leaves, &c. See *LEPIDOTE*.

SCUTATE, or SCUTIFORM. The same as Buckler-shaped.

SCUTATI PILI. The same as what are generally called *LEPIDES*; which see.

SCUTELLARIA. Herbaceous or rarely shrubby labiate plants, well marked by their ovate calyx, furnished at the back with a concave scale, which finally assumes the appearance of a hinge, on which the upper lip of the calyx closes on the fruit. The genus is represented in Britain by *S. galericulata*, the common Skullcap, an herbaceous perennial with branched stems, oblong leaves, and long-tubed axillary blue flowers, all turned one way; it is tolerably abundant on the banks of rivers, lakes, and canals. *S. minor* is a smaller tufted plant with pale-purplish flowers, of which the lower lip is spotted; it is abundant in marshy places in the west of England, and is found also in some of the midland counties. Among the cultivated species are *S. micrantha*, from Siberia and the north of China, a handsome species with spiked racemes of blue flowers; *S. coccinea* from Mexico, with scarlet flowers, &c. French: *Toque*; German: *Schildkraut*. [C. A. J.]

SCUTELLIFORM. The same as Patelliform, but oval not round, as the embryo of grasses.

SCUTELLUM. Among lichens such a shield as that of *Parmelia*, formed with an elevated rim which is derived from the thallus.

SCUTICARIA Steelii. A common epiphytal orchid from Demerara, with long thong-like pendulous leaves rising from short ring-scarred pseudobulbs, and large solitary dingy-yellow purple-spotted flowers, which grow on very short stalks. It forms a genus by itself, belonging to the *Maxillariodeae*, distinguished by its marked habit and by the shape of the gland on which its two pairs of pollen-masses are seated. The gland is transverse to the pollen-masses, broad and somewhat lunate in the middle, and with the sides extended into long taper-points. [A. S.]

SCUTIGERA. *Platyterium*.

SCUTUM. The broad dilated stigma of some aclepiads, as *Stapelia*.

SOYPHA. The cup-like dilatation of the podetium of lichens, having shields on its edge.

SOYPHANTHUS. *Grammatocarpus*.

SCYPHIPHORA. The name of a shrub from the shores of the Molucca Isles, constituting a genus of *Cinchonaceae*. The flowers are in axillary corymbis, and have an undivided calyx; corolla funnel-shaped, its limb divided into four lance-shaped spreading segments; stamens four, projecting from the corolla; fruit succulent, marked with eight grooves, surmounted by the tubular calyx, and containing two one-seeded stones. The name is derived from the Greek, and implies 'cupbearer,' in allusion probably to the calyx. [M. T. M.]

SCYPHOCORONIS. The generic name of a minute annual weed of Western Australia belonging to the *Compositæ* and related to *Helichrysum*. The branching stems, not more than one or two inches high, are furnished with small spatulate leaves; and each twig terminates in a single head of yellow flowers, with the florets all tubular and perfect, enclosed by an involucre of five narrow scales. The narrow cylindrical achenes are crowned with an entire cup-shaped pappus-ring. All the parts of the plant are more or less clothed with clammy pubescence. [A. A. B.]

SCYPHOFILIX. *Microlepia*.

SCYPHOGYNE. A genus of *Ericaceæ*, distinguished by its calyx being four-cleft, the anterior division largest, and by the style ending in a broad and cup-like point. The species are small shrubs, natives of the Cape of Good Hope; they are usually much branched, with small leaves arranged in whorls of three; the flowers are small, and nearly sessile. The name is from the Greek, and indicates the cup-like form of the stigma. [G. D.]

SCYPHULARIA. *Davallia*.

SCYPHULUS. The bag or cup out of which the seta of scale-mosses proceeds.

SCYPHUS. The coronet of such plants as *Narcissus*.

SCYTHIAN LAMB. *Cibotium Barometz*.

SEA-BELLS. *Convolvulus Soldanella*.

SEA-COLANDER. The American name in the North-eastern States of *Agarum Turneri*.

SEAFORTHIA. A genus of palms originally established upon a tropical Australian species, *S. elegans*; but upwards of twenty-five other species (chiefly inhabitants of Sumatra, Java, Borneo, and other islands of the Indian Archipelago), have since been added to it, including those formerly placed in the genera *Pinanga*, *Ptychosperma*, and *Drymophloeus*. All these are spineless, and either with thick ringed trunks from ten to forty feet high, or dwarf reed-like stems. They have large pinnate leaves, with leaflets divided or irregularly torn at the apex; the lower ones standing out almost horizontally, and their stalks forming a long cylindrical sheath round the upper part of the stem, below which the flower-spikes make their appearance. These are at first enclosed in spatheas varying from one to four in number, and have numerous tail-like branches, along which the flowers are arranged either in straight lines or in spirals, the lower portions having them in threes, one female between two males, and the upper in pairs of males only. The one-seeded fruit has a granular fibrous rind, the seed being in most species marked like a nutmeg. [A. S.]

SEA-GIRDLES. *Laminaria digitata*.

SEAGREEN. The same as *Glaucescent*.

SEA-HANGERS. *Laminaria bulbosa*.

SEAKALE. *Crambe maritima*.

SEA-LACES. *Chorda filum*.

SEAI-WORT. *Polygonatum officinale*.

SEA-OTTER'S CABBAGE. The English name of *Nereocystis Lutkeana*.

SEA-THONGS. The common name of *Himanthalia lorea*.

SEA-TRUMPET. *Ecklonia buccinalis*.

SEAVES. *Juncus*.

SEA-WAND. *Laminaria digitata*.

SEAWARE. A synonym of Seaweed.

SEAWEEEDS. Lindley's name for the *Fucaceæ*. See **ALGÆ**.

SEAWRACK. A name given to seaweeds thrown up by the tide and carried into the neighbouring country for manure. Also *Zostera marina*, which, during the height of the distress in Lancashire, in 1863, was proposed as a substitute for cotton, though no practical result followed the suggestion.

SEAWRACKS. Lindley's name for the *Zosteraceæ*.

SEBÆA. A genus of herbs belonging to the *Gentianaceæ*, natives of the Cape of Good Hope and of New South Wales. The flowers are in corymbs, and have a four to five-parted calyx, whose segments have on their outer surface a prominent ridge; a funnel-shaped corolla, withering on the plant; four to five stamens, projecting from the tube of the corolla, the anthers glandular at the top, and ultimately bent downwards; a thread-like style, with two globular stigmas; and a capsular fruit. Some of the species are known in this country as elegant greenhouse or bedding-out plants. [M. T. M.]

SEBASTIANIA. A genus of *Euphorbiaceæ*, numbering eight species, milky-juiced trees or shrubs of Brazil and Peru, having smooth alternate ovate or elliptical leaves, and minute green flowers disposed in slender axillary or terminal bracteate spikes, the sterile and fertile usually on different plants. The genus is united with *Stillingia* by modern authors. [A. A. B.]

SEBÉ. (Fr.) *Allium Cepa*.

SEBESTANS, or SEBESTENS. The name under which the dried fruits of *Cordia Myxa* and *C. latifolia* have long been used as a medicine in India.

SEBESTENA. A name applied by Cærtner to a group of plants now referred to *Cordia*.

SÉBESTIER. (Fr.) *Cordia*.

SECALE. A genus of grasses related to *Triticum*, distinguished by its spiked inflorescence, which bears two-flowered spikelets, having a long-stalked rudiment of a third floret; glumes subulate. To the genus belongs the Rye, *S. cereale*, a

corn-plant commonly cultivated for its nutritious grain, the flour of which forms an inferior kind of bread. According to Karl Koch, it is found undoubtedly wild on the mountains of the Crimes, especially around the village of Dahimil, on granite, at the elevation of from 5,000 to 6,000 feet. In such places its ears are not more than one to two and a half inches long. Its native country explains the reason why it is so much harder than any variety of wheat. As a corn-crop in this country it is probably the most limited in its growth of any grain, and this is gradually decreasing by the substitution of wheat.

The name of *S. cornutum* is sometimes given to Ergot of Rye, which is a black horn-like spur, into which the seeds or grains of rye and other grasses are changed as the result of disease. In rye some of these spurs are as much as an inch in length, whilst in *Lolium* or Ray-grass they seldom attain to half the length or size of the former, and in smaller grasses the ergot is in proportion to the size of the seed. The Ergot of Rye has long been known as prevailing to a considerable extent in countries where rye is grown for bread, and some dreadful maladies are reported to have arisen when the ergot has been ground with the flour. Among other effects incidental to its long use is said to be the production of gangrene. Ergot is frequently employed by the medical practitioner in cases of difficult parturition. Its more immediate effect upon gravid animals appears to be the procuring of abortion; and as one of the commoner grasses, in which it occurs probably to a greater extent than in any other of our native species, is the *Lolium perenne*, which is always found to be largely mixed with all good pastures, it often becomes a matter of importance to look well to a meadow in autumn before turning in cows, as there is too much reason to believe that abortion is somewhat frequent from a want of care in this respect.

Some years since the late Earl Ducie suffered considerably from the 'dropping of calves' in the case of some of his most valuable stock. At this time a quantity of ergotised *Lolium* was gathered in the field where these occurrences took place. This was sent for our examination, and from this, and the report given us of the general state of the meadow, we have little doubt but that this diseased grass was the cause of the calamity.

The quantity of ergot in almost any native species of grass in some low damp meadows is quite astonishing; however, it is lessened by draining. Uplands are not without a quantity of ergotised grass if they have sufficient altitude to attract atmospheric vapours. Where and when it prevails, there is much evidence to show that it is not advisable to depasture; but, if needs must, then the skimming over the bent with the scythe before the admission of cattle, is a plan that might obviously be had recourse to with advantage.

[J. B.]

SECAMONE. A genus of *Acletoleaceae* containing nearly thirty species of climbing or decumbent shrubs, natives of South Africa, India, and Australia. They have opposite leaves and minute flowers in dichotomous cymes arising from between the petioles. The small calyx is five-cleft, as is also the rotate corolla; the staminal crown consists of five laterally compressed leaflets; there are twenty erect pollen-masses; the short stigma is contracted at the apex or slightly bilobed; and the follicles are smooth, with numerous comose seeds. Some of the species contain an acrid principle, which makes them useful as medicines. *Smyrna Scammony* is obtained from an Egyptian species. [W. C.]

SECIUM edule is the Chocho of the West Indies, a cucurbitaceous plant, a native of and commonly cultivated in all the West Indian islands for the sake of its fruit, which is reckoned extremely wholesome, and commonly used there as an article of food by all classes. The generic name is derived from a Greek word, signifying 'to fatten in a stall,' the fruit, besides its utility as food for man, having the reputation of being a very fattening food for hogs and other animals. It is a climbing plant furnished with three to five-cleft tendrils, and has smooth stems rising from a very large fleshy root, which sometimes weighs as much as twenty pounds, and resembles a yam both in appearance and in its eatable qualities when cooked. It has cordate five-angled scabrous leaves, and yellow separate male and female flowers on the same plant. These latter have a rotate corolla, with ten nectar-bearing glands in the tube; united stamens, with distinct zigzag anthers; and a one-celled ovary containing a single pendulous ovule. The fruit is about four inches in length, oblong, between fleshy and succulent, sometimes furnished with small innocuous prickles, and either green or cream-coloured. The plant has been introduced into Madeira and other Atlantic islands, and from this source its fruits are sometimes sent to this country in a fresh state, and sold in Covent Garden Market under the name of Chayotes. [A. S.]

SECOTIUM. A fine genus of gastro-mycetous *Fungi* belonging to the natural order *Podaxineti*. The hymenium is sinuous like that of a young puffball, and forms a mass round the top of the stem as in *Boletus*, or extends above it. The outer coat of the pilius, though intimately connected with the underlying substance which sometimes entirely encloses the hymenium, occasionally breaks away so as to leave a sort of valve enclosing the base of the stem. The spores are either dark or light-coloured. A small species occurs in the south of France, but the finer forms are found in Australia, New Zealand, &c. A large Swan River species, of which only imperfect specimens have at present been received, is said to be a most delicious fungus. [M. J. B.]

SECRETION. Any organic but unorganised substance produced in the interior of plants.

SEOTILE. Cut into small pieces, as the pollen-masses of some orchids.

SECTUS. Divided down to the base.

SECUND. Having all the flowers or leaves or other organs turned towards the same side.

SECUNDINE. The second integument of an ovule, within the primine and lying over the nucleus.

SECURIDACA. A genus of trailing shrubs of the milkwort family, numbering about thirty species, which are mostly natives of tropical America. They have alternate ovate or elliptical leaves; and axillary or terminal racemes or panicles of white violet or rose-coloured flowers, in form and structure resembling those of some species of *Polygala*, except that the ovary is one instead of two-celled. The fruits, which are remarkable in the family, are very much like one of the two-winged carpels which make up the fruit of a maple. The Buaze fibre plant, *A. longipedunculata*, spoken of by Livingstone in his *Travels* belongs here, and has been described and figured in the botany of *Peters' Travels in Mozambique*, by Dr. Klotzsch, under the name of *Lophostylis pallida*. It is a bush of four to eighteen feet high, the twigs furnished with smooth pale-green oblong leaves, and the small dingy-purple flowers disposed in axillary racemes. It grows in rocky places at the foot of hills near the Zambesi and Shire Rivers, as well as in Mozambique. The twigs are cut by the natives in January and February for the sake of the fibre, of which they make cord, fishing-nets, &c. The fibre resembles flax, and some of it brought home by Dr. Livingstone, and tested by Messrs. Marshall of Leeds, was pronounced equal to flax worth 50l. or 60l. per ton. Cross-sections of the stem of this and other species are singular from the absence of medullary rays and the presence of layers of bark between the layers of wood. Such a specimen may be seen in the Museum of the Kew Gardens, sent by Dr. Welwitsch from Western Africa. Many of the South American species ramble to a great height over other trees, and are beautiful objects when in flower. The generic name alludes to the hatchet-like wing of the fruit. [A. A. B.]

SECURIDACA DES JARDINIERS. (Fr.) *Coronilla Emerus*.

SEDGE. *Carex*; also *Cladium*. —, SWEET *Acorus Calamus*.

SEDGES. Lindley's name for the *Upp-raceae*.

SEDGWICKIA. A genus proposed by Griffith for an Assamese tree which has proved to be the *Liquidambar Altingia* of Blume.

SEDUM. A genus of herbaceous or somewhat shrubby plants, branched mostly

from the root, and bearing at the same time elongated stems, which terminate in cymes of yellow white or purple flowers, and other shorter flowerless stems crowded with fleshy leaves, which are either flat or more frequently about equal in breadth and thickness. They belong to the order *Crassulaceae*, the characters being:—Stamens twice as many as the petals; petals not united; glands at the base of the ovaries not lacinated.

The structure of *Sedums* being such as to enable them to vegetate for a long time without absorbing moisture from the earth, they flourish in most arid soils, and are to be found clothing the surface of rocks, or the sides of walls and quarries. Of the British species belonging to the group, with leaves cylindrical or nearly so, the most frequent are *S. acre*, the Stonecrop, common in such localities as those described, as well as on dry sandhills near the seashore—a low plant with tangled stems, short fleshy leaves (which are produced into a kind of spur at the base), and golden-yellow flowers; and *S. anglicum*, similar to the last in habit, with white flowers speckled with crimson. *S. Telephium*, Orpine or Livelong, the *Herbe aux Charpentiers* of the French, is a more robust plant, twelve to sixteen inches high, with large flat leaves and dense corymbs of dull purple flowers, resembling in habit *Rhodola rosea*. Several foreign species are cultivated, principally for covering old walls or ornamenting rockeries. French: *Joubarda*. [C. A. J.]

SEDUM À ODEUR DE ROSE. (Fr.) *Rhodola rosea*. — FAUX-OIGNON. *Sedum Cepaea*. — PYRAMIDAL DES JARDINIERS. *Saxifraga Cotyledon*. — REPRISE. *Sedum Telephium*.

SEEBRIGHT. *Salvia Sclarea*.

SEED-BOX. *Ludwigia alternifolia* and *L. hirtella*.

SEEDRA. An Arabian name for *Zizyphus Lotus*.

SEKKAKAI. An Indian name for a kind of soapnut obtained from *Mimosa adstringens* (*Acacia concinna*), a decoction of the pods of which is used as a hair-wash in India.

SEEMANNIA. A gesneraceous genus named by Regel in honour of Dr. Berthold Seemann, discovered in the Andes of Peru and Bolivia by Ruiz and Pavon, but only of late years introduced to Europe by the Polish traveller Warszewicz. It has quite the habit of *Gesnera*, attains a height of three to four feet, and is chiefly valued by gardeners on account of its bright scarlet blossoms, which throughout the winter enliven our hothouses, and appear in numbers in the axils of the lanceolate leaves or in terminal racemes. The only known species is *S. sylvatica* (*S. ternifolia* or *Gesnera sylvatica*). The five-cleft calyx has five near lance-shaped segments, the corolla is tubular, the glandular disk surrounding the ovary is five-lobed, the stigma two-lobed, and the fruit a capsule. [B. S.]

SEET. A name in Burmah for the wood of several species of *Acacia*.

SEG. An East Anglian name for rushes, reeds and sedges. —, *SEA. Carex arenaria*.

SEGG. The Flag, *Iris Pseudacorus*.

SEGGRUM. *Senecio Jacobae*.

SEGRA-SEED. *Feuillea cordifolia*.

SEQUIERIA. A genus of *Petiveriaceae*, comprising a few species of South American shrubs with alternate entire ovate or elliptical leaves, and terminal panicles of white or greenish-yellow flowers. The whole of the plant smells more or less of garlic; the stipules often become hardened, and hooked like prickles. The flowers have a five-parted coloured calyx, no petals, numerous stamens, and a one-celled ovary with one ovule. The fruit resembles one of the two portions which make up the fruit of a maple. The nearly allied genus *Galettia* has a like fruit, but the calyx is four instead of five-parted. 'The root, wood, and all the herbaceous parts of *S. alliacea* have a powerful odour of garlic or asafoetida; baths impregnated with them are in repute in Brazil in cases of rheumatism, dropsy, and hæmorrhoidal affections. The wood abounds in potash, and the ashes are employed in clarifying sugar, and in soapmaking in Brazil.'—*Lindley's Vegetable Kingdom*. [A. A. B.]

SÉHU. (Fr.) *Sambucus*.

SEIGLE. (Fr.) *Secale*. — **BÂTARDE.** *Bromus scaberrimus*.

SELAGINAE. A small order of monopetalous dicotyledons, agreeing with *Verbenaceae* in their irregular flowers, two or four stamens, and free two-celled ovary not lobed, with one ovule in each cell; but differing from that order, as well as from the closely allied *Myoporaceae*, in the anthers being always one-celled only. They are herbs or small shrubs, with alternate leaves, and blue white or rarely yellow flowers in terminal heads or spikes. There are about a dozen genera, of which *Globularia* is European, *Gynandria* from temperate or Northern Asia or North-western America, and all the others, including *Selago* itself, from Southern Africa.

SÉLAGINE. (Fr.) *Selago*.

SELAGINELLA. A genus of clubmosses distinguished from *Lycopodium* by the flat two-ranked stem, and double two to three-valved fruit, one of which contains the large pallid spores, the other the free spore-like orange or scarlet antheridia, which at length produce the spiral spermatozooids. Both sometimes occur together in the axil of the same leaf, but they are sometimes separate. The species vary greatly in stature and habit, some being small and like the larger *Jungermanniaceae*, while others attain a considerable height. The leaves, which sometimes assume a bluish tint, are generally of different sizes, as in *Hypopterygium* or *Cyatophorum* amongst mosses. Germi-

nation takes place by cellular division of a portion of the spores, and the young plant when produced from the archegonium has two opposite leaves like



Selaginella Sprucei.

cotyledons, looking very much like the embryo of some exogens. The species are numerous, and are inhabitants of warm regions. They are frequently extremely elegant, and are in consequence favourite objects of cultivation. *S. convoluta* has the fronds curiously curled in and contracted when dry, so as to form a ball like the rose of Jericho, which expands when moistened. *S. mutabilis* has the remarkable property of changing its colour every day: in the morning it is of a bright green, but as the day advances it gradually becomes pale, and at night resumes its deeper tint. Dr. Hooker has observed that this arises from a daily contraction of the green contents of the cells under the influence of light. Several of the smaller species have a creeping habit, but many of them are erect variously branched and forked, while others are partially supported by bushes. Several send down long straight roots into the soil, which serve both as organs of nutrition and as props. *S. Sprucei* is a good representative species. [M. J. B.]

SELAGO. A genus of *Selaginaceae*, containing upwards of seventy species of herbs or undershrubs from the Cape of Good Hope. They have small entire and alternate leaves, and sessile spiked flowers with large bracts; the calyx is ovate or campanulate, and more or less deeply three to five-lobed; the tube of the corolla is short, and the limb four to five-lobed, sometimes somewhat two-lipped; there are four stamens. The single style has an acute stigma; and the ovary breaks up into two one-seeded achenes. [W. C.]

SELENIA. A genus of *Cruciferae*, resembling those of the tribe *Cremolobida* in the inverted seeds, but differing in the pouch having a broad and not a narrow septum. It consists of an annual herb

from Arkansas and Texas, with the habit of *Brassica*; the stems three-edged; the leaves pinnatifid; the flowers golden-yellow, at first corymbose, but at length elongating into a leafy raceme. The pouch resembles that of *Lanaria*, but has inflated valves. [J. T. S.]

SELENIDIUM. *Microlepia*.

SELENIPEDIUM. According to the younger Reichenbach, the author of this genus, it agrees in all its characters with *Cypripedium*, except that the ovary is three-celled and three-furrowed or three-lobed. He refers to it ten species, all of which had previously belonged to *Cypripedium*. [A. S.]

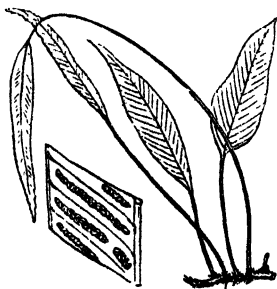
SELFHEAL. *Prunella vulgaris*; also *Sanicula vulgaris*.

SELINUM. A genus belonging to the order *Umbelliferae*, distinguished from its allies by the following characters:—The petals are obovate and notched at the end; the fruit is compressed, each half having five wing-like ribs, the two lateral of which are the most prominent; each furrow has a single oil-vessel, and there are two at the line of junction. The species are smooth perennial herbs, with leaves much subdivided; and the flowers are white. They are found in Europe, Nepal, and North-western America. The name is from the Greek *selinon* 'parsley,' in allusion to its general aspect. [G. D.]

SELK. A name in Egypt for *Beta vulgaris*.

SELLEIFORM. Saddle-shaped.

SELLEIGUEA. A genus of polypodiaceous ferns of the tribe *Gymnogrammeae*, in which it is known by its pinnate veins, with reticulated venules having free included veinlets. The fronds are simple,



Seligues Feil.

rarely pinnatifid or palmately-lobed, and the sori are oblong or linear-oblique, lying between and parallel with the primary veins. A few species, all of them Eastern,

are known. One of the larger ones is represented in Plate 14*d*, and a figure of *S. Feil* is subjoined. [T. M.]

SELLOA. A perennial herb of the *Compositae*, peculiar to Mexico. It has a short rootstock, furnished with a few opposite elliptical three-nerved leaves resembling those of a plantain (whence it is called *S. plantaginea*); and the peduncle or flower-stem, which is nearly a foot high and furnished with two or three bracts, terminates in from one to three rather large rayed flower-heads, the ray florets strap-shaped, pistil-bearing, and three-toothed at the apex; those of the disk tubular and perfect, and all seated on a cone-shaped chaffy receptacle enclosed by an involucre of three series of scales, those of the outer row being broader than the others. The five-angled smooth achenes are crowned by two or three hispid awns, but are not winged as in the nearly related *Verbesina*. It is named after C. Sello, a German botanical traveller in Brazil. [A. A. B.]

SEM. *Phascolus trilobus*.

SEMECARPUS. A genus of Indian trees of the *Anacardiaceae*, nearly allied to *Anacardium*. The flowers are in terminal panicles, and are distinguished from those of adjacent genera by the presence of five separate equal stamens, and a one-celled sessile ovary with a single ovule suspended from its upper part. *S. Anacardium* is the Marking-nut tree of India. The thick fleshy receptacle bearing the fruit is of a yellow colour when ripe, and is roasted and eaten by the natives. The unripe fruit is employed for making a kind of ink, and when pounded serves in the formation of a kind of birdlime. The hard shell of the fruit is permeated by a corrosive juice, which is employed externally in sprains and rheumatic affections, in scrofulous eruptions, and for destroying warts. From its acrid nature great care is required in its employment, as it is likely to cause a great deal of inflammatory swelling. This juice, when mixed with quicklime, is employed to mark cotton or linen with an indelible mark. When dry it forms a black varnish much used in India, and amongst other purposes it is employed, mixed with pitch and tar, in the caulking of ships. The seeds, called Malacca-beans or Marsh-nuts, are eaten, and are said to stimulate the mental powers, and especially the memory. From them an oil is procured which is used in painting. The generic name is derived from the Greek word *semeion* 'a mark,' and *karpos* 'fruit,' in allusion to the dyeing property of the juice of the fruit. [M. T. M.]

SEMEIANDRA. A genus of *Onagraceae*, distinguished by the following characters:—Calyx subglobose at the base, its border four-cleft, the posterior piece shortest; petals four, very narrow, and shorter than the limb of the calyx; stamens two, adherent below, free above, one ending in a petal-like expansion the other with two perfect cells. The two species are Mexi-

can shrubs, the leaves of which vary in form and position, being opposite or alternate, ovate or oblong, and hairy on both sides, with red flowers in terminal clusters. The name is from the Greek, and indicates the presence of one perfect stamen. [G. D.]

SEMELE. A genus of *Liliaceae* of the tribe *Asperagineae* found in the Canaries, closely allied to *Ruscus*, of which it has very much the habit, but differing in having perfect flowers intermixed with male ones, and in the perianth-segments being united into a short turbinate tube. *S. androgyna*, formerly *Ruscus*, is a climbing shrub, with scale-like leaves and cladodia (branches taking the form of leaves), from the side of which the flowers are produced. [J. T. S.]

SEMELE DU PAPE. (Fr.) *Opuntia vulgaris*.

SEMEN. The seed of flowering plants. — **OINÆ**, or **SEMENCINE.** A drug analogous to Semen Contra, and obtained from several species of *Artemisia*. — **CONTRA.** The name of *Artemisia Strobil* and some allied species, the leaves and flower-heads of which form a celebrated vermifuge. — **CORNICULATUM.** The receptacle of certain Fungals. — **SERIPHU.** A drug obtained from *Artemisia caerulea*.

SEMI. In composition = half, or one side only. Thus—*semi-amplexans* or *semi-*

semi-lunata, crescent-shaped; *semi-ovata*, ovate on one side only; *semi-pollicaris*, half an inch long; *semi-reniform*, reniform on one side only; *semi-sagittate*, arrow-headed on one side only; *semi-teres*, half-terete—and so on.

SEMI-ANATROPOUS. The same as *Hemianatropa*.

SEMI-FLOSCULOSE. Having the corolla split and turned to one side, as in the ligule of composites.

SEMINATIO. The act of dispersing seeds naturally.

SEMINULUM. A spore.

SEMI-RAMISIA. A genus of South American shrubs belonging to the *Vacciniaceae*. They have stiff five to seven-nerved leaves, and extra-axillary flower-stalks thickened at the base, and bearing very large solitary flowers. The calyx is top-shaped, marked with five ridges, its free border five-toothed; and the limb of the corolla folded in the bud. [M. T. M.]

SEMI-SEPTATE. Half-partitioned; having a dissepiment which does not project into the cavity to which it belongs sufficiently to cut it off into two separate

SEM-KE-GOND. An Indian gum of *Bauhinia emarginata*.

SEMOLINA. A granular preparation of wheat.

SEMPERVIRENS. Evergreen; retaining greenness during winter as well as summer.

SEMPERVIVUM. A genus of shrubby or herbaceous plants belonging to the *Crassulaceae*, and allied to *Sedum*, from which they are distinguished by having about twelve petals, and the glands at the base of the ovaries lacinated if present. *S. tectorum*, the Common Houseleek, is a well-known plant with thick fleshy leaves arranged in the form of a double rose, from among which rise succulent stalks bearing cymes of purple flowers, which close examination prove no less beautiful than singular. It is commonly to be met with on the tops of outhouses and cottages, but is not believed to be a native of Britain. Of the foreign species, those with shrubby stems have yellow rarely white flowers, and are all natives of the Canaries. See **ZONIUM**. One species, *S. crepitans*, has been known to remain alive in an herbarium for eighteen months, and to grow when subsequently planted. Other species which are herbaceous approach *S. tectorum* or some of the stone-crops in habit. French: *Joubarbe*; German: *Maustours*. [C. A. J.]

SÉNÉ. (Fr.) *Senna*. — **BÂTARDE.** *Coronilla Emerus*. — **FAUX.** *Coletea arborescens*. — **DES PROVENÇAUX.** *Globularia Alatum*.

distinguished by their two-celled two-seeded seed-vessels, which are broader than long, and either wrinkled or crested with sharp points. *S. didyma*, the Lesser Wart-cress, is most abundant in the west of England, where it frequently covers waste ground to the exclusion of every other weed, and may be distinguished by its acrid smell alone, resembling that of peppergrass; its flavour is most nauseous.

The Swine's Cress, *S. Coronopus*, resembles it in habit, but is destitute of the pungent smell: it is said to have been formerly used as a salad. Both species have minute white flowers, and the latter is remarkable for its large seed-vessels, which have the appearance of being carved. [C. A. J.]

SENECILLIS. Of this genus of *Compositae* there are three species—*glauca*, *carpathica*, and *Jacquemontiana*, natives respectively of Central Russia, the Carpathian mountains, and Kashmir. Excepting in the pappus, which consists of one row of rough hairs much shorter than the ribbed achenes, these plants have altogether the characters of *Ligularia*, and might be passed over as belonging to that genus. They are perennial herbs, with stalked root-leaves of the consistence of those of the cabbage, sessile stem-leaves, and nodding yellow-rayed flower-heads disposed in terminal panicles. The plant usually cultivated as *S. glauca* is *Ligularia macrophylla*, which greatly resembles the former, but has a different pappus. [A. A. R.]

SENECIO. This genus of *Compositæ*, represented in Britain by the well-known Groundsel and Ragweed, is perhaps the most extensive in point of species in the vegetable kingdom. Thousands of kinds are known to botanists; they are spread over all parts of the globe, but are found in greatest profusion in temperate regions. They are either annuals, perennials, shrubs or undershrubs, with entire pinnatifid or variously toothed or lobed leaves placed alternately on the stem; and solitary panicle or corymbose flower-heads, the florets of which are either all tubular, or more commonly the central tubular and the marginal strap-shaped. The prevailing colour is yellow—purple, dingy white, or blue being comparatively rare. The essential character of the genus is to have an involucre consisting of a single series of scales of equal length, which are often surrounded at the base by a number of narrow bracts to which the name calyculæ is given.

There are 596 species described in DeCandolle's *Prodromus*. Of these, South Africa claims 200; Europe, North Africa, and Western Asia, 115; South America, 103, North America and Mexico, 55; the East Indies, 43; Australia and the Pacific Isles, 35, Mauritius and Madagascar, 28; Canary Isles, 10; and China and Japan, 5. Since the publication of the *Prodromus* more than 300 species have been made known from different countries, but the proportion to each is nearly the same.

The Groundsel, *S. vulgaris*, the Ragwort or Ragweed, *S. Jacobæa*, and our other native sorts afford a good idea of the appearance of the European species, the most noteworthy of which is perhaps the well-known *S. Cineraria*, better known in gardens as *Cineraria maritima*, extensively used for planting in flower-beds for the sake of contrast with scarlet and other colours, its beautiful foliage being clothed with short white down. It is a half-hardy perennial, propagated by cuttings layers or seeds, and is found wild on the shores of the Mediterranean. South Africa is the native country of *S. elegans*, a pretty autumn-flowering annual, having the habit of the common groundsel, but with brilliant purple flower-heads. Many fine varieties of this plant exist.

The generic name *Cineraria* is restricted to a few Cape plants which differ from *Senecio* in the achenes of the ray-florets being winged. The beautifully early spring-flowering plants cultivated in greenhouses as *Cinerarias* belong however to *Senecio*, and have been obtained by horticulturists, by intercrossing with each other a number of the Canary Island species, such as *S. populiifolius*, *S. Tussilaginis*, &c. The deep blue colour of some of the garden varieties of these plants is singular in the genus, and not at all common in the family.

As South Africa is the richest in species in the Old World, so is the Andean region in the New; and the species are there remarkable for their shrubby habit. M. Weddell remarks that the proportion with-

out strap-shaped florets to those with such, is as three to one in the Andes, while in most other countries the reverse is the case. In his *Flora of the alpine regions of the Cordilleras*, M. Weddell describes 120 species of this genus, and it is curious to remark the large proportion of these which have the leaves quite glossy or glutinous on the upper surface and clothed with warm wool underneath, as if the better to protect them from the excessive cold, for many grow quite close to the perpetual snow-line. The name *Tola* is given by the Bolivians to some of the gummy-leaved species of this genus, which they use as firewood. The name of the genus is taken from the Latin *senex* 'an old man,' in allusion to the white pappus-hairs which crown the achenes. [A. A. B.]

SENECIONIDÆ. One of the large tribes into which the *Compositæ* of the suborder *Tubulifloræ* have been divided, and characterised chiefly by the form of the style. The most typical genera of its principal subdivisions are *Helianthus*, *Tagetes*, *Anthemis*, *Artemisia*, *Gnaphalium*, and *Senecio*.

SENEÇON (Fr.) *Senecio vulgaris*. — **EN ARBRE.** *Baccharis halimifolia*.

SENECTUS. Old age is the most formidable of all diseases, and one which all the contents of Medea's caldron cannot arrest. Every organised being has its appointed limits, and whether its period of existence be a day or a century, no earthly power can prolong it. Exogenous trees, however, seem at first sight to contradict this; but we must remember that the new growth of each year, dependent on the evolution of the buds, must be regarded in some measure separately from the whole, to which it bears some such sort of relation as that of seed to a plant. As, however, each new layer is in close connection with those which went before, and since these after a time are subject to decay, after the lapse of years the first-formed wood perishes, the tree becomes hollow, and the sound wood is ultimately more or less affected by the decayed matter within. The effect is in many instances so slow, that a thousand years or more may pass before the general health is so affected as to induce complete destruction. Even in trees, however, the constitution after a time begins to fail, the sap is not carried to the extremities, and in consequence they die—indicating most surely that the tree is past its prime, and that the central wood, if not actually decayed, no longer performs its functions.

In annual or biennial plants life is occasionally prolonged to the second or third year if anything has prevented the formation of seed; and amongst cryptogams, which multiply by cell-division as well as by spores, a portion of the original cell may exist for a long time in the absence of fruit, but no sooner is this formed than death ensues as a necessary consequence. [M. J. B.]

SENEGAL-ROOT. The diuretic and very bitter root of *Cocculus Bala*.

SENEGRE. (Fr.) *Trigonella fenum-graecum*.

SENEKA-ROOT. The root of *Polygala Senega*.

SENEVE. (Fr.) *Sinapis*.

SENGREEN. *Sempervivum tectorum*.

SENI, SENARIUS. In sixes.

SENNA. The leaflets of several species of *Cassia* used in medicine for their purgative properties; it is often adulterated with the leaves of *Solenostemma Arghei*, *Tephrosia Apollinea*, *Coriaria myrsifolia*, &c. —, of the Chileno. *Myoschilos oblongus*. —, **ALEPPO.** *Cassia obovata*. —, **ALEXANDRIAN.** *Cassia acutifolia* and *C. obovata*. —, **AMERICAN.** *Cassia marilandica*. —, **BLADDER.** *Colutea arborescens*; that of the Cape is *Sutherlandia frutescens*. —, **INDIAN.** *Cassia elongata*. —, **MBOCA.** *Cassia elongata*. —, **NUBIAN.** *Cassia ethiopica*. —, **SCORPION.** *Coronilla Emerus*. —, **SENEGAL.** *Cassia obovata*. —, **TINNEVELLY.** *Cassia elongata*. —, **TRIPOLI.** *Cassia ethiopica*. —, **WILD.** *Poinciana pulcherrima*; also an American name for *Cassia marilandica*.

SENNATREE. *Cassia emarginata*.

SENBA. See under *Serraa*.

SENSITIVE PLANT. *Mimosa sensitiva*; also *M. pudica*, *Oxalis sensitiva*, and others. —, **BASTARD.** *Aschynomene americana*. —, **WILD.** *Cassia nicotiana*.

SENU. The sixth.

SENVY. *Sinapis nigra*.

SEPAIS. The divisions of the calyx. Hence *sepaline*, belonging to a sepal; and *sepaloid*, resembling a sepal.

SEPAWN, SEPON. Maize-meal boiled in water, used as food in the North American States.

SEPEDONIUM. Almost everyone who is accustomed to observe *Fungi* in our woods has been at times struck with a peculiar condition of *Boleti*, in which they become mouldy, and when broken are filled with a yellow powder, and have frequently a nasty fishy smell. This arises from their being attacked by a naked-spored mould, *A. chrysospermum*, which consists of loose-branched threads, bearing at their tips rather large echinulate spores. Other species occur on *Helvella*, *Periza*, *Geoglossaceae*, &c., varying in colour and in the structure of the spores, which are interesting microscopical objects. A rose-coloured species, which occurs occasionally on *Periza*, is worth attentive examination. From recent observations of Tulane, some of the *Sepe-donia* appear to be conidiferous conditions of *Apharisma*. [M. J. B.]

SEPICOLOUS. Inhabiting hedgerows.

SEPTAL. Of or belonging to a septum.

SEPTAS. A genus often united with *Cras-sula*, and containing two Cape species, having the habit of some species of *Saxifraga*. They are herbaceous, and have tuberous roots, sim-

ple stems, opposite or verticillate leaves, and white almost umbellate flowers. The calyx is from five to nine-cleft; and the petals stamens scales and carpels are from five to nine in number. They are old inmates of our gardens; but their uses are entirely unknown. [B. S.]

SEPTATE. Partitioned off by septa.

SEPTENATE, SEPTENOUS. Growing in sevens.

SEPTFOIL. *Tormentilla officinalis*.

SEPTICIDAL. A mode of dehiscing, in which the fruit is resolved into its component carpels, which split asunder through the dissepiments.

SEPTIFORM. Having the appearance of a dissepiment, as is the case with the placenta of some plants, as *Plantago*.

SEPTIFRAGAL. A mode of dehiscing, in which the backs of the carpels separate from the dissepiments, whether formed by their sides; or by expansions of the placenta.

SEPTILE. Of or belonging to dissepiments.

SEPTORIA. A genus of coniomycetous *Fungi*, resembling externally minute species of *Spharia*, but producing naked spores instead of asci and sporidia. The spores are frequently filiform and curved, and are either continuous or septate. Many of the species occur only on living leaves, on which they are true parasites; but others are as constantly found on white or discoloured spots which have lost their vitality, and are separated from the living portion more or less definitely by a coloured ring, and are then only distinguished from *Deflexa* by their structure. In these cases possibly they may be mere secondary forms of other plants, but in the true parasites the same supposition is not so well founded. It is indeed conjectured that many analogous productions are mere sexual forms of larger *Fungi*, but this is mere conjecture, however suggestive of further inquiries. [M. J. B.]

SEPTULUM. A little partition of any kind.

SEPTUM. The partition of an ovary or fruit produced by the sides of the carpels brought together and consolidated, also a partition of any kind.

SEQUAMETL. A Mexican name for *Agave americana*.

SEQUOIA (including *Wellingtonia*). A genus of the *Abietinae* tribe of *Coniferae* from North-western America, closely allied to *Sciadopitys*, and distinguished from it principally by its peltate scales without bracts, and five to seven seeds. Only two species are known with certainty, *S. sempervirens* and *S. gigantea* of Torrey (*Wellingtonia gigantea* of Lindley), both trees of extraordinary height. *S. gigantea* of Endlicher is a nonentity, being founded upon a sterile branch of *Pinus bracteata*, coupled with Douglas's account of *S. sempervirens*.

The claims of *S. Lawsoniana*, recently introduced to our gardens, have not yet been critically examined.

S. sempervirens is the Redwood of the timber trade, and extends from Upper California to Nutka Sound. It attains gigantic dimensions, being frequently more than 300 feet high, and imparting to the woods of its native country a peculiar character—"something," Douglas tells us, "which plainly shows that we are not in Europe." The Redwood has long been an inmate of our gardens, and principally differs from the *Wellingtonia* in having linear rather obtuse and beneath whitish leaves.

S. gigantea (the *Wellingtonia* of our gardens, and the big or Mammoth-tree of the Americans) was at first thought to be confined to a single spot, the so-called Mammoth Grove of Calaveras in Upper California, but it has since been found in the Mariposa and Fresno Groves, and in various other parts of the Sierra Nevada, though nowhere attaining such a height as in the spot where it was first discovered, in June 1850, by an American hunting-party. The tallest tree of the Mammoth Grove, stripped of its bark for the purpose of being exhibited, was 327 feet high, and at the base was 90 feet in circumference. The greatest dimensions seems to have been attained by a tree which was found

live proportions, was destroyed in the fire at the Crystal Palace, Sydenham, in 1860.

The *Wellingtonia* was introduced into Europe by Mr. W. Lobb in 1853, and stands our climate remarkably well. The wood when first cut is white, but ultimately turns to a mahogany colour. The young branches are not unlike those of some cypress or juniper; and like many other *Conifera*, including the Redwood, they have two kinds of leaves. The ordinary leaves are evergreen, alternate subulate, or ovate lance-shaped. In seedling plants they are more compact than in fully-grown trees. The cones are ovate, and rather larger than those of the Redwood. [B. S.]

SERAPIAS. A small South European genus of terrestrial orchids belonging to the ophrysodeous suborder. Its flowers have the lateral sepals agglutinated to the upper one, forming a kind of hood open in front, and out of which the lip protrudes. The lip has a couple of plates at its base, and is three-lobed, with the lateral lobes rounded and embracing the column, and the middle one long and pendulous. The anther is erect beaked, and has its cells parallel and contiguous; and the caudicle of the two masses of pollen are fixed to a single gland included within the stigmatic hood. [A. S.]

SÉRENTE. *Abies Picea*.

SÉRÈQUE. (Fr.) *Genista saxatilis*.

SERIAL. Arranged in rows.

SERICEROUS. Silky; covered with very fine close-pressed hairs, silky to the touch.

SERICOCARPUS. A genus of *Compositæ* peculiar to North America, closely related to *Aster*, and characterised by the simple unequal pappus, few ray and disk-florets, and oblong imbricated involucre with cartilaginous scales. They are perennial herbs one to three feet high, with sessile leaves, and corymbose flower-heads, having the ray-florets white, those of the disk pale yellow. The generic name alludes to the silky hairs on the achenes. There are five species known. [A. A. B.]

SERICOCOMA. A genus of *Amaranthaceæ* inhabiting the Cape of Good Hope. They are annuals or perennials with alternate leaves (except the lowest and sometimes those of the branches), and bear large flowers in solitary terminal compact spikes or heads. These flowers are solitary or two or three together, the middle one three-bracted, the other with two bracts. They have a perigone of five sepals, woolly on the outside, nearly equal, or if unequal the longer ones spinous; stamens five, united at the base into a cup, with scale-like intermediate staminodes; utricle very woolly, one-seeded. [J. T. S.]

SERICOGRAPHIA. A genus of *Acacanthaceæ* containing several species of herbs or undershrubs, natives of tropical America. The stem is jointed, and the flowers are arranged in second spicate racemes, with small bracts and bractlets. The calyx



Sequoia (Wellingtonia) gigantea.

broken at a height of 300 feet, and which measured at that place 18 feet in diameter. Considering that it was 112 feet in circumference at the base, and tapered regularly to the point where broken, it is calculated to have been when in the fullness of its growth 450 feet high. It was at first thought that these trees might be 3,000 years old, but that estimate has since been reduced by actual counting of the concentric rings to about 1,100 years. A portion of the bark of one of these trees, showing its enormous rela-

is five-parted; the two stamens have each two slightly divergent anther-cells; and the capsule is seed-bearing below, and contains four seeds. [W. C.]

SERINGA. The Portuguese name for the India-rubber tree.

SERINGA, or SÉRINGAT. (Fr.) *Philadelphus*.

SERINGIA. A New South Wales genus of *Myrtaceae*, now limited to a single species, which is a shrub with alternate ovate or lance-shaped leaves, clothed underneath with rusty down, as are also the small white starry flowers, which are arranged in axillary cymes. The calyx is bell-shaped, deeply five-toothed; corolla none; stamens ten, five of them anther-bearing; ovary five to seven-lobed, the lobes or carpels becoming distinct when ripe, and not uniting to form a capsule as in *Thomasia* and other allied genera. It was named after N. C. Seringe, a well-known Swiss botanist. [A. A. B.]

SERINGUE. A South American name for the caoutchouc-yielding *Siphonia*.

SERIOLA. A small genus of the chicory group of *Compositae*, comprising three species from the Mediterranean region, and one from Southern Brazil. The latter is a smooth perennial herb with the aspect of a bowthistle, and is sometimes used like endive as a salad in Brazil. The others are perennial yellow-flowered weeds resembling *Hypochaeris*, and only to be distinguished by the achenes, which are not dissimilar, but all alike, terminating in a long slender beak, tipped with a single series of feathery pappus-hairs. [A. A. B.]

SERIPHIMUM. A South African genus of *Compositae* ranking near to *Gnaphalium*, and characterised by the crowded one-flowered heads, and beakless achenes crowned with a single series of pappus-hairs, which are feathery towards the apex—not a biserial pappus, as in the closely-allied genus *Stabe* from the same country. About a dozen species are known—much-branched undershrubs, with numerous linear leaf-like leaves, often spirally twisted, and small white flower-heads arranged in close terminal spikes or round heads. [A. A. B.]

SERISSA. An Indian shrub forming a genus of *Cinchonaceae*. The flowers are white, in terminal tufts; the calyx-limb divided into four or five segments, with occasionally little teeth between them; the corolla funnel-shaped, its tube hairy, its limb four or five-lobed; the stamens four or five, with very short filaments, and anthers projecting beyond the tube of the corolla, the ovary two-celled, surmounted by a fleshy disk, with a simple style, and a stigma divided into two linear branches; and the fruit succulent two-celled, each cell containing a single seed. *S. fetida*, a native of India, Japan, China, &c., has astringent properties. Its root is employed in cases of diarrhoea, also in

ophthalmia and certain forms of ulcers. This plant is cultivated as a pretty stove shrub. There is a variety with double flowers, which is the more interesting inasmuch as double flowers are rare in the order. [M. T. M.]

SERJANIA. A genus of *Sapindaceae* closely allied to *Paullinia*, and not distinguishable from it by its flowers, the distinctions between these and some other genera of the order residing solely in the structure of their fruit. In the present genus the fruit consists of three thin pieces or carpels firmly joined together in the centre, and not separating from each other nor opening spontaneously at maturity, each piece being drawn out into a thin wing at the base, and containing a single seed in the upper part—the seed having a thin brittle shell, and usually a minute two-lobed arillus. Like the *Paullinias*, the species of *Serjania*, of which there are a considerable number, are confined to the tropics of the Western Hemisphere, and are climbing shrubs furnished with tendrils for their support. Their leaves are usually composed of one two or three sets of leaflets in threes, or are rarely unequally pinnate, and have minute stipules at their base; and their flowers are borne in racemes produced near the leaf-axils, the axis of the raceme generally having two tendrils close to its base. All the species possess narcotic poisonous qualities of more or less intensity. *S. lethalis* is supposed to be one of the plants from which the wasp called 'Lecheguana de mel vermello' in Brazil collects its poisonous honey. M. St. Hilaire has recorded the exceedingly violent effect of this honey upon his own person. In most cases it produces a sort of drunkenness or delirium only to be removed by emetics, but it sometimes occasions death. The plant forms one of the fish-poisons called Timboe by the Brazilians. [A. S.]

SERMONTAISE. (Fr.) *Levisticum officinale*.

SEROTINOUS. Appearing late in a season, or later than some other part or species allied to it.

SERPÆA. A Brazilian genus of the tribe *Helianthemae* of *Compositae*. There are two species, both branching perennial herbs, with opposite stalked rough leaves, and long-stalked yellow flower-heads, either two or three together, or solitary at the ends of the branches. The ray-florets are strap-shaped and neutral; the disk-florets tubular and perfect; the outer achenes three sided, and crowned with three pappus-awns, the inner compressed and two-awned, and all of them seated on a conical chaffy receptacle. It is named after Dr. Serps, once Professor of Botany at Pernambuco. [A. A. B.]

SERPENTAIRES. (Fr.) *Dracunculus*.

SERPENTARY-ROOT. The root of *Aristolochia Serpentaria*.

SERPENT-WITHE. *Aristolochia odoratissima*.

SERPIOULA. A small genus of *Haloragaceae* inhabiting the tropical and sub-tropical regions of both hemispheres, most of the species being natives of the Cape of Good Hope. They are branched creeping herbs, with alternate or opposite leaves, and axillary usually monoclous flowers, the males on long pedicels, the female perfect ones subsessile. [J T S.]

SERPOLET. An essential perfumery oil obtained from *Thymus Serpyllum*.

SERRA, SERRATURES. The saw-toothings at the edge of leaves and similar bodies.

SERRADELLE. (Fr.) The Serradilla, *Ornithopus sativus*.

SERRADILLA. (Port.) *Ornithopus sativus*, a kind of green fodder.

SERRÆA (correctly **SENRA**). An Arabian Malvaceous shrub the flowers of which have an outer calyx of three membranous heart-shaped entire leaves, concealing the inner five-cleft calyx; petals five, yellow with a purple spot; ovary five-celled, with two ovules in each compartment, fruit a five-celled five-valved capsule. [M. T M.]

SERRAFALOUS. A genus of grasses belonging to the tribe *Festuceæ*, now included in *Bromus*.

SERRATE. Having sharp straight-edged teeth pointing to the apex. When those teeth are themselves serrate, they are *biserrate* or *duplicato-serrate*.

SERRATULA. A genus of herbaceous plants belonging to the tribe *Cynaroe-phaleæ* of compound flowers, distinguished by having a hairy (not feathery) pappus of several conspicuously unequal rows, the inner row longest; and by the scales of the involucre, which are neither hooked nor spinous. The genus is represented in England by *S. tinctoria*, the Common Saw-wort, a slender erect plant one to two feet high, growing on commons and in bushy places. The leaves are entire or pinnatifid, serrated but not prickly; and the flowers grow in terminal heads, small and shaped like those of a thistle; but the oblong scales of the involucre are blunt, and nearly destitute of any cottony appendage. The herbage yields a yellow dye. Other species have been introduced from various temperate countries of the Eastern Hemisphere. French: *Sarrette*; German: *Furberscharte*. [C. A. J.]

SERRON. (Fr.) *Chenopodium* (or *Blutum*) *Bonus Henrius*.

SERRONIA. *Ottonia*.

SERSALISIA. This genus of *Sapotaceæ* is closely allied to *Sideroxylon*, and its flowers agree with those of that genus in having their calyx and corolla five-parted, with five fertile stamens opposite the lobes of the latter, and five sterile scale-like ones, and also, in their five-celled ovary and un-

divided stigma; but they are well distinguished by their very different seeds, those of the present genus having a thin brittle shell marked with a long scar or hilum, and being destitute of albumen, while those of *Sideroxylon* are hard and bony, and furnished with copious albumen. The three species of *Sersalisia* are small hardwooded trees, natives of the eastern coast of tropical Australia. [A. S.]

SERTULUM. A simple umbel.

SERVICE-BERRY. *Amelanchier canadensis*.

SERVICE-TREE. *Pyrus Sorbus* alias *P. donnestica*. —, WILD. *Pyrus torminalis*.

SESAME. *Sesamum orientale* and *S. indicum*.

SESAMUM. A genus of *Pedaliaceæ*, consisting of annual herbs indigenous to the East Indies, but cultivated in various other tropical and subtropical countries. The leaves are opposite or alternate, quite entire or variously lobed; the flowers axillary, and of a yellow or pinkish colour. The calyx is five-cleft, the corolla two lipped, the stamens four with the rudiment of a fifth, and the capsule oblong quadrangular, two-valved and two-celled, each cell containing numerous oily seeds. It is especially on



Sesamum indicum.

account of the latter peculiarity that *S. indicum* is extensively cultivated. Its seeds contain an abundance of a fixed oil, as tasteless as that of the olive, for which it might be substituted, and which is expressed in Egypt in great quantities. It is sometimes called Gingly oil, and, if of very good quality, is employed for adulterating oil of almonds. It is, however, apt to become rancid. The leaves of *Sesamum* are emollient. [B. S.]

SESBAN *Sesbania aegyptiaca*.

SESBANIA. Twiggy shrubs or shrubby annuals dispersed over the tropics of both hemispheres, belonging to the *Leguminosæ*,

and formerly combined with *Eschynomene*. They have pinnate leaves, composed of numerous pairs of leaflets without a terminal one, but having a bristly point in place of it, the leaflets often possessing the irritable nature of the well-known sensitive plant. Their flowers, usually of a yellow colour, are produced few or several together on stalks rising from the leaf-axils, and are succeeded by long narrow cylindrical or flattened pods containing many seeds, between which they are so much constricted that the seeds appear to lie in separate cells, but they are not truly jointed like those of *Eschynomene*.

S. aculeata, the Danchi of India, is an erect slightly branched annual, with the stems and leafstalks armed with minute prickles, leaves composed of from twenty to fifty pairs of narrow leaflets, and racemes with few rather large flowers on slender stalks, producing erect almost cylindrical or tapered sharp-pointed pods. It is cultivated in India for its fibre, which, though coarse, is of great strength and very durable in water or when repeatedly wetted, and is consequently valuable for the ropes of fishing-nets, &c.; but it is not suitable for ships' cordage, as it contracts very much when wet. It is found also in the West Indies, and in Tropical Africa. [A. S.]

SESELI. A genus of *Umbelliferae* having the following characters:—The calyx has five short teeth; and the fruit is oval or oblong, each half of it having five prominent ribs, the two lateral of which are broadest: in each furrow there is usually one rarely two oil-vessels, and two rarely four at the line of junction. The species are biennial or perennial herbs, with much-divided leaves, and white rarely yellow flowers. They are natives of Europe, Central Asia, and North America. [G. D.]

SESELI. (Fr.) *Seseli*. — **COMMUN** *Sium Sisarum*. — **DE GRÈTE**, *Tordylium officinale*. — **DE MONTELLIER**, *Silaus pratensis*.

SÈSES. (Fr.) *Oler arietinum*.

SESLERIA. A genus of grasses belonging to the tribe *Festuceae*. The inflorescence is in simple spikes; spikelets two to six-flowered; glumes two membranaceous, nearly equal and pointed or mucronate; flowering glumes three to five-toothed, the central tooth longest; stamens three; styles two, short. This genus contains twenty species, most of which are natives of alpine or subalpine countries, where they reach to great elevations on the mountains. In Britain it is represented by *S. cærulea*, which is not a common grass though generally plentiful where it grows. French: *Seslère*. [D. M.]

SESQUI. This term, prefixed to the Latin name of a measure, shows that such measure exceeds its due length by one half: thus, *sesquipedalis* means a foot and a half.

SESSEA. A genus of Peruvian shrubs or trees belonging to the *Solanaceae*. The

flowers are in terminal panicles; calyx tubular, five-toothed; corolla funnel-shaped, its limb with five spreading segments; anthers opening longitudinally; ovary two-celled; fruit capsular, surrounded by the calyx, two-celled two-valved, each valve splitting into two halves; seeds numerous, winged. [M. T. M.]

SESSILE. Sitting close upon the body that supports it, without any sensible stalk.

SESUVIACEÆ. A name given by Wight to the *Tetragoneae*, a tribe of *Prooiden* or *Mesembryaceae*. Other botanists limit *Sesuviae* to a tribe of *Tetragoneae*, considering the latter as a distinct order.

SESUVIUM. This genus of *Tetragoneae*, or *Mesembryaceae*, consists of half a dozen species found on the shores of most tropical countries, consisting of smooth herbaceous plants, with succulent opposite entire nearly veinless leaves, and usually solitary flowers. The latter have a five-parted persistent calyx coloured inside, and no petals; and the fruit is a three to five-celled capsule, opening crosswise through the middle when ripe, the upper or lid-like half falling away and leaving the lower, which contains the numerous seeds, attached to the plant.

S. Portulacastrum is common on the sandy shores of the tropical and warm regions of the Western Hemisphere. It is a prostrate plant, with more or less lance-shaped leaves and stalked flowers, having the calyx green outside and purple or white within. *S. repens*, the Eastern species, has rooting stems; leaves which vary in form from round or oval to long spatula-shaped; and stalked flowers, with the calyx purplish outside and rosy within. Both are eatable as potherbs, but have a rather saltish taste. The large tufts of *S. repens* are frequently buried in the loose sand, and then become blanched and tender, and are greedily sought after by hogs. French: *Sésuve*. [A. S.]

SETA. A bristle of any sort; a stiff hair; a slender straight prickle; also the stalk which bears the spore-case of plants of the muscal alliance.

SETACEO-SERRATE. Having the serratures ending in bristle-like points.

SETARIA. A genus of grasses belonging to the tribe *Panicæe*. The species are now included under *Panicum*. French: *Sétaire*. [D. M.]

SETHIA. By some this genus is combined with *Erythroxylon*, which then forms the sole genus of *Erythroxylaceae*; while others separate it, and characterise it by the calyx being five-lobed, and by the styles being united together, and bearing three distinct stigmas at the top. The three described species are confined to the Indian Peninsula and Ceylon. *S. indica* is a small tree, with inversely egg-shaped or oblong feather-veined leaves, pale-coloured on the under-surface; and with yellow flow-

ers borne singly or two or three together in the leaf-axils. An empyreumatic oil or wood-tar obtained from this tree is used by the natives of Ceylon and Southern India as a preservative application to the timber employed by them in the construction of boats. [A. S.]

SETIFORM. Having the form of a seta.

SETOSE. Covered with stiff hairs or setae.

SETTERWORT. *Helleborus foetidus*.

SETULA. The stipe of certain fungals.

SETWALL. *Valeriana pyrenaica*.

SEUBEL. An Algerian name for the flowers of *Andropogon Nardus*.

SEUBERTIA. The native Daisy of the Azores, *Bellis azorica*, has been separated from the others by Mr. Watson under the above generic name, mainly on account of the glandular achenes, and the flat instead of conical receptacle of the flower-head. The leaves are like those of the common daisy in form, but the heads are smaller, and it has branching stems. It is named after Dr. M. Seubert, author of a *Flora of the Azores*. [A. A. B.]

SEUILLET, or SEUR. (Fr.) *Sambucus nigra*.

SEUTERA. A genus of *Asclepiadaceae*, consisting of a single species from North America. It is a slender climbing littoral herb, with linear fleshy leaves, and minute glabrous flowers in few-flowered extra-axillary umbels. The calyx is composed of five lanceolate sepals; the corolla is rotate, with a short tube and five acute limb-segments; the staminal corona consists of five erect fleshy leaflets united to the base of the sessile gynostegium; the ovoid pollen-masses are pendulous, and affixed by the apex; the conical stigma is obscurely bifid; and the smooth follicles contain many comose seeds. [W. C.]

SEVERINIA. An *Aurantiflorae* tree, described by Tenore under the name of *S. buxifolia*. It has received several other names, but Professor Oliver, in his synopsis of Indian *Aurantiflorae*, places it as an *Atalantia* (*A. buxifolia*), and characterizes it as having small sessile flowers, solitary, or in small axillary glomerules, ten free stamens, a two-three-celled ovary, and solitary or rarely geminate ovules. [J. Br.]

SEVOEJA. *Stenanthium frigidum*.

SÉVOLE. (Fr.) *Scœvola*.

SEXTUPLICI. Six times.

SHADBUSH. *Amelanchier canadensis*.

SHADDOCK. *Citrus decumana*.

SHAG. A Scotch name for the refuse of barley. Also a preparation of tobacco sold in shops.

SHAGGY. The same as *Hirtus*.

SHAKER. *Brixa media*.

SHALDANEH, SHEADANA. Persian names for the seed of the Hemp plant.

SHALLON. *Gualtheria Shallon*, the berries of which are much eaten in N. W. America.

SHALLOT. *Allium ascalonicum*.

SHALOO. An Indian name for *Sorghum saccharatum*.

SHAMOOOLA. An Indian name for *Panicum frumentaceum*.

SHAMROCK. The national emblem of Ireland. *Trifolium repens*, or according to others *Oxalis Acetosella*. *Trifolium Aliforme* and *Medicago lupulina* are worn about Dublin on St. Patrick's Day.

SHAREWORT. *Aster Tripodium*.

SHAWIA. A name formerly given to two New Zealand shrubs of the *Compositae* now placed in *Eurybia*, where they are notable for their few-flowered heads. See *EURYBIA*. [A. A. B.]

SHEA-BUTTER. A solid fat obtained in Africa from the seeds of *Bassia Parkii*.

SHEADENDRON. A name given by Bertolini to a tree of which he had received specimens from South-Eastern Africa, together with a kind of vegetable butter which was produced from it. He believed it to be identical with the Shea-tree mentioned by Mungo Park, and called it *S. butyrosium*; and founded for it a new order, *Shea*, in the vicinity of *Myrsinaceae*. Prof. Caruel, however, on examining the specimens, found it to be a *Combretum*, differing from other species of that genus mainly in the fruit being four-angled instead of four-winged, and to which he gives the name of *C. butyrosium*. Whether it is the same as the Shea-tree of Mungo Park he considers very doubtful, as the latter referred his tree to *Sapotaceae*, and it is described by G. Don as *Bassia Parkii*. The butter produced by *C. butyrosium* is called Chiquito by the Caffres, and is commonly used in dressing their food; it is also carried to the coast of Mozambique as an article of commerce. [J. Br.]

SHEATH. A part which is rolled round a stem or other body. The same as *Vagina*.

SHEEPSBANE. *Hydrocotyle vulgaris*.

SHEEP'S-BEARD. *Artemisia*.

SHEEP'S-BIT. *Jasione montana*.

SHEPHERDIA. The generic name of plants belonging to the order of oleasters. The stamens and pistils are on separate plants; the barren flowers have the calyx shortly tubular and four-cleft, with eight stamens; and the fertile flowers have a tubular four-cleft calyx. The species are small shrubs, natives of North America, with opposite deciduous leaves, and small sessile flowers in their axils.

S. canadensis is a small shrub, clothed with rusty scales. *S. argentea*, which has an edible scarlet fruit, is the Buffalo-berry of the United States. The genus was named in honour of Mr. J. Shepherd, once curator of the Liverpool Botanic Garden. [G. D.]

SHEPHERD'S-CLUB. *Verbascum Thapsus*.

SHEPHERD'S-KNOT. *Tormentilla officinalis*.

SHEPHERD'S-NEEDLE. *Scandix Pecten Veneris*.

SHEPHERD'S-PURSE. *Thlaspi*; also *Capsella Bursa pastoris*.

SHEPHERD'S-ROD, or SHEPHERD'S-STAFF. *Dipsacus pilosus*.

SHEPHERD'S WEATHERGLASS. *Analgalis arvensis*.

SHERARDIA. Humble annuals belonging to the order *Galiaceae*, distinguished by having a funnel-shaped corolla, and fruit crowned with the calyx. *S. arvensis*, or Field Madder, the only British species, is a common weed in pastures and cornfields, and has trailing branched stems a few inches long, narrow acute leaves with rough margins, about six in a whorl, and terminal umbellate heads of minute pinkish-blue flowers, at the base of which is a whorl of seven or eight leaves. German: *Ackerröthe*. [C. A. J.]

SHERBET. See **SCHERBET**.

SHERIDS. The reproductive bodies of lichens. The same as *Apothecia*.

SHIELD-SHAPED. The same as *Clypeate*.

SHINGLE-WOOD. *Nectandra leucantha*.

SHIN-LEAF. *Pyrola elliptica*.

SHIVE. *Allium Schoenoprasum*.

SHOEBLACK PLANT, or SHOE-FLOW-ER. *Hibiscus Rosa sinensis*.

SHOLA. An Indian name for the plithlike cellular substance obtained from the stem of *Echynomene aspera*, used for making hats, bottle and glass covers, toys, &c.

SHOOTHEE. An Indian name for the roots of *Curcuma Zerumbet*.

SHOREA. Large resinous tropical Asiatic trees forming a genus of few species, belonging to the order *Dipteraceae*, and characterised by the flowers having five sepals overlapping each other in the bud, and ultimately enlarging into erect equal or unequal leafy wings surmounting the fruit; five sepals; twenty-five or an indefinite number of stamens in two or three series, with the filaments widened and cohering at the base, and the anthers two-celled with the connecting portion prolonged into a coloured bristle; and a short thick style, with a bluntish or three-toothed stigma. They have entire or wavy-edged leaves, and axillary and terminal panicles of very sweet-smelling yellow flowers, producing one-seeded fruits enclosed in the closely overlapping lower portion of the sepals.

S. robusta, the Saul or Sal, is a native of India, from the provinces of Bengal and Behar to the foot of the Himalaya mountains within the limits of the tropics. It is a most magnificent timber-tree, fre-

quently attaining a height of upwards of a hundred feet. Its wood is of a light-brown colour, close-grained strong and durable, and is very extensively employed in India, both by the natives and by Europeans, for shipbuilding engineering and other purposes where great strength and toughness are requisite. It is considerably stronger but at the same time much heavier than Indian teak. An oil is obtained from the seeds. Part of the resin known as Dammar is likewise obtained from this and other species of *Shorea*, particularly from *S. Selanica*, a native of the Eastern Archipelago. [A. S.]

SHOREWEED. *Littorella*.

SHORTIA. A monotypic genus placed by Asa Gray in the suborder *Galaucinea* of *Dipsentaceae*. It differs from *Gulax* mainly in the five-lobed (not five-partite) corolla, in the elongate style, in the lax venation of the leaves, and in the scape being bracteate above and one or few flower red. It is also known as *Schizocodon*; and is a native of Japan and the mountains of North Carolina. [J. Br.]

SHREETALY. An Indian name for *Corypha umbraculifera*.

SHUBIT. An Arabic name for the aromatic fruit of *Anethum Sowa*.

SHUMAC. The dried and chopped leaves and shoots of *Rhus Coriaria*.

SHUNUM. *Crotalaria juncea*.

SHUPRAK. An Indian name for the root of *Thalictrum foliolosum*, used as a febrifuge and a tonic aperient.

SHURIFA. The Persian name for the Custard Apple.

SHUTTLECOCK. *Periptera punicea*.

SHUTURKHAR. An Indian name for the Camel's-thorn, *Alhagi Maurorum*.

SIALITE. (Fr.) *Dillenia*.

SIBBALDIA. Dwarf evergreen alpine plants belonging to the tribe *Potentillidae* of *Rosaceae*, and distinguished from *Potentilla* by having five to ten instead of numerous styles. *S. procumbens* is found near the summits of the Highland mountains of Scotland as well as in similar localities on the European continent and in America. The leaves are trifoliate almost destitute of hairs, the leaflets being wedge-shaped and coarsely-toothed at the apex, and the flowers are small yellowish, and collected into heads. There are two or three foreign species closely allied to the above. [O. A. J.]

SIBTHORPIACEÆ. A name under which Don proposed to establish a distinct order for *Sibthorpia* and a few small genera of *Scrophulariaceae* allied to it, but which has not been adopted.

SIBTHORPIA. A genus of *Scrophulariaceae*, containing a few species of prostrate hairy herbs of Europe, Northern Africa, and the Andes in South America. They have alternate or fasciculate reniform leaves, and one-flowered pedicels

rising singly or in fascicles from the axilla of the leaves. The calyx is divided into four to eight deep spreading segments; the corolla is subrotate, with as many divisions as the calyx, or with an additional one; the stamens are as numerous as the segments of the corolla, or are fewer, and have two-lobed sagittate anthers; the style is entire, with a capitate stigma; and the capsule is membranaceous compressed two-lobed two-valved, and dehisces in a loculicidal manner. [W. C.]

SICIOTE (Fr.) *Sicyos*.

SICKLE-POD. *Arabis canadensis*.

SICKLEWORT. *Prunella vulgaris*.

SICYOS, or SYCIOS. A genus of climbing plants belonging to *Cucurbitaceae*, and inhabiting tropical and temperate parts of the globe. Their stems are angular, and furnished with tendrils for climbing; their leaves are simple and lobed; their flowers monœcious, the males being arranged in racemes, and the females solitary; the calyx is five-toothed, and the corolla monopetalous whitish and five-cleft; there are five stamens, and a dry one-seeded fruit. *S. angulatus* of North America has a root and seeds which are bitter and diuretic. [B. S.]

SICYOSPERMA *gracile* is the only known representative of a genus of *Cucurbitaceae* inhabiting Sonora, one of the states of Western Mexico. It is an annual, which has a slender climbing stem, two-cleft tendrils, cordate leaves more or less lobed, white monœcious flowers arranged in racemes, a five-toothed calyx, a monopetalous corolla, five monadelphous stamens, and an ovate lenticular brown or blackish seed-like fruit, containing only a single pendulous seed. The genus is closely allied to *Sicyos*. [B. S.]

SIDA. An extensive genus of *Malvaceae*, comprising herbs and shrubs, natives of the tropical and subtropical zones both of the Eastern and Western Hemispheres. The calyx is cup-shaped and five-cleft; petals five, their stalks sometimes intertwined so as to form a tube; column of the stamens dilated at the base, forming a sort of vault over the ovary; styles five or more; fruit of five or more indehiscent carpels, each containing a single pendulous seed.

Many of the species are used medicinally. Thus the root of *S. acuta* is esteemed by the Hindoos as a valuable stomachic, and is administered in ague, dysentery, and as a remedy for snake-bites. The leaves are used as a poultice, as likewise are those of *S. retusa*, *S. stipulata*, and *S. mauritiana*. Others are used in rheumatic affections, and as an application in cases of the stings of wasps and other insects. The wood of these trees is very light; that of *S. micrantha* is used to make rocket-sticks in Brazil, where large quantities are employed on fête-days at the doors of the churches. The bark of some of the species contains an abundance of fibrous tissue,

available for cordage, etc. The Chinese cultivate *S. thuyifolia* for the sake of its fibre, which they prefer to hemp. The seeds of several kinds are said to be aperient. [M. T. M.]

SIDALCEA. A genus of herbs belonging to the mallow family, and natives of North-western America. The lower leaves are entire, the upper ones palmately divided, and the flowers red purple or white, arranged in racemes; the calyx is not provided with an involucre; the tube of the stamens divides above into five outer parcels of anthers opposite the petals, and ten inner parcels; and the fruit consists of five to nine membranous carpels, each containing a single seed. [M. T. M.]

SIDERITIS. A genus of *Labiata*, distinguished from its congeners by the following characters:—The tube of the corolla is included in the calyx, and its upper lip is erect entire or notched, while the lower has the middle lobe broadest; the two upper stamens are short and perfect, the two lower longer but imperfect. The species are either herbs shrubs or undershrubs, natives of Southern Europe, temperate Asia, and the Canary Islands. Their flowers are small and usually yellow, in the axils of leaf-like bracts. The name comes from the Greek *sideros* 'iron,' given to a plant supposed to have the power of healing sword-wounds. [G. D.]

SIDEROXYLON. So named from the Greek *sideros* 'iron' and *xylon* 'wood,' on account of the very hard wood afforded by the various species. The woods of many widely different trees, however, are likewise called Ironwood, almost every country producing a hardwood to which that name is given. The present genus belongs to the *Sapotaceae*, and is composed of between thirty and forty species, distributed through both hemispheres, but very rarely extending beyond the limits of the tropics. The majority are trees, some attaining a large size, with alternate generally veiny leaves, and axillary clusters of usually whitish flowers, succeeded by roundish berries about the size of cherries, in which are from one to three seeds. The flowers have both the calyx and corolla more or less deeply five-lobed or parted; five fertile stamens rising from the tube of the corolla opposite its lobes, and five sterile scale-like ones alternate with them; and a five (or rarely two or four) celled ovary.

The fruits of *S. dulcificum*, as the specific name denotes, have an exceedingly sweet taste, and are one of the kinds known to the English residents in Western tropical Africa, where the plant is indigenous, under the name of Miraculous-berry, from their being eaten in order to counteract the acidity of any article of food or drink—their sweet flavour being retained by the palate for a considerable length of time. They are rather more than half the size of olives, and somewhat of the same shape.

Among the natives they form an article of trade. [A. S.]

SIDESADDLE-FLOWER. *Sarracenia*. — **CALIFORNIAN.** *Darlingtonia californica*.

SIDHEE. An Indian name for the dried leaves and capsules of *Cannabis sativa*.

SIDE. An Arab name for *Lotus*-wood.

SIEBERA. A genus of the thistle tribe of *Compositæ*, only differing from *Xeranthemum* in the apices of the involucrel scales being produced into slender spines. *S. pungens*, the only species, is a native of Asia Minor and Persia. It is a slightly-branched annual, the twigs furnished with lance-shaped hoary leaves, and terminating in solitary flower-heads with cone-shaped involucres. [A. A. B.]

SIEGESBECKIA. This genus comprises a few coarse annual weeds of the *Compositæ*, widely spread over the warmer regions of the globe. The readiest mark of recognition is found in the involucrel scales, which are in two rows, those of the outer row being linear-spathulate in form, twice the length of the others, and clothed with glandular pubescence. The most common species, *S. orientalis*, ranges from Persia eastwards to Japan, and thence south to Australia. It is a much-branched erect herb one to three feet high, with opposite broadly triangular or ovate coarsely-toothed leaves, and leafy panicles of small yellow flower-heads. The ray-florets are shortly strap-shaped and pistil-bearing, those of the disk tubular and perfect; the achenes are without pappus, and are half enclosed by the chaffy scales of the receptacle. [A. A. B.]

SIEMPRE VIVA. *Triptilion spinosum*.

SIETHES. *Allium flexile*.

SIEVERSIA. A genus of *Rosaceæ*, usually united with *Geum*, but differing in the styles being jointed, the upper joint dissimilar to the lower, and usually deciduous. *S. montana* from Austria and *S. reptans* from Switzerland are cultivated; they are herbaceous plants about six inches high, with leaves like those of a *Geum*, and large solitary handsome yellow flowers. [O. A. J.]

SIGMOID. Having a form somewhat resembling the letter S.

SILAUS. A genus of *Umbelliferae*, distinguished by each half of the fruit having five sharp-edged equal ribs with numerous vittæ in each furrow, and four to six at the line of junction. The species are perennial herbs, natives of Europe and Asia. Their leaves are usually in numerous narrow or linear subdivisions. The name was used by Pliny to indicate some umbelliferous plant. [G. D.]

SILBADANI. A furniture wood of *Demerara*.

SILENE. An extensive genus of herbaceous plants belonging to the tribe *Sileneæ*

of *Caryophyllaceæ*. The species agree in the following characters:—Sepals united; stamens ten; capsule stalked, dry, opening at the top with six teeth; styles three to four. Of the British species the most frequent is *S. inflata*, or Bladder Campion, a perennial herbaceous plant one to two feet high, with ovate leaves, which, as well as the stems, are glaucous, and with numerous paniced white flowers, which are remarkable for their greyish-green inflated calyces. The Sea Campion, *S. maritima*, scarcely differs from the preceding except in having smaller leaves, shorter stems, and larger flowers. *S. acaulis*, the Moss Campion, is a humble tufted plant with numerous bright purple flowers, and is abundant on the Scottish mountains, of which in June and July it is one of the greatest ornaments. It is found also on some of the mountains in Wales and the North of England. Species indigenous to various temperate countries of the Eastern and Western Hemispheres are occasionally cultivated, some of the most ornamental being *S. pendula*, *integripetala*, *Atocion*, and *Armeria*, all annuals; and *S. Schafta* and *Elizabethæ*, dwarf perennials. [O. A. J.]

SILER. The generic name of an umbelliferous plant, the calyx of which has a five-toothed border; and each half of the fruit has nine blunt ribs, five of which are more prominent than the others, while the remaining four have each a vitta under them. *S. trifolium* is a [European and Asiatic species, and has lately been found in Cambridgeshire; it has leaves like the columbine, and large umbels of whitish flowers.] [G. D.]

SILICLE, SILICULE. A silique about as broad as long, or broader.

SILICUASTRUM. *Cercis Silicustrum*.

SILIQUE. The long pod-like fruit of crucifers, consisting of a pair of valves applied to a frame on which the seeds grow.

SILIQUEOSE. A Linnean order synonymous with *Cruciferae*.

SILK-COTTON TREE. *Bombax*; also *Eriodendron*.

SILK-FLOWER. *Calliandra trinervia*.

SILK-TREE. *Acacia Julibrissin*.

SILKWEED. *Asclepias Cornuti*, formerly called *A. syriaca*; also a name sometimes given to *Conferva*.

SILKY. The same as *Sericaceous*.

SILPHIUM. A genus of stout perennial herbs belonging to the *Compositæ*, natives of the United States, Oregon, and Texas. They have opposite whorled or alternate leaves, and large yellow flower-heads, either solitary at the ends of the branches, or disposed in panicles or corymba. The chief features of the genus are the monœcious radiate heads; the ray-florets strap-shaped and pistil-bearing, the disk-florets tubular and sterile; and the broad flat perfect

achenes surrounded by a wing which is notched at the summit, and usually (but not always) terminates in two short awn-like teeth, which represent the pappus.

The most interesting species is the Compass-plant, *S. laciniatum*, of which Dr. Asa Gray writes:—'On the wide open prairies the leaves are said to present their faces uniformly north and south, whence it is called the Compass-plant.' Lieut. J. W. Albert, of the United States Army, notes that the planes of the leaves of this plant (*S. laciniatum*) are coincident with the planes of the meridian, but that those which he has observed must have been influenced by some local attraction that deranged their polarity. [Mr. Thomas Meehan has lately stated that those who affirm that the leaves are directed to the north, and those who say that there is no such tendency, are both right. Mr. Meehan watched a plant in his own garden, and observed 'the unmistakable northern tendency in the leaves when they first came up, and until they were large and heavy, when winds and rain bore them in different directions, and they evidently had not the power of regaining the points lost.' So that it depends upon the season when the observation is made, whether the leaves are seen to bear northwards or not.] The plant is also known as Pilot-weed, Polar-plant, Rosin-weed, and Turpentine-weed—the latter names from the abundant resin exuded by its stems, which grow to a height of three to six feet, as well as by the leaves, which are ovate in outline, and deeply pinnatifid, the segments being again divided. The tuberous roots of *S. lœve*, a plant with smooth dock-like leaves, are eaten by the natives of the Columbia River valley. *S. teretifolium* is sometimes called the Prairie Burdock, from its rough heart-shaped root-leaves, about two feet in length, resembling those of the burdock; and *S. perfoliatum* gets the name of Cup-plant, because the winged stalks of its opposite leaves are united together so as to form a cup with the stem in its centre. These two last, with the Compass-plant and others, have been cultivated in English gardens. [A. A. B.]

SILPHIUM. A gum-resin supposed by some to be obtained from *Thapsia Silphium*, and by others from *Prangos pabularia*.

SILVER-BUSH. *Anthyllis Barba-jovis*.

SILVER-GRAIN. The glittering plates observed in the wood of many exogens, and caused by the division of the medullary plates.

SILVER-TREE. *Leucadendron argenteum*.

SILVER-WEED. *Potentilla anserina*; also *Argyrea*.

SILVER-WOOD. *Mouriri*; also *Guettarda argentea* and *Quelania lactoides*.

SILVERY. Having a whitish metallic lustre.

SILVIA. A genus of *Scrophulariaceæ*, containing two small prostrate under

shrubs from Mexico, with opposite leaves, and large yellow flowers. The calyx is tubular-campanulate, with the apex divided into five imbricate lobes; the tube of the corolla is long, and the spreading limb is deeply cut; the stamens are included, and the parallel cells of the anthers are nearly equal, and slightly mucronate at their base; the capsule is ovate and acute. [W. C.]

SILYBUM. Robust herbaceous plants belonging to the thistle group of *Compositæ*, among which they are distinguished by having the filaments united, and the pappus in many rows. *S. Marianum*, the Milk Thistle, grows to the height of three to four feet or more, with a furrowed stem, and large spreading wavy spinous leaves, of which those next the root are pinnatifid, and variegated with green and milk-white. The involucre is subglobose and spinous, and the florets purple with long tubes. The specific name *Marianum* was given to this plant to preserve the legend that the white stain on the leaves was caused by the falling of a drop of the Virgin Mary's milk. It was formerly cultivated, the young leaves being used as a spring salad, the root boiled as a potherb, and the heads treated like the heads of the artichoke. It grows wild in waste places in many parts of England, and still retains its place in old-fashioned gardens. French: *Chardon Marie*; *Carthame maculé*. [C. A. J.]

SIMABA. A genus of *Simarubaceæ*, consisting of trees and shrubs, natives of Tropical America, having the leaves alternate, and either simple or ternate or pinnate, and the flowers in axillary masses or racemes. The calyx is small; the petals four or five, long and spreading; and the stamens eight or ten, each filament having a scale adherent to it. The ovary consists of four or five carpels, the styles of which are distinct, but become united above into one having a five-lobed stigma. The fruit is a drupe but often dry, usually having the same number of carpels as the ovary.

Among the species *S. Cedron* is very remarkable for the properties of its seed. It is distinguished by its large pinnated leaves with twenty or more narrow elliptical leaflets, and its large panicles of flowers, which are three or four feet long. It is a small tree, native of New Grenada, and bears a fruit about the size of a swan's egg, containing only one seed, four of the cells being barren.

The Cedron of commerce, which looks like a blanched almond but is larger, is the kernel of the fruit. As a remedy for the bites of serpents it appears to have been known to the inhabitants from time immemorial, and was first reported in this country as deserving of notice in 1699, but it was not till very recently that anything certain was known either of the seed or its uses. Part of its reputation is owing to its febrifugal powers in intermittent fever, it being successfully prescribed in that disease by the physicians of New Grenada, a country abounding in forests of quina trees; but it principally rests upon its

efficacy as an antidote for the bites of snakes, scorpions and other noxious animals, it being universally believed that its application will neutralise the poison even of the most dangerous among them. On the latter account it is so much valued, that there are scarcely any persons in New Grenada or the adjacent countries who have not a piece of this seed, which they always carry with them, and a single seed will sell for four shillings. When a bite has been received a small quantity mixed with water is applied to the wound, and about two grains scraped into brandy (or, if it cannot be obtained, into water) is given internally. The active principle on which the medicinal qualities of the Cedron depend has been separated by M. Lecoy, who has named it *cedrina*. Every part of the plant but especially the seed is, owing to its presence, intensely bitter. Dr. Seemann has given a full account of the Cedron in the *Botany of H. M. S. Herald*. [B. C.]

SIMARUBACEÆ. An order of polypetalous dicotyledons, consisting of trees or shrubs remarkable for the bitter taste of their bark, and natives of hot countries, a very few only being found without the tropics. They have generally alternate compound leaves without transparent dots; no stipules; small unisexual regular flowers in axillary panicles or racemes; three to five sepals and petals; as many or twice as many stamens inserted round the base of a disk; a free lobed ovary with as many styles and cells as lobes; and one ovule laterally attached in each cell. The fruit is various, the seeds solitary pendulous, with or without albumen, and having a superior radicle. All the above characters have, however, exceptions in individual genera, and it is only by various combinations of the majority of characters that the order can be distinguished from *Rutaceæ*, and some others which are closely allied. Thirty genera are referred to it, including *Quassia*, *Simaruba*, *Atlantus*, *Oncorhiza*, *Brucea*, *Surtiana*, *Brunellia*, *Picramnia*, and *Balanites*.

SIMARUBA. The natives of Guiana apply this name to a tree, some parts of which they use with great success in dysentery. Botanically it is applied to a genus of *Simarubaceæ*, consisting of tropical American trees, with unisexual flowers; calyx small cup-shaped, five-toothed; petals five, longer than the calyx, spreading; stamens five, surrounding as many rudimentary ovaries. In the female flowers are five ovaries, placed on a disk surrounded by ten scales or rudimentary stamens; styles five, separate below, above conjoined into one, and terminated by a broader five-lobed stigma; fruit of five drupes.

S. amara, a native of the West Indies and Guiana, yields the drug known as Simarubark, which is, strictly speaking, the rind of the root. It is employed as a bitter tonic in diarrhoea and dysentery, as well as in various forms of indigestion. In large doses it is said to act as an emetic purgative and diaphoretic. *S. versicolor*, a Bra-

silian species, has similar properties. The fruits and bark are used as anthelmintics, and an infusion of the latter is employed in cases of snake-bite. The plant is so bitter that insects will not attack it, on which account the powdered bark has been



Simaruba amara.

employed to kill vermin. *S. glauca*, a native of Cuba, furnishes a glutinous juice, which is employed in certain cases of skin-disease. *S. amara (officinalis)*, the Mountain Damson, is occasionally to be met with in hothouses in this country. [M. T. M.]

SIMBI. *Phaseolus trilobus*.

SIMETHIS. A genus of *Liliaceæ* allied to *Athericum*, but differing in the segments of the perianth being combined at the base, the filaments being woolly on the lower part, and the seeds only two (or one) in each cell of the capsule, furnished with an arillus. It contains a single species, *S. bicolor*, common in Western Europe, but in the British Isles only found in Dorset Devon and Kerry. It is a small herb with a slender rootstock, emitting a tuft of thick and fleshy fibres. The leaves are all radical, grass-like; the scape branched at the top, with a paniculate corymbose cyme of rather small rose-coloured flowers, with a spreading perianth. [J. T. S.]

SIMILARY PARTS. The elementary organs or tissues of plants—such as cellular tissue, woody tissue, spiral vessels, &c.

SIMMONDSIA. [A genus placed by Lindley in *Euphorbiaceæ*, but referred by Baillon to *Garryaceæ*, where its founder, Nuttall, had placed it.] There is but one species, *S. californica*, a small evergreen much-branched bush, regularly forked and furnished with opposite oblong-lanceolate entire leaves, and inconspicuous green flowers borne in their axils. The males are clustered, the females solitary and nodding—the former with a five-parted calyx and ten or twelve stamens, and the latter with a five-parted calyx enclosing a three-celled ovary tipped with three short styles. The mature nuts resemble an ordinary acorn in size and shape. They are said to have a flavour like siberia, but the after-taste is nauseous, and they are apt to cause purging. The

plant is cultivated in some botanic gardens under the name *Brocchia dichotoma*. The genus commemorates T.W. Simmonds, a naturalist who accompanied Lord Seaford to the West Indies. [A. A. B.]

SIMOCILUS. A genus belonging to the order of heathworts. Its calyx is coloured four-angled and fleshy in its nature, and furnished with eight ribs; the border of the corolla is four-cleft, and the seed-vessel two or four-celled, very rarely one-celled. The only species is a Cape shrub, resembling a heath, whose leaves are in whorls of three or four together, and the flowers in terminal heads. [G. D.]

SIMPLE. Not consisting of several distinct parts.

SIMPLER'S JOY. *Verbena officinalis*.

SIMPLICISSIMUS. Not divided or branched at all.

SIMSIA. A genus of *Compositae*, natives of Texas and Mexico, closely related to *Helianthus*. They are perennial herbs one to three feet high, the lower leaves opposite trilobed and toothed, the upper usually alternate and entire. The uniserial strap-shaped yellow ray-florets are neuter, the disk-florets tubular and perfect; and the compressed two-awned achenes are seated on a chaffy receptacle, enclosed by an involucre of two or three series of narrow scales. *Geraea* belongs to this genus, and a plant which has been called *Barrattia* only differs in the absence of pappus-awns. Its name commemorates Dr. John Sims, for many years editor of Curtis's *Botanical Magazine*. [A. A. B.]

SIMSON. *Senecio vulgaris*.

SINAPIDENDRON. A genus of *Cruciferae* of the tribe *Brassicaceae*. They are undershrubs from Madeira, with the habit of *Brassica nigra* or *Sinapis arvensis*, differing from both genera in the more beaded pods, and especially in the sub-angular seeds partly imbedded in the somewhat spongy dissepiment. [J. T. B.]

SINAPIS. An adaptation of the Greek word for 'mustard' applied to a genus of *Cruciferae*. In the opinion of most modern botanists this genus is inseparable by any save arbitrary characters from *Brassica*. The features especially assigned to *Sinapis* are the following:—Calyx of four spreading sepals; style small short acute; fruit cylindrical, its valves traversed by one or more prominent nerves; seeds in one row. The species are herbaceous plants found in most quarters of the globe, but especially in the Mediterranean region.

The Black Mustard, *S. nigra*, yields the greater portion of the condiment so generally used in this country. The plant is indigenous, but is nevertheless largely cultivated in Yorkshire and Durham. The seeds are of a reddish-brown colour. Mixed with those of *S. alba* they are crushed between rollers, and subsequently pounded and sifted twice or oftener. From the residue

left on the sieve a fixed oil is obtained by pressure. The powdered mustard is usually mixed with a considerable quantity of wheaten flour and a small quantity of turmeric powder—mixtures which are readily detected by the microscope. The term 'flour of mustard' is not quite accurate, as the mustard-seeds themselves contain little or no starchy material. The chemical ingredients of mustard-seeds are somewhat complex. Among them are a peculiar acid called myronic acid, noticeable as containing a proportion of sulphur, and which, when mixed with water and a peculiar substance called myrosine (analogous to albumen), also found in mustard-seeds, yields Volatile Oil of Mustard, which has no separate existence in the seeds, but is formed artificially in the manner just stated. This oil is very acrid, and has been employed as a rubefacient. The fixed oil before mentioned as existing in the seed itself has little or no acidity, and has been used as a purgative and vermifuge.

Hippocrates is said to have employed mustard medicinally, while Columella speaks of its irritant action on the eyes—

Seque lacescenti setum factura sinapis.

In modern medicine mustard is most frequently employed in the well-known form of poultice. If its effects be properly watched, this application is safe and most valuable where a speedy result is desired; but if allowed to remain on too long, especially in persons who from disease or other causes are not sensitive to pain, it may produce ulceration and gangrene. Internally mustard is employed as an emetic in narcotic poisoning, &c. As a condiment mustard is valuable for its stimulant effects, which render it useful in cases of weak digestion, or as an adjunct to fatty and other indigestible articles of food.

The White Mustard, *S. alba*, is also indigenous in this country. Its seeds are larger than those of the Black Mustard, and of a yellow colour externally. Chemically they differ in containing a crystalline substance known as sulpho-sinapisin. Moreover, its myrosine yields with water a pungent oil of a different character from the Volatile Oil of Mustard previously mentioned. The seeds have similar properties to those of *S. nigra*. They have been recommended to be swallowed whole as stomachics and laxatives, a process by no means free from danger. The seed-leaves or cotyledons of this plant, together with those of *Lepidium sativum*, form the well-known agreeable salad known as 'mustard and cress.' The facility and speed with which this salad may be grown at all seasons and in all places, together with its wholesome properties, are great advantages. It is, moreover, both interesting and instructive to watch the germination of these seeds, and the peculiar shape of their seed-leaves.

The seeds of *S. arvensis*, the Common Charlock, yield an oil that is good for

burning. In France the leaves are used as forage for cattle. It is a pity that in this country no use is made of so common and troublesome a weed. The leaves of *S. cersea* are eaten in Japan, while the seeds furnish an oil. *S. funcea* is cultivated for its oil, called in India Sooraa; it is used for burning, and also for rubbing the body in illness. Various other species are cultivated for their leaves or for the oil derived from the seeds. Among them are—*S. chinensis*, *S. dichotoma*, *S. pekinensis*, *S. ramosa*, and *S. glauca*. *S. nigra* may be discriminated by its lyrate leaves, the upper ones entire; and the pods on short stalks, smooth and pressed against the stem; while in *S. alba* the pods are spreading, very hairy, and terminated by a long beak containing a single seed. The microscopical structure of the skin of these seeds is very curious, and has been described by Dr. Hassall in his work on *The Adulteration of Food*. Among the six-sided cells constituting the outer skin of the seed may be seen, according to this observer, funnel-shaped cells penetrating into the interior of the seed. *S. nigra*, which grows some ten or twelve feet high in Palestine, is regarded by some as the Mustard of Scripture, in preference to *Salvadora*. See BRASSICA and DIPLO-TAXIS. [M. T. M.]

SINOLAIRIA. A trailing Mexican bush belonging to the *Vernonia* tribe of *Compositae*, and closely related to *Andromachia*, from which the naked instead of frilled receptacle serves to distinguish it. It has opposite stalked elliptical leaves, and the twigs terminate in panicles of numerous yellow flower-heads; the ray-florets are strap-shaped and pistil-bearing; the disk-florets tubular and perfect, and the cylindrical-ribbed achenes are crowned with a biserial pappus of tawny rough hairs. It is named after Dr. A. Sinclair, R.N., a botanist who collected largely in New Zealand, and died there in 1861. [A. A. B.]

SINDHOOKA, SINDUYA. Indian names for *Vitex Negundo*.

SINDOC. An Indian name for *Guillua-wan-bark*.

SINDUVARA. A Sanscrit name for *Vitex trifolia*.

SINISTRORSE. Twining to the left hand; a term usually confined to the stems of plants.

SINKFIELD. *Potentilla*.

SINKINGIA. A small genus of *Gesneraceae* inhabiting South America, and named by Nees von Eesenbeck in honour of the curator of the Botanic Garden at Bonn, M. Sinning. The *Sinningias* are suffrutescent plants with rather large fleshy more or less ovate leaves, a bell-shaped generally five-winged calyx, a five-lobed corolla the tube of which is variously inflated, five distinct glands surrounding the ovary, and a mouth-shaped stigma. They are closely allied to the *Ligarias* (of

which the old *Gloeotinia speciosa* of the gardens is the type), and are frequently met with in hothouses. *S. velutina* may be regarded as the type of the genus. [B. S.]

SINUATED. Having the margin alternately uneven with deep concavities and convexities. *Sinuato-dentate* is sinuated and dentate at the same time.

SINUS. The recesses formed when the edge of any part is lobed.

SIPHOCAMPYLUS. This name, derived from the Greek *siphon* 'a tube' and *campylus* 'curved,' in allusion to the corolla, is usually applied to a genus of tropical American undershrubs of the family *Lobeliaceae*. The flowers in some of the species are placed on solitary axillary stalks, while in others they are aggregated into a dense raceme or corymb. The corolla is tubular, with an undivided tube which is dilated or curved, rarely straight, its limb five-cleft and two-lipped, the segments being of nearly equal size; stamens five, inserted with the corolla on to the upper part of the calyx-tube, two or all of the anthers hairy or pointed at the top; ovary partly inferior, two-celled; style within the corolla; stigma divided into two rounded lobes; capsule two-valved. The flowers are showy, of a scarlet or yellowish hue. Several species are in cultivation, *S. microstoma* being one of the handsomest; it has closely-packed corymbs of rich crimson flowers. *S. Chauchouxi* is said to be so named from the abundance of viscid juice which it contains. [M. T. M.]

SIPHONACANTHUS. A genus of *Acanthaceae*, containing a few herbs, natives of Brazil. It differs from *Ruellia* in having a slightly swollen tubular corolla with a short limb, a more fleshy fruit with fewer seeds, and in the flowers being without bracts, and arranged in a spicate manner at the apex of the stem. [W. C.]

SIPHONANDRACEÆ. An order of monopetalous dicotyledons proposed by Klotzsch to include the *Vacciniaceae* and the tribes *Arbutae* and *Andromedee* of *Ericaceae*, a rearrangement which has not been generally adopted.

SIPHONANDRA. A genus of *Vacciniaceae* comprising a Peruvian shrub, with elliptic spine-pointed leaves, and clustered flowers, whose diagnostic characters reside in the anthers and filaments being all of equal length, and especially in the long tubular anthers, which equal the corolla in length and open by two pores. The name of the genus is expressive of this peculiarity, being derived from *siphon* 'a tube.' [M. T. M.]

SIPHONANTHUS. A genus of *Verbenaceae*, by some considered as only a section of *Olerodendron*, containing those species with a funnel-shaped corolla, very long tube, and almost equal limb. [W. C.]

SIPHONÆÆ. A natural order of green-spored *Algae*, rooting or merely attached by the base, with a simple or compound

frond formed of a single thread-shaped branched cell, or of a number of such coils united together into a spongy frond. It is divisible into two distinct suborders: in one of which, *Caulerpes*, the main cell is filled with a network of branching fibrils, amidst which the minute zoospores are dispersed; in the other, *Codium*, the filaments, which may be either free or closely united into a common frond, are filled with green endochrome, and give rise here and there to capsules which ultimately contain one or more zoospores. The *Caulerpes* are all inhabitants of warm coasts, but the *Codium* are often found in colder climates. In either division we have species which are truly aquatic or terrestrial, or at the least amphibious. In the second division there are many species, as for example those of *Halimeda*, which resemble corallines from the quantity of carbonate of lime which enters into their composition. In *Vaucheria* and *Bryopsis* we have the threads whether branched or single perfectly free, and in *Botrydium* the vegetative part is reduced to a minimum, and all that is visible is a mass of bladdery capsules. [M. J. B.]

SIPHONIA. To this genus we are indebted for the greater part of our supply of Caoutchouc or India-rubber. It belongs to the *Euphorbiaceæ*, and consists of some half-dozen species, one of which, *S. elastica*, is a native of French Guiana, and the remainder of the Amazon and Rio Negro districts of Brazil. They are called Seringa-trees by the Brazilians, from the Portuguese word *seringa*, signifying a syringe or clyster-pipe, the caoutchouc having first been used for making those articles; and



Siphonia elastica.

the generic name, derived from the Greek *siphon*, has reference to the same use. The species are trees varying from twenty-five to seventy or upwards of a hundred feet in height, and all contain a milky juice in more or less abundance, though they do not all yield caoutchouc of good quality, that from some of the species being brittle. Their leaves consist of three en-

tire leaflets radiating from the top of a long stalk, and are clustered towards the ends of the branches; and their flowers are borne in loosely-branched panicles, with numerous little branchlets consisting of a few male flowers and a female at the top. Both sexes have a bell-shaped five-toothed or five-parted calyx, and no corolla; the males containing a central stamen-column bearing five or ten anthers in one or two series or whorls some distance below the apex; and the females a three-lobed ovary bearing a more or less three-lobed stigma with or without a short style. Their fruit is a rather large capsule composed of three one-seeded pieces, which split in halves when ripe. The raw seeds are poisonous to man and to quadrupeds, but macaws eat them greedily, and they are an excellent bait for fish; long boiling, however, deprives them of their poison, and renders them very palatable.

The bulk of the Caoutchouc exported from Pará, whence our chief supply is derived, is obtained from *S. brasiliensis*, which is the one common in the forests of the province of Pará; but that brought down to Pará from the Upper Amazon and Rio Negro is derived from *S. lutea* and *S. brevifolia*. These three species are all slender smooth-stemmed trees averaging one hundred feet in height: the Pará species, however, yields the greatest abundance of caoutchouc. Europeans first became acquainted with caoutchouc in the early part of last century, and its botanical history was made known by M. de la Condamine in 1736, but it is only within the last forty or fifty years that it has become such an important article in our manufactures and commerce. It exists in the tree in the form of a thin white milk, and is obtained by making incisions in the trunk, from which it exudes and is collected in little earthen vessels, and afterwards converted into the black homogeneous elastic mass familiar to us as India-rubber, by pouring the milk upon moulds and immediately holding them over the dense smoke caused by burning the nuts of the Urucuri palms (*Attalea excelsa* and *Cocos coronata*) until it is sufficiently hard to bear another coating, when the process is repeated until the requisite thickness is obtained, and the mould is then removed. Formerly these moulds were always in the form of shoes or bottles, and hence one of the kinds of caoutchouc is known commercially as bottle-rubber; but they are now frequently shaped something like battle-dores for folding linen, only thinner. In 1863 65,649 cwts. of caoutchouc were imported into the United Kingdom. [A. S.]

SIPHONODON. A name given by Griffith to a tree from the Indian Archipelago, which constitutes a genus agreeing in most respects with the order *Oleaceæ*, but very peculiar in the structure of its pistil. The ovary, half immersed in the calyx, has numerous uniovulate cells arranged in two or four series; and the conical upper portion has a cavity at the

top, stigmatic inside, from the centre of which arises a style-like column, the homology of which is not well understood. [There is a second species described from Australia: both have alternate crenate leaves, and short axillary peduncles, with a few small greenish-yellow flowers.]

SIPIRI-TREE. *Nectandra Rodnei*.

SIPO-DE-ORUMBO. *Cuscuta racemosa*.

SIRABALLI. A fragrant valuable timber of Demerara, supposed to be the produce of a *Nectandra* or *Oreodaphne*.

SIRI, or SIRIH. *Chavica Siriboa*.

SIRIEHOUT. A South African name for *Tarchonanthus camphoratus*.

SIRITCH. An Arab name for the sweet oil of the seeds of *Sesamum orientale*.

SIRKI. An Indian grass, *Saccharum Munja*.

SISARUM. *Sium*.

SISON. A genus of *Umbelliferae*, in which each half of the fruit has five narrow equal ribs, and one club-shaped vitta in each groove. The species are perennial herbs, natives of Europe and Asia, with the uppermost leaves narrower and more deeply divided than the lower. *S. Amomum* is a species well known in some parts of Britain, with cream-coloured flowers and aromatic seeds. The name is said to be from the Celtic '*sium*' 'running stream,' some of the species formerly included growing in moist localities. [G. D.]

SISSOO. *Dalbergia Sissoo*, a valuable timber-tree of India.

SISYMBRIUM. A genus of uninteresting herbaceous plants belonging to the *Cruciferae*, not easily to be distinguished from several allied genera. There are numerous species, of which the most frequent in Britain are: *S. Alliaria*, or Garlic Mustard, sometimes called Sauce-alone, a tallish hedge-weed with heart-shaped leaves, white flowers, and erect pods; *S. officinale*, an erect branched plant, with rough stems and leaves, the latter jagged with the points turned backwards (runcinate), minute pale-yellow flowers, and rough pods, which are pressed close to the stem—a common hedge-weed; and *S. Thalictrum*, a field-weed growing from three to eight inches high, with oblong-toothed leaves, and slender stems bearing a few inconspicuous white flowers. The other species are of less common occurrence. [C. A. J.]

SISTYRINCHIUM. A genus of *Fridaceae*, the species of which are indigenous to the tropical and temperate parts of America and New Holland, one of which, moreover, is found in Ireland. They are herbs having fibrous roots, leaves arranged in two rows, a stem frequently branched, a two-valved general spathe, inconspicuous flowers, a perianth consisting of six parts, three stamens, an inferior three-celled many-seeded capsule, and round seeds. *S. ga-*

lazoides is a mild purgative, and used a such in South America. [B. S.]

SITAL-PATI. An Indian name for mate made from *Maranta dichotoma*.

SITOBOLIUM. *Dennstaedtia*.

SITUS. The position occupied by an organ.

SIUM. A genus of *Umbelliferae*, in which the fruit is compressed laterally, and crowned by the head-shaped styles; each half of it has five equal blunt ribs, and numerous oil-cells in the furrows, as well as at the line of junction. The species are terrestrial or aquatic herbs, chiefly found in the temperate parts of the Northern Hemisphere. Their leaves vary greatly in subdivision and outline. The name is from the Celtic *siu* 'water,' in allusion to their habitat. [G. D.]

Of the several species of strong-smelling weedy-looking plants belonging to this genus only one is grown for culinary purposes—*S. Sissarum*, better known by its common name of Skirret. This plant, although usually treated as an annual, is a hardy perennial, a native of China, and has been cultivated in this country since A.D. 1548. The lower leaves are pinnated, having from five to nine oval oblong leaflets finely toothed; at the base they are sheathing and of a reddish colour; the stem, which rises about a foot high, is channelled, and terminated by an umbel of small white flowers. The roots, for which this plant is cultivated, are composed of small fleshy tubers about the size of the little finger, joined together at the crown. When boiled and served with butter they form a nice dish, declared by Worldidge, when writing in 1682, to be 'the sweetest, whitest, and most pleasant of roots.' [W. B. B.]

SKIMMIA. The name of a genus of evergreen shrubs, with oblong entire stalked leathery dotted leaves, and flowers in terminal panicles. The flowers are polygamous, with a four-parted persistent calyx; four petals; four deciduous stamens attached to the receptacle alternate with the petals; a fleshy four-lobed disk and a free ovary, with a solitary pendulous ovule in each of its four cells. The fruit is fleshy and drupe-like, with four cartilaginous one-seeded stones, containing an albuminous embryo.

The true position of the genus is doubtful, it having been referred to *Celastraceae* and *Aurantaceae*. Professor Oliver, in his memoir on the latter group, says that the present genus differs from citronworts in its albuminous seeds, stamens in one row, and abortion or tendency to abortion of one sex. In other respects it is exceedingly like *Aurantaceae* in structure, especially agreeing in the form of the pistil, and in the succulent fruit. *S. japonica* is a pretty dwarf-growing holly-like shrub, with dark shining evergreen entire flat leaves, and clusters of bright red berries, which give the plant a very handsome

appearance. It is now frequent in cultivation. Other species are natives of Northern India and Japan. [M. T. M.]

SKINNERA. A genus of *Onagraceae*, distinguished by the tube of the calyx being dilated above the seed-vessel, the petals small and scale-like, and the fruit a many-seeded berry. *S. exorticata*, alias *Fuchsia exorticata*, is a New Zealand shrub, with the leaves alternate acute slightly toothed and whitish beneath; the calyx purple and yellow-green, the petals violet. The genus was named in honour of Mr. Skinner, an English botanist. [G. D.]

SKINNERIA. A genus of *Convolvulaceae*, containing a single species, a caespitose herb from India. The calyx consists of five sepals; the corolla is small and somewhat urceolate; the single style has a two-lobed capitate stigma; and the ovary is one-celled, and has four ovules. [W. C.]

SKIRRET. *Sium Sisarum*.

SKULLCAP. *Scutellaria*.

SKUNKWEED. *Symplocarpus foetidus*.

SLASHED. The same as *Laciniate*.

SLATE-GREY. Grey bordering on blue.

SLAVEWOOD. *Simaruba officinalis*.

SLEEP-AT-NOON. *Tragopogon pratensis*.

SLEEPWORT. *Lactuca sativa*.

SLIMY. The same as *Mucous*.

SLIPPER-PLANT. *Pedicularis*.

SLIPPERWORT. *Calceolaria*.

SLOAK, SLOKE, or SLOUKAWN. Synonyms partly of the common *Porphyra*, partly of *Ulva*, but more especially of the former, the latter being usually called Green Sloke. [M. J. B.]

SLOANEA. A tropical American genus of *Tiliaceae*, comprising upwards of thirty species, some of which on slight differences have been separated as distinct genera with the names *Adianta*, *Dasyneura*, and *Dasyocarpus*. They are trees, often upwards of a hundred feet high, with alternate feather-veined leaves, either evergreen or deciduous, and varying in length from a few inches to upwards of a foot and a half, with the inconspicuous white or greenish-yellow flowers disposed in racemes panicles or clusters in their axils. The stamens are very numerous, inserted on a broad flat and not conical disk, as in *Elæocarpus*. The fruits vary from the size of a hazel-nut to that of an orange, of a woody consistence, clothed outside with stout bristles like those on the husk of a Spanish chestnut, and when ripe split into four or five pieces, with a few seeds in each. The wood of many species is extremely hard and difficult to work; that of *S. jamaicensis* is known in Jamaica as Breakaxe and Ironwood. The genus bears the name of Sir Hans Sloane, the founder of the British Museum. [A. A. B.]

SLOE. The fruit of *Prunus spinosa*.

SLOGWOOD. *Hufelandia pendula*.

SLOKE. The edible *Porphyra*; also called Laver. —, **GREEN.** A name given to several species of *Ulva*, also called Oystergreen. See **SLOAK**.

SMALLAGE. The Wild Celery, *Aptium graveolens*.

SMARAGDINUS. Grass green.

SMARTWEED. *Polygonum Hydropter*.

SMEATHMANNIA. A genus of *Passifloraceae* from West Tropical Africa, remarkable for its erect habit, in a natural order including so many creepers and twiners. The two known species comprising the genus have alternate oblong or obovate often serrated leaves, and axillary white flowers. Both calyx and corolla (or perigone, as some writers call them) are five-lobed; the corona is urn-shaped, the stamens twenty, and the styles five in number; whilst the fruit is an inflated one-celled five-valved capsule, enclosing numerous seeds. *S. laevigata* has for some years been an inmate of our hothouses, being one of the numerous introductions of the late Mr. Whitfield from Sierra Leone. [B. S.]

SMILACEÆ. An order of monocotyledons, with the six petal-like divisions of the perianth, six stamens, and three-celled free ovary of *Liliaceae*, but differing from that order in their netted veined leaves, and in their fruit being a small berry instead of a capsule. They are for the most part climbers with small flowers, and are distributed over the tropical and temperate parts of the world. The order is restricted to the large genus *Smilax*, with one or two lately separated from it, and *Ripogonum*. Many botanists unite it with *Liliaceae* as a tribe or suborder.

SMILACINA. A genus of herbaceous plants, principally inhabiting North America, belonging to the *Smilacaceae*. *S. bifolia* is a small plant, having the stem furnished with two alternate triangular leaves; the flowers, which are small white and parted, grow in the form of a raceme; stamens four; fruit a two-berried, yellow with brown spots. It is native of the north temperate zone, and is in England at Hackness in Yorkshire. [C.]

SMILAX. An extensive genus, its name to the order *Smilacaceae*. The species are climbing shrubs, natives of warmer temperate and tropical regions both hemispheres. The rootstocks tuberous or fibrous; the stems prickly; the leaves stalked netted and bearing on either side of the leaf a tendril; and the flowers are in globose heads, sessile or stalked in the axils of the leaves, rarely clustered, still more rarely solitary. The latter are polygamous, have a six-parted spreading perianth, three outer segments of which are rather larger than the three inner; stamens six; filaments thread-like; fruit bacate, one to three-seeded.

Some of the species of this genus furnish the drug known as Sarsaparilla, so called from the Spanish *sarsa* 'a bramble,' and *parilla* 'a vine,' in allusion to the thorny stems of the plants. The Sarsaparilla of the shops consists of the roots, to which are attached portions of the rootstocks, of various species of this genus. It is by no means clearly ascertained what are the exact species yielding the varieties of this drug met with in commerce. That imported from Columbia and Guatemala is supposed to be the produce of *S. officinalis*. Mexican Sarsaparilla is yielded by *S. medica*,



Smilax medica.

Brazilian or Rio Negro Sarsaparilla is furnished by *S. papyracea*. Other species are mentioned as occasionally used, but much doubt prevails on this subject. The species named *S. Sarsaparilla*, which is common in the United States, does not appear to be used medicinally, notwithstanding its name.

In commerce the various kinds of Sarsaparilla are divided into two principal groups, according to the quantity of starchy material they contain. The mealy Sarsaparillas contain an abundance of farinaceous matter in the inner part of the rind. To this group belong Caracas Sarsaparilla, the produce probably of *S. officinalis* or *S. siphilitica*; Brazilian Sarsaparilla, which is imported in cylindrical bundles, and is considered to consist of the roots of *S. papyracea* and *S. officinalis*; and Honduras Sarsaparilla; the botanical origin of which is not known. The non-mealy Sarsaparillas are known as Jamaica or Red-bearded Sarsaparilla, which is imported into Jamaica from Columbia, and is probably the produce of *S. officinalis*; what is known as Lima Sarsaparilla, which belongs to this division, consists of roots, imported not only from Lima, but also from Costa Rica. *S. officinalis* is supposed likewise to be the source whence these kinds are derived; Vera Cruz Sarsaparilla is the produce of *S. medica*.

Of these several kinds, the Jamaica and Lima sorts are most esteemed; the more acid the taste, the higher the value set on

the drug. The immediate effects of Sarsaparilla are those of a diaphoretic; in large doses it creates nausea and vomiting. Its more remote effects appear to be those of a tonic; it is considered a valuable remedy in those weakened and depraved conditions ascribed to a poisoned state of the blood—hence it is administered in old syphilitic cases, in chronic rheumatism, and in certain skin-diseases. Practitioners, however, differ in opinion as to the value of the drug, as much as botanists do as to the proper species to be employed. Much of this uncertainty no doubt depends upon the employment of an inert kind.

Perreira, from whose work on *Materia Medica* these remarks have been condensed, also alludes to the China root, the produce of *S. China*, which was first introduced from China in A.D. 1535 as an infallible remedy for gout. It has shared the fate of many so-called infallible remedies, and has fallen into disuse. *S. aspera*, a native of the South of France, Italy, &c., yields Italian Sarsaparilla, which has the same properties as the American kinds. *S. ovalifolia* is used medicinally in India, as are also the large tuberous rootstocks of *S. lanceolata*. Australia also supplies a medicinal species, *S. glycyphylla*; of this species the leaves also are used as tea. *S. Macarubia* is employed in the Philippines in dysentery and other complaints. *S. anceps* is employed medicinally in the Mauritius. The fact that so many species are employed medicinally, in so many quarters of the globe, is strong evidence of their value.

Other species furnish articles of food: such are *S. China*, the rootstocks of which are eaten by the Chinese. The rootstocks of *S. Pseudo-China* are manufactured into a kind of beer in South Carolina; they are also used to fatten hogs. The young shoots of some of the species are employed as asparagus in Persia, &c. The rootstocks of *S. China* yield a yellow dye with alum, a brown one with sulphate of iron. The plant stems of *S. Pseudo-China* and other species are employed for the manufacture of baskets, &c. Several of the species are in cultivation, more as objects of botanical interest than for any beauty. The name *Smilax* was employed by the Greeks to designate some poisonous tree; others derive the name from *smile*, a cutting or scratching implement, in allusion to the rough prickles on the stem. [M. T. M.]

SMITHIA. A genus of *Leguminosae* of the suborder *Papilionaceae*, consisting of herbs or undershrubs from tropical Asia and Africa, with pinnate leaves, small leaflets, and yellow purple or blue flowers in axillary racemes. The genus is exceedingly well defined by its deeply two-cleft striate calyx, by the stamens united in two parcels, and by the jointed pod folded back into the calyx as in *Eraria* and *Lowen*. It consists of about eighteen species, some of them handsome, but chiefly to be reckoned among tropical weeds. *S. sensilis* has sensitive leaves.

SMOKE-PLANT. *Rhus Cotinus*.

SMOKEWOOD. *Oleatis Vitalba*.

SMOKY. Having a dull greyish-black colour.

SMOOTH. Free from asperities or hairs, or any sort of unevenness.

SMUT. An affection of wheat, barley, oats, and other plants of the same natural order, deriving its name from the black sooty mass into which the receptacle of the germen and the base of the glumes are converted, the pistil and stamens being completely abortive. It commences its growth long before the sheath opens to give liberty to the inflorescence. Smut is produced by a fungus of the genus *Ustilago*, belonging to the division *Contomyces*, and characterised by its slimy spores springing at first from delicate threads or produced in the form of closely-packed cells, which ultimately break up into a powdery mass. It is far more common in oats and barley than in wheat, and sometimes does considerable damage, affecting the ultimate produce; but as the spores are blown away at an early stage, and there is no appearance of the malady, like bunt, at harvest, it is not much regarded by agriculturists. It is a common notion indeed amongst them that it may be prevented by proper dressing, and several preparations are sold for the purpose, which make great promise, but it is quite clear from the nature of the fungus that they must be wholly inoperative. The spores are dispersed over the whole face of the country, and do not adhere to the grain itself. As soon as the seed is sown, they are ready in the soil to contaminate the young plant. We have in vain attempted to impregnate grain with smut, though rubbing healthy seeds with bunt-spores seldom or never fails. The probability is that the smut-spores require a long season of rest before their germination takes place, whereas bunt-spores develop their peculiar spawn a few hours after being sown. Smut occurs in all parts of the world where cereals are cultivated, as, for example, on the hot banks of the Indian River Soane, and is subject to slight variations according to the different plants upon which it is developed, but not such as to justify the separation of several species. On Indian corn it attains an enormous size, measuring frequently some inches in diameter. The smut fungus is described under the name of *Ustilago segetum*. [M. J. B.]

SMUT-BALLS. The same as Bunt.

SMYRNIUM. The name of a genus of *Umbelliferae*, known by each half of the fruit having five ribs, three of which are prominent and sharp, and the two marginal ones indistinct; there is a single vitta in each furrow. The species are biennial herbs, natives of Middle and Eastern Europe, with umbels of yellow or yellow-green flowers. One species, *S. Olusatrum*, is not uncommon in some parts of Britain; its flavour is strong, resembling

that of celery, and it is used as a potherb. The name is derived from the Greek *smurna*, one of the names of myrrh, in allusion to the odour. [G. D.]

The Alisander or Alexanders, *S. Olusatrum*, is a biennial, a native of Britain, and usually met with near the sea, as well as in the vicinity of old residences, where it might have been formerly cultivated. The plant grows from two to three feet high, the stem-leaves being ternate stalked serrate, and of a pale-green colour. Before the introduction of celery, the leafstalks, which are the parts that are edible, were blanched and used either as a salad or potherb. The flavour somewhat resembles that of celery, but is stronger and not so agreeable, on which account it has been neglected, and we believe is almost entirely gone out of cultivation. [W. B. B.]

SNAG. *Prunus spinosa*.

SNAIL-FLOWER. *Phaseolus Caracalla*.

SNAIL-PLANT. *Medicago scutellata*, and also *M. Helix*; the pods of these are called snails from their resemblance to those mollusks.

SNAKE-ROOT. The root of *Polygala Senega*. —, **BLACK.** *Batrachium actinoides*; also *Sanicula marilandica*. —, **BUTTON.** *Eryngium aquaticum*; also *Liatris*. —, **CANADA.** *Asarum canadense*. —, **CEYLON.** The tubers of *Artasema papilionum*. —, **VIRGINIAN.** *Aristolochia Serpentina*. —, **WHITE.** *Eupatorium ageratoides*.

SNAKE'S-BEARD. *Ophiopogon*.

SNAKE'S-HEAD. *Fritillaria Meleagris*; also an American name for *Chelone*.

SNAKE'S-TAIL. *Lepturus incurvus*.

SNAKE'S-TONGUE. *Lygodium*.

SNAKEWEED. *Polygonum bistorta*.

SNAKEWOOD. *Brosimum Aubletii*, sometimes called *Piratinera gualanensis*.

SNAPDRAGON. *Antirrhinum majus*; also *Silene Antirrhina*. —, **JAMAICA.** *Ruellia tuberosa*, now called *Cryptanthus barbadensis*.

SNAP-TREE. *Justicia hyssopifolia*.

SNAPWEED. *Impatiens*.

SNEEZEWEED. *Helenium autumnale*.

SNEEZEWOOD. *Pterocylon utile*.

SNEEZEWORT. *Achillea Ptarmica*.

SNOWBALL TREE. The sterile-flowered variety of *Viburnum Opulus*, commonly known as the Gueldres Rose.

SNOWBERRY. *Chiococca racemosa*. — **CREeping.** *Chiogenes*.

SNOWDROP. *Galanthus nivalis*.

SNOWDROP TREE. *Chionanthus virginica*; also *Halesia*.

SNOWFLAKE. *Leucojum*. —, **SPRING.** *Brinonema*.

SNOWFLOWER. *Chionanthus virginica*.

SNOW-MOULD. *Lanosa nivalls.*

SNOW-PLANT. *Protococcus.*

SOAPBERRY. The fruits of *Sapindus Saponaria*, *S. emarginatus*, &c.

SOAPNUT. The fruit of *Acacia concinna* (alias *Nimosa obtusigera*); in India commonly applied to nuts of *Sapindus Saponaria*.

SOAP-PODS. The Chinese name of the pods of several species of *Cassia*.

SOAP-ROOT, EGYPTIAN. *Gypsophila Struthium.*

SOAPWOOD. *Clethra tinifolia.*

SOAPWORT. *Saponaria*, especially *S. officinalis*; also *Vaccaria vulgaris*.

SOBOLE. A creeping rooting stem.

SOBOLEWSKIA. A genus of *Cruciferae* from Southern Russia. The plants have stalked cordate-reniform toothed leaves, elongated racemes of white flowers, and an indehiscent wingless oblong-compressed one-celled one-seeded pouch. [J. T. S.]

SOBRALIA. One of the genera of orchids of the tribe *Vanillidæ*, comprising about twenty-five tropical American species, all terrestrial plants with slender tall reedy stems, clothed with leaves which are often plicate, and bearing upon their summits several often very large and extremely showy flowers, which in some species are of a thin almost transparent nature. It has nearly equal sepals joined at their bases, similar or very slightly different petals, an undivided or three-lobed cucullate lip rolled round the long column, which is thin-ed and thickened upwards, with a trifid anther-bed, having the anther attached to the central of the three fleshy segments. The original and finest species of the genus is the Peruvian *S. dichotoma*, which Pöppig describes as having bamboo-like stems from twelve to twenty feet high forming impenetrable thickets, and flowers two inches long, white externally and violet internally. Other species, however, far exceed this in the size and beauty of their flowers—such, for example, as the *S. macrantha* of Mexico and Guatemala, the very fugitive flower of which measures eight inches across, and varies from rich purple to very pale rose-colour or nearly white. [A. S.]

SOCRATEA. A small genus of palms inhabiting the forests of tropical America, and formerly associated with the old genus *Iriarte* (*Decaserial*), from which it may, however, at once be distinguished by being very bitter in every part. This property disqualifies the leaves from being eaten as 'cabbage,' and in Central America has obtained for these palms the name of *Palmas amargas*, in contradistinction to the different species of *Iriarte*, which are termed there *Palmas dulces*, and are used as food. The *Socrateas* are fine unarmed trees, bearing a crown of pinnatifid leaves, with generally sinuate-dentate segments, below which the spadices appear. The spadix is enveloped in five to

eight spathes, and one and the same spadix bears monœcious flowers. The male flowers have a three-leaved calyx and corolla, both valvate, twenty-four or more stamens, and a small rudimentary germen; the female flowers have the same kind of calyx and corolla, but the latter is imbricate; there are no stamens or staminodes, and the germen is three-celled, developing into an elliptical or oblong-obovate one or two-seeded berry of an orange or yellow colour. [B. S.]

SOCRATESIA. A genus of *Vacciniaceæ*, comprising a Central American shrub with five-nerved leaves, and pendulous flowers in terminal racemes, protected by scarlet bracts; the calyx is short, tubular, with five radiating tubular processes at the base; the filaments are of unequal length, and the anthers open by two pores at the top. [M. T. M.]

SODA. An alkaline product of several species of *Salsola*, *Suaeda*, and *Salicornia*.

SOFTWOOD, BLACK. *Myrsine lata.*

SOGLAGINA. A genus of *Compositæ*, comprising two Mexican weeds furnished with opposite lance-shaped three-nerved leaves, and solitary stalked yellow flower-heads. The generic name is an anagram of *Galinsoga*, a genus with which these plants were formerly confounded. They differ in the involucrel scales being in more than one series, and in the two-lipped ray-florets, the outer lip larger and toothed, the inner of two linear lobes either separate or grown together. [A. A. B.]

SOJA (or **SOYA**) *hispida* is the only representative of a genus of *Leguminosæ* of the tribe *Papilionaceæ*, and much cultivated in tropical Asia on account of its beans, which are used for preparing a well-known brown and slightly salt sauce (*Soy*), used both in Asia and Europe for flavouring certain dishes, especially beef, and supposed to favour digestion. Of late it has been cultivated as an oil-plant. *S. hispida* is an erect hairy herb, with trifoliate leaves, and axillary racemose flowers, which have a five-cleft calyx, a papilionaceous corolla, ten didelphous stamens, and an oblong pod which contains from two to five ovate compressed seeds. Modern botanists generally refer the plant to **GLYCINE**: which see. [B. S.]

SOLA, or **SOLAE.** The light Indian Spongewood of Bengal, *Æchynomene aspera*.

SOLANACEÆ (*Cestraceæ*, *Nightshades*). An order of perigynous monopetalous dicotyledons, characterised by regular or nearly regular flowers; the stamens inserted in the tube of the corolla, equal in number to and alternate with its lobes; a free two-celled ovary with several ovules in each cell; and albuminous seeds in a berry or capsule. It is thus easily distinguished from all others, except *Serophulariaceæ*, from which it is only separated by the more regular flowers; while some go-

nera are quite intermediate. The *Solanaceae* generally are herbs or shrubs, very rarely trees, with alternate leaves often in pairs, one smaller than the other; the inflorescence terminal, or more frequently axillary or a little above the axil. They are natives of all tropical countries, more especially America, and a few are found in more temperate climates. Many are remarkable for their strong narcotic poisonous qualities.

There are above sixty genera, variously distributed into tribes by different botanists. The most important are *Solanum*, *Capiscum*, *Physalis*, *Nicotiana*, *Datura*, *Solanandra*, *Pelutia*, *Hyoscyamus*, *Atropa*, *Mandragora*, *Lycium*, and *Ocimum*. A few genera forming the groups called *Nolanaceae* and *Retiaceae* are by many botanists included among *Solanaceae*.

SOLANDRA. The name of Dr. Solander, still well remembered as the fellow-traveller of Sir Joseph Banks and Captain Cook, and for the importance of his botanical observations, has been attached to a genus of tropical American shrubs belonging to the *Solanaceae* (*Atropaceae*). The species have large somewhat fleshy leaves clustered near the ends of the branches, and large terminal solitary flowers; the calyx is tubular; the corolla funnel-shaped distended, its limb five-lobed; the stamens five, with versatile anthers opening lengthwise; the ovary partially four-celled; and the fruit fleshy, four-celled, surrounded by the calyx. Four or five species having yellowish or greenish flowers are in cultivation. In their flowers and leaves they resemble the old *Datura arborea*. [M. T. M.]

SOLANUM. Few genera of plants are more important than this, which includes among its species the Potato, and serves as the type of the order *Solanaceae*. The species are very numerous, distributed widely over the globe, but especially frequent in South America. They reckon among them herbs shrubs or small trees, with lateral or terminal inflorescence. The inflorescence, indeed, in the first instance is always terminal, but in course of growth it becomes bent downwards to give place to a shoot, which is given off from the side of the stem lower down, so that there is a reciprocal change in the direction of the shoot and of the inflorescence. In this way the seeming anomaly of an inflorescence placed on the side of the main stem, and not axillary to a leaf (frequently not even opposite to one), may be explained. The calyx consists of five or more segments; the corolla is rotate or bell-shaped, with a short tube; the stamens are generally five in number, with short filaments, and anthers converging into a cone round the style, each anther opening by two pores at the top. The fruit is a berry containing many seeds.

The most important of the many species is *S. tuberosum*, more familiar under the name of the Potato. Of this plant the underground stems or tubers are in common use

as an esculent. These tubers are frequently considered roots, but erroneously so, their true nature being revealed by the little 'eyes' or rudimentary buds, which under favourable circumstances become developed into shoots. A true root, it may be remarked, does not (except in certain very exceptional cases) bear buds or shoots. Another proof that these tubers are really dilated branches is, that occasionally small leaf-bearing tubers are met with in the axils of the ordinary leaves of the plant.

The introduction of the Potato into Europe is ascribed to certain colonists sent from this country to Virginia under the auspices of Sir Walter Raleigh. The plant is indigenous in Chili and Peru. The varieties cultivated in this country are very numerous. The Potato consists of a mass of cells, enclosing starch-granules and an albuminous juice. The chemical composition of the Potato is probably subject to great variations, as the analyses of different chemists vary considerably. In general terms, it may be stated that Potatoes contain water in quantity amounting to three-fourths of their weight, the remaining fourth part being made up of starch, gum, sugar, albumen, vegetable fibre, and a very small proportion of fatty material.

Potatoes in cultivation are subject to various diseases, the most important and disastrous of which is one which first made its appearance (at least as a widely-spread malady) in 1845. This potato-murrain appears, from the researches of the Rev. M. J. Berkeley and others, to be due to the presence of a fungus, *Botrytis* (or *Peronospora*) *infestans*, which first attacks the leaves, causing discoloration, and thence rapidly spreads down the stems to the tubers. The principal effects of the disease consist in the increased quantity of water, the diminished quantity of starch, and the conversion of the albumen into caseln. [See POTATO MURRAIN.] Owing to the almost entire dependence of the Irish peasantry on this vegetable for food, the most disastrous consequences ensued from the failure of this crop; and it is still heartily to be wished that something of a less precarious nature should be grown, which would furnish a larger percentage of nutritious matter than the potato. Numerous substitutes have been proposed and tried, but time is required to combat the prejudice in favour of the potato, and to develop sufficiently the capabilities of the proposed substitutes.

In addition to their use as a vegetable, Potatoes furnish a large quantity of starch, employed for various purposes in the arts. It forms the basis of certain farinaceous foods, as Bright's Nutritious Farina, &c., and is mixed with wheaten flour in the manufacture of bread. This adulteration can readily be detected by the microscope, especially on the addition of a solution of potash, which causes the starch-granules of the potato to swell up, while no effect is produced on the starch-grains of wheat.

From potato-starch is also procured a substance analogous to gum, called Dextrine, which is employed as a substitute for gum, size, and paste.

The pulp of the Potato, after extracting the starch, becomes so hard and horny when dried, that at one time snuff-boxes were said to be made from it. Raw potatoes scraped are a popular cooling application to burns and scalds. From Potatoes a coarse-tasting brandy is prepared in large quantities on the Continent. The stem and leaves have slightly narcotic properties, on which account the extract from them has been employed as a narcotic to allay pain, in cough and rheumatism, &c. Potatoes when decaying have been stated to emit a phosphorescent light, but this requires confirmation.

S. Dulcamara, the Woody Nightshade or Bitter-sweet, is a well-known British plant scrambling over hedges, with more or less cordate leaves, the upper ones hastate; and the flowers in drooping cymes, of a purple colour, with a yellow or green spot at the base of each petal; the fruits oval fleshy and of a bright-red colour. The young stems are collected in the autumn, for medicinal purposes; they have at first a bitter taste, which is succeeded by an agreeable sweetness. A decoction of this plant has been considered useful in rheumatic and skin complaints, but its efficacy is very doubtful. In large doses it might act as an acrid narcotic. The berries are poisonous, and are stated to furnish green and violet dyes.

Another common species, *S. nigrum*, is often met with as a weed in waste places. It attains the height of a foot or more, has ovate wavy leaves, white flowers, and black berries—whence the name. Like most of its congeners, this species possesses slight narcotic properties, on which account in Bohemia the leaves are placed in the cradles of infants to promote sleep. The leaves likewise are used as soothing poultices. In the islands of Bourbon and Mauritius, however, the leaves are eaten in place of spinach; and the fruit is said to be eaten without inconvenience by the soldiers stationed in British Kaffraria.

Besides the above-mentioned species, others are used for medicinal, alimentary, and other purposes. Some of them seem to be employed, in most parts of the world, as narcotics to allay pain, &c.; others are sudorific and purgative. The parts employed are the roots, leaves, seeds, and juices of the fruits. *S. toxicarium* is used as a poison by the natives of Cayenne. *S. pseudoquina* is esteemed as a valuable febrifuge in Brazil.

Among those used for food, of which mention has not hitherto been made, are *S. album* and *S. eschtopisum*, the fruits of which are used in China and Japan. Those of *S. Anguria* are eaten in Madagascar. *S. esculentum* and its varieties furnish the fruits known as Aubergines or Brinjals, which are highly esteemed in France, and may occasionally be met with in Covent Garden Market; they are of the size and

form of a goose's egg, and usually of a rich purple colour. The Egg-plant, which has white berries, is only a variety of this. The Peruvians eat the fruits of *S. muricatum* and *S. guttense*; those of *S. ramosum* are eaten as a vegetable in the West Indies. The Tasmanian Kangaroo Apple is the fruit of *S. lasiniatum*; unless fully ripe, this is said to be acrid. In Gipps Land, Australia, the natives eat the fruits of *S. vesicum*, which like the preceding is not agreeable till fully ripe, when it is said to resemble in form and flavour the fruits of *Physalis peruviana*. Of other species the leaves are eaten: as those of *S. oleraceum* in the West Indies and Feejee Islands, of *S. sessiliflorum* in Brazil, &c.

Other species are employed as dyes. Such is *S. indigoferum*, cultivated in Brazil for the sake of its indigo. The juice of the fruit of *S. gnaphaloides* is said to be used to tint the cheeks of the Peruvian ladies, while their sisters of the Canary Isles employ for a similar purpose the fruits of *S. Vespertilio*. The fruits of *S. saponaceum* are used in Peru to whiten linen in place of soap. *S. marginatum* is employed in Abyssinia for tanning leather. The Tomato, once included here, is now referred to LYCOPERSICON: which see. [M. T. M.]

The native country of the Potato, *S. tuberosum*, and the date of its introduction into Britain, have been subjects of much discussion. There can be no doubt of its being indigenous in various parts of South America—plants in a wild state having been found on the Peruvian coast, as well as on the sterile mountains of Central Chili and Buenos Ayres. The Spaniards are believed to have first brought it to Europe, from Quito, in the early part of the sixteenth century. It afterwards found its way into Italy, and from thence it was carried to Mons in Belgium by one of the attendants of the Pope's legate. In 1598 it was sent from Mons to the celebrated botanist Clusius at Vienna, who states that in a short time it spread rapidly throughout Germany. The first potatoes that reached this country were brought from Virginia by the colonists sent out by Sir Walter Raleigh in A.D. 1584, and who returned in 1596. They were planted on Sir Walter's estate near Cork, and were used for food in Ireland long before they were even known or cultivated in England. Gerard had a plant in his garden in Holborn, and has given a figure of it in his *Herbal*, published in 1597, under the name of *Butata virginiana*. He recommends the roots to be eaten as a delicate dish, and not as common food. In the time of James the First they were so rare as to cost two shillings a pound, and are mentioned in 1619 among the articles provided for the royal household. In 1633, when their valuable properties had become more generally known, they were deemed worthy of notice by the Royal Society, which took measures to encourage their cultivation with the view of preventing famine; but it was not until nearly a century after the above date that they were grown to any great extent in Eng-^{land}.

In 1725 they were introduced into Scotland and cultivated with much success, first in gardens, and afterwards (about 1760), when they had become plentiful, in the open fields. Since that period the prejudices which so long existed against their use both in England and Scotland have gradually vanished, and for many years past the Potato-crop has been regarded throughout the British Dominions as a most valuable addition to the staple commodities of life, only second in importance to cereals.

The varieties of the Potato are innumerable—some early, others late; and these again differing considerably, not only in size form and colour, but in their quality, being either waxy, or dry and floury. It has also been found that when a particular variety has been grown in the same soil for any length of time it degenerates, and requires to be renewed either by seed, but more frequently by resorting to sets or sorts which have been grown in a different soil and locality. In this way varieties are continually changing, and every town or district has its particular favourite.

As a vegetable, the Potato is excellent in whatever way it may be dressed—whether plain boiled, steamed, fried, or roasted. With the flour of potatoes puddings and cakes have been made; starch has also been obtained, which for purity and nutritive properties is very little inferior to arrowroot. By distillation a powerful spirit is produced, and even a strong wine by the fermentative process. The most remarkable instance of the utility of the potato is probably that of M. Parmentier, who did so much in France to promote its cultivation towards the end of the last century, and who gave a grand entertainment at Paris, at which Benjamin Franklin, Lavoisier, and many other celebrated men of that day were present. Every dish consisted of potatoes dressed in an endless variety of form and fashion; even the liquors were the produce of this precious root; and it is only to be regretted that the bill of fare, and the recipes of the cooks, have not been preserved.

The mysterious disease which made its appearance amongst Potatoes in this country in 1845, soon after the introduction of guano as a manure, threatened the entire destruction of the crop; and we are still without any known preventive, the disease being regarded as an epidemic, to which the plant has become liable at some period of its growth according to the conditions of the atmosphere. [W. B. B.]

SOLDANELLA. A genus of *Primulaceæ*, principally distinguished by the corolla, which is somewhat bell-shaped, with the border five-cleft, and each division fringed at the margin. The species are small herbs of graceful habit, natives of alpine districts of Continental Europe. One of them, *S. alpina*, a native of Switzerland, with lovely blue flowers, is well known as an object of culture. The name is from the Latin *solidus* 'a piece of money,' the leaves of the species being in shape like coin. [G. D.]

SOLDANELLE. (Fr.) *Convolvulus Soldanella*.

SOLDIER-WOOD. *Callandra purpurea*.
SOLEA. *Viola*.

SOLEIL, or S. À GRANDES FLEURS. (Fr.) *Helianthus annuus*. — **DOR.** *Narcissus aureus*. — **VIVACE.** *Helianthus multiflorus*.

SOLEIROLIA corsica is a delicate little weed of the family *Urticaceæ*, found in Corsica and Sardinia, and nearly related to *Parietaria*, but readily recognised by the minute green flowers being single instead of three or more together in the axils of the leaves. *Helios* is the generic name adopted by some authors. [A. A. B.]

SOLE-LEATHER, or SOLE-LEATHER KELP. A name given to the thicker *Laminaria*, as *L. digitata*, *bulbosa*, &c., without particular reference to any individual species. [M. J. B.]

SOLENANTHA. A genus of *Violaceæ*, proposed by Don, which has proved to be the same as *Hymenanthera* of Brown.

SOLENANTHUS. A genus of *Boraginaceæ* allied to *Cynoglossum*, from which it differs chiefly in the corolla being tubular and cylindrical. It is a native of Siberia, the Caucasus, Taurus, Northern Persia, and the Mediterranean region. The stem and foliage resemble those of *Cynoglossum*, and are often covered with white down or wool; the flowers are also arranged in scorpioid racemes, as in that genus, but they are tubular, five-lobed at the apex, with five very short scales in the throat; the stamens are more or less exserted; the nuts depressed prickly-heminate. [J. T. S.]

SOLENIDIUM racemosum. An epiphytal orchid from Tropical America, bearing pseudobulbs, and having the habit of *Oncidium*, from which it is generically distinguished by the column in its early stage being bordered by a membrane terminating upwards on each side in a thin triangular tooth; by the presence of a pair of minute glands at the lower end of the column; and by the crest on its lip consisting of a pair of long feathery raised plates. [A. S.]

SOLENOCARPUS. An Indian tree supposed to form a distinct genus of *Anacardiaceæ*. The leaves are unequally pinnate, and the flowers are arranged in panicles at the ends of the branches. These are perfect, and have a five-cleft deciduous calyx, five petals inserted with the ten stamens on the outside of the disk surrounding the one-celled ovary, a short style with oblique stigma, and an oblique fruit containing a single pendulous seed. The rind of the fruit is traversed by a number of channels containing oil—whence the name of the genus, from *solis* 'a tube,' and *carpos* 'a fruit.' [M. T. M.]

SOLENOGYNE. A little Australian perennial herb of the *Compositæ*, now united with *Lagenophora* under the name *L.*

In aspect it is very like our own daisy—whence the specific name, *bellifolius*, given to it; but the much smaller flower-heads are different in structure. There are no white ray-florets; all are tubular and yellow, the outer three-toothed and pistil-bearing, the inner four or five-toothed and with stamens only. The achenes are oblong compressed beakless, and without pappus. [A. A. B.]

SOLENOPHORA coccinea is the sole representative of a Mexican genus of *Geeneraceæ*, with a long and large obconical five-cleft calyx, an obliquely funnel-shaped corolla, and an ovary totally submerged in the calyx. *S. coccinea* is a shrub of four to six feet high, with pubescent branches, opposite ovate duplicato-serrate leaves, one of each pair being always of smaller size than its companion; the flowers are scarlet, and appear in the axils of the leaves. [B. S.]

SOLENOSTEMMA. A genus of *Asclepiadaceæ*, containing a single species from Arabia and Egypt. It is an erect branching hoary undershrub, with white fleshy leaves, and white umbellate flowers. The calyx and corolla are five-parted; the staminal corona is cup-shaped and five-lobed, surrounding the base of the stipitate gynostegium; the clavate compressed pollen-masses are pendulous, and the follicles ovoid and smooth, with many comose seeds. [W. C.]

SOLID. Not hollow or furnished with internal cavities of any kind.

SOLIDAGO. Perennial herbaceous plants belonging to the tribe *Corymbiferae* of compound flowers, distinguished by the following characters:—Florets of the ray about five, yellow, furnished with a hair-like pappus; anthers without bristles at the base; involucre much imbricated; fruit nearly cylindrical. Numerous species are described; most of them have erect rod-like scarcely-branched stems, with alternate serrated leaves, and terminal spikes or racemes (often one-sided and paniculate) of numerous small yellow flowers. *S. Virgaurea*, the common Golden Rod, the only British species, is common in woods and heathy thickets, where it grows to the height of one to two feet, while on sea-cliffs it scarcely exceeds a few inches. The American species are frequently cultivated, but owing to their coarse habit are mostly confined to shrubberies and old-fashioned borders, where their bright yellow flowers contrast well with *Michæmas* daisies. The leaves of *S. odora* are fragrant, and the essential oil distilled from them has been employed in medicine. French: *Verge d'Or*; German: *Goldrute*. [C. A. J.]

SOLITARY. Growing singly.

SOLLYA. A genus of *Pittosporaceæ* found in South-western Australia and Tasmania, and consisting of climbing shrubs, with simple leaves, and blue flowers in cymes opposite the leaves. They have a small five-parted calyx, five ovate ca-

pannulate spreading petals, five stamens with arrow-headed anthers cohering into a cone and emitting the pollen by pores, a short style with a partially two-lobed stigma, and a thin many-seeded papery berry. [R. H.]

SOLOMON'S SEAL. *Polygonatum*. —, FALSE *Smilacina*.

SOLUTE. Completely separate from neighbouring parts.

SOM. The Arabic name for Garlic.

SONALI. An Indian name for the pods of *Cathartocarpus Fistula*.

SONCHUS. A genus of herbaceous rarely shrubby plants belonging to the tribe *Cichoraceæ* of compound flowers. The principal characters are:—Head composed of many florets; fruit much compressed, destitute of a beak; pappus soft hair-like, not feathery. The most common British species are—*S. arvensis*, Corn Sowthistle, a perennial herbaceous plant growing among corn, with much-toothed clasping leaves, and large yellow terminal flowers, of which the stalks and involucre are thickly clothed with glandular hairs; and *S. oleraceus* and *S. asper*, or Milk Thistle, annuals too common as weeds in cultivated ground, with hollow milky stems, glossy leaves, which are so sharply toothed as to be almost prickly, and yellow flowers. Some of the shrubby species, natives of Madeira and the Canaries, are sometimes admitted into the conservatory for the sake of their elegant foliage. *S. tenerrimus* is eaten in Italy as a salad, as was formerly the case with *S. oleraceus*, though it has long given place to more palatable herbs. French: *Laiteron*; German: *Saudistel*. [C. A. J.]

SONDERA. A name proposed by Lehmann for two Australian *Droseras*, which have the parts of the flower in fours instead of being in fives. As there is no other difference between these and other species, the genus has not been adopted.

SONERILA. A very extensive genus of East Indian melastomaceous plants, remarkable in the order for having all the several parts of their flowers in whorls of three, or trimerous, as it is technically called. The plants belonging to it are mostly herbaceous, though sometimes sub-shrubby, and of variable habit—some with and others without stems, some glabrous and others hirsute, and some with different kinds of leaves on the same plant. Their flowers are mostly purple or violet, borne in scorpioid racemes. [A. S.]

SONF. An Indian name for Aniseed.

SONNERATIA. A genus of *Myrtaceæ*, comprising eight species, all trees of moderate size inhabiting the coast-regions of India and the islands of the Eastern Archipelago. It has been referred to the *loosestrife* order, but appears rather to belong to the *myrtle* blooms, its fruit being an unopening berry divided internally by thin partitions into from ten to fifteen

cells, filled with seeds which nestle in granular pulp, and which have a curved embryo. Its flowers have a bell-shaped four to eight-cleft calyx cohering with the ovary at the very base; from four to eight petals rising from the throat of the calyx and between its lobes, or rarely none at all; numerous stamens rising in several series along with the petals, and having the slender free filaments curved inward before flowering; and a long style and roundish stigma. All the species have opposite entire thickish almost veinless leaves, without dots, and large usually solitary terminal flowers.

Dr. McClelland, in his *Report on the Teak Forests of Peru*, states that the *Kambala*, *S. apetala*, is found throughout the Sunderbunds at the mouths of the Gauges, and to as far south as Rangoon, and that its strong hard close-grained wood is used at Calcutta for making packing-cases for beer and wine. *S. acida* is widely dispersed throughout Tropical Asia, occurring abundantly in most of the islands of the Indian Archipelago; but it is almost exclusively confined to the seacoasts, where it grows together in large masses, being what is called a littoral and sociable plant. A kind of silkworm feeds upon its leaves. Its acid slightly bitter fruits are eaten as a condiment by the Malays. [A.S.]

SOOJEE. Indian wheat ground but not pulverised; a kind of *semolina*.

SOONTOL. The fruit of *Sandoricum indicum*.

SOOPAREE, SOOPARI. Indian names for the fruit of the *Areca* or *Betelnut Palm*.

SOORSA. The Indian name for an oil obtained from *Sinapis juncea*.

SOOTY. As if smeared with soot. The same as *Fuliginous*.

SOPHOCLESIA. A genus of Central American vacuaceous shrubs that grow upon the trunks of old trees, and have slender branches. The flowers are axillary, solitary on long stalks, thickened towards the base. The tube of the calyx is hairy; the corolla purple; the filaments distinct one from the other, and of unequal length; and the fruit dry and papery, containing two to four compartments. [M. T. M.]

SOPHORA. A genus of *Leguminosae*, widely spread through the tropical and temperate regions of both the Old and New Worlds, one of its species (*S. tomentosa*, a shrub of variable height) being found on the seashores of Tropical Asia, Africa, America, and Australasia. The species are not numerous, but they differ greatly in general appearance, some growing into trees of large size, while others are shrubs, and one or two herbaceous plants. All, however, agree in having pinnate leaves, with usually opposite leaflets and an odd one at the end; and terminal simple racemes or branching panicles of flowers, succeeded by cylindrical or slightly flattened but

never winged fleshy or hard woody pods, containing many seeds, between which they are constricted, and not usually opening at maturity. The flowers are pea-like, with a rather broad standard.

S. japonica is a very handsome tree, long ago introduced into the gardens of this country from China; but it is not so frequently grown as, from its ornamental character and hardness, it deserves to be. It is of quick growth, and forms a large round-headed tree forty feet high or more, with smooth dark-green young branches, graceful deep bluish-green pinnate leaves, and in the autumn producing at the points of the branches large loosely-branched panicles of small whitish or cream-coloured flowers, which give it a beautiful and conspicuous appearance, though the flowers themselves are small. In China the flowers are used for dyeing a yellow colour. They are called *Wai-fa* or *Wai-hwa* by the Chinese, and are employed to give the fine yellow colour to the silk used for the garments of the mandarins, and also for dyeing blue cloth green. Large quantities of them are thus consumed, the tree being cultivated on this account in the provinces of Fokien, Honan, and Shantung, from whence sacks full of these little flowers are despatched to other parts of the empire, and occasionally find their way in small quantities to this country. All parts of the tree possess purgative properties, and it is said that even those who merely prune it are affected, as also are turners when employed upon its fine-grained hard wood. The tree is only known in a cultivated state, though it is most probably indigenous to either China or Japan. [A.S.]

SOPHOROCAPNOS. A genus of *Fumariaceae* from China, founded on the *Corydalis pallida*, which differs from the other species of that genus in having the pod with membranous transverse partitions between the seeds. It is a weak branched herb, with bipinnate leaves, and spicate pale-yellow flowers having a longish spur. The capsules are six or eight-seeded, linear beaded and beaked. [J.T.S.]

SOPHRONIE. (Fr) *Wissenia*.

SOPHRONITIS. The four known species of this genus of orchids are all Brazilian, and are little epiphytes with one-leaved pseudobulbs, and loose axillary few-flowered racemes of brilliant scarlet or violet flowers. Though of small size, the brilliancy of their tints causes them to be much sought after by cultivators. Their flowers have spreading, nearly equal, free sepals and petals, an entire cucullate tongue-shaped lip connate with the base of the column, which is free and apiculated with a wing on each side of its apex, the wings being entire and conniving in front; and a terminal eight-celled anther containing eight pollen-masses. [A.S.]

SOPS-IN-WINE. *Dianthus Caryophyllus*.

SOBB. The Service-tree, *Pyrus domestica*.

SORBIER, or **S. DES OISEAUX**. (Fr.) *Pyrus Aucuparia*. — **DES BOIS**. *Pyrus torminalis*.

SORBINE. A saccharine matter obtained from the berries of the Mountain Ash, *Pyrus Aucuparia*.

SORBUS. The generic name given by Linnæus to the Mountain Ash or Rowan-tree, the cultivated Service-tree, and a few others which, by their pinnate leaves more than anything else, appear to differ from *Pyrus*. Modern botanists are, however, unanimous in referring these trees to the same genus as the apple and pear. See **PERUS**. [A. A. B.]

SORDIDUS. Any dirty or muddy colour: thus *sordidus luteus* = dirty yellow.

SOREDIA. A name given to the little mealy patches which are so common on the thallus of lichens, and which arise from the rupture of the outer surface, and the protrusion of the gonidia by which the lichen is multiplied. [M. J. B.]

SOREMA. A genus of *Nolanaceæ* from Chili, consisting of prostrate annuals, having convolvulaceous blue flowers, and twenty free ovaries heaped about the base of the style. The drupes are one-celled, one-seeded, open at the base. [J. T. S.]

SORGHO. (Fr.) *Sorghum*.

SORGHUM. A genus of grasses belonging to the tribe *Andropogoneæ*. The inflorescence is in panicles; glumes two-flowered, one neuter, the other hermaphrodite; pales of the hermaphrodite flowers bearded, of the neuter beardless. The species of *Sorghum* are extensively cultivated for food, particularly *S. vulgare*. In Spain, Italy, and other parts of the South of Europe, as well as in Arabia and Asia Minor, the Millet or Guinea Corn occupies a place similar to that which oats and barley hold in the field-culture of the northern parts of Europe. The flour which the round hard seeds yield is very white, and makes good bread when properly manufactured. It is called *Durra* in India, and is said to be used chiefly by the lower classes of the population. It is also employed for feeding horses, swine, poultry, &c., where it is extensively grown. It is frequently cultivated in Botanical Gardens in England, where it has been tried also as a general crop, but the climate has been found too cold and damp for ripening its seeds properly. [D. M.]

SORI. The patches of spore-cases found on ferns.

SORIDIUM. A little slender leafless annual from Brazil, forming a genus of *Triuridaceæ*, only differing from *Sciaphila* in the number of divisions of the perianth and of the stamens, these being four and two respectively, instead of six and three.

SOROCHA. A Brazilian tree, forming a genus of *Artocarpaceæ*. The leaves are serrated; the flowers dioecious, the female ones borne in axillary clusters. Surround-

ing the ovary is a tubular five-toothed perianth, which becomes incorporated with the succulent fruit. There is a single pendulous seed. [M. T. M.]

SOROMANES. One of the genera of acrostichoid ferns, consisting of robust scandent or creeping plants, with large pinnate fronds, dimorphous as usually occurs in this group. The veins are pinnate, the venules connivent, all anastomosing at an acute angle and without free included veinlets. The fertile fronds are contracted. *S. serratifolium*, the only species, is a native of Mexico and Columbia. [T. M.]

SOROSIS, SOROSUS. The fleshy mass formed by a consolidation of many flowers, seed-vessels, and their receptacles—as the Pineapple, the Bread-fruit, &c.

SORREL. *Rumex Acetosa*. — **CLIMBING**. *Begonia scandens*. — **GARDEN**. *Rumex Acetosa*. — **INDIAN**. *Hibiscus Sabdariffa*. — **MOUNTAIN**. *Oxyria*. — **RED**. *Hibiscus Sabdariffa*. — **SHEER'S**. *Rumex Acetosella*. — **SWITCH**. *Dodonia viscosa*. — **TREE**. *Rumex Lunaria*. — **WOOD**. *Oxalis Acetosella*; also *Begonia acutifolia*.

SORREL-TREE. *Eubotrys* or *Lyonia arborea*.

SOTOR. A name given by Fenzl to *Kigeia pinnata*.

SOUARI-WOOD. A durable timber of Demerara, obtained from *Caryocar tomentosum*.

SOUCHET. (Fr.) *Cyperus*. — **A PAPIER**. *Papyrus antiquorum*. — **SULTAN**. *Cyperus esculentus*.

SOUCI. (Fr.) *Calendula*. — **D'EAU**. *Caltha palustris*. — **DES JARDINS**. *Calendula officinalis*. — **HYGROMÈTRE**, or **PLUVIAL**. *Dimorphotheca pluvialis*.

SOUDE. (Fr.) *Salsola*. — **COMMUNE**. *Salsola Soda*. — **COUCHÉE**. *Salsola Kali*.

SOUFRE VÉGÉTAL. (Fr.) *Lycopodium clavatum*.

SOULAMEA. A genus of the *Simarubaceæ* peculiar to the Moluccas and the Feejee Islands, and represented by a single species, *S. amara*, a tree with simple alternate stalked obovate leaves, and small green flowers disposed in short axillary spikes. The fruits are singular, being very markedly heart-shaped, whence the plant has been called *Cardiophora* and *Cardiocarpus*. They are compressed, coriaceous in texture, and about an inch in length; and in their absence the plant may be known from its allies by the flowers, which have three sepals, six stamens, and a two-celled and two-ovuled ovary tipped with two short styles. Like the *Quassia* and most others of the family, this plant is excessively bitter in all its parts. The root and bark, bruised and macerated in water, are used in India, Java, the Moluccas, &c., as an emetic and tonic, in pleurisy, asthma, cholera, snake-bites, epilepsy, &c. These

plants were formerly placed in the order *Polygalaceae*. [A. A. B.]

SOULANGIA. A name under which Brongniart proposed to separate some species of *Phytica* as a distinct genus, but the characters given have not proved sufficiently constant for its adoption by subsequent botanists.

SOULIER. (Fr.) *Cypripedium*.

SOUM. A negro name for *Balanites aegyptiaca*.

SOURING. A country name for the Crab apple.

SOURSOP. The fruit of *Anona muricata*.

SOURWOOD. *Lyonia arborea*.

SOUSHUMBER. *Solanum mammosum*.

SOUTHERNWOOD. *Artemisia Abrotanum*.

SOUVIENS-TOI DE MOL. (Fr.) *Myosotis palustris*.

SOWA. *Anethum Sowa*.

SOWBANE. *Chenopodium rubrum*.

SOWBREAD. *Cyclamen europæum*.

SOWDOWT. *Salsola Kali*.

SOWERBÆA. A genus of *Liliaceæ* consisting of two Australian species, with much of the appearance of *Allium*, but without the odour of garlic or the bulb of that genus. The root consists of a cluster of fibres, emitting long narrow radical leaves, and erect scapes bearing each a dense head or umbel of pink flowers surrounded by a few short bracts. They are at once distinguished from those of *Allium* by the stamens, of which three only bear anthers, the other three being reduced to short scales. Both species, *S. juncea* and *S. laxiflora*, are occasionally to be found in cultivation in our greenhouses.

SOWTHISTLE. *Sonchus*.

SOY. A sauce originally prepared in the East, and said to be produced from the beans of *Soya hispida*.

SOYEUSE. (Fr.) *Asclepias syriaca*.

SOYMIDA febrifuga, the Rohuna of Hindostan, is the sole member of a genus of *Melastomaceæ*, *Swietenia*, peculiar to the East Indies. It is a useful tonic in intermittent fevers; but Ainslie found that it deranged the nervous system, occasioning vertigo and subsequent stupor, if given beyond the extent of four or five drachms in twenty-four hours. It has been employed successfully in India in bad cases of gangrene, and in Great Britain in typhus-fever, and as an astringent. It forms a tall tree, with wood resembling mahogany, and a very bitter astringent bark. On the Coromandel coast of India it is known as the Redwood-tree. The leaves are paripinnate, the panicles large, and either axillary or terminal. Both calyx and corolla are composed of five leaves, and the capsule is woody, and five-valved

five-celled, each cell containing several winged seeds. [B. B.]

SPACHEA. A genus of tropical American trees or shrubs of the family *Malpighiaceæ*. The flowers are in terminal racemes, and have a five-parted calyx, whose segments are provided at the base with two glands; petals five, larger than the calyx, bent backwards; stamens ten, some of them abortive, the filaments combined at the base into a hairy ring adnate to the calyx; fruit a woody drupe, with a two-celled stone, and one seed in each stone. [M. T. M.]

SPADICEUS. Bright brown; pure and very clear brown.

SPADIX. A branch or axis bearing numerous closely-packed sessile flowers, and inclosed in a spathe or spathes; a spike inclosed in a spathe.

SPETLUM. A North-west American name for *Lewisia rediviva*.

SPAIRELLE. (Fr.) *Spiræa*.

SPALANTHUS (correctly **SPHALANTHUS**). [A Malayan shrub proposed as a genus of *Combretaceæ*, but since identified with *Quisqualis densiflora*.] It is glabrous, with ovate oblong leaves, without stipules, and terminal spikes of sessile white flowers. The calyx has a long tube, the corolla five petals; the stamens are ten in number, and the capsule is large, and has five wings, and five one-seeded cells. [B. B.]

SPALLANZANIA. A Madagascar tree forming a genus of *Ochnaceæ*. The flowers are in terminal corymbs; the five lobes into which the limb of the calyx is divided are leafy; the corolla is funnel-shaped, with a long slender tube and spreading five-lobed limb; there are five stamens attached to and projecting from the throat of the corolla; and the capsule is crowned by the calyx-limb, two-celled, dividing from above downwards into two valves. The same name is synonymous with *Gustavia* and *Aremonia*, two widely different genera. [M. T. M.]

SPAN. Nine inches, or the space between the thumb and little finger when spread out.

SPANISH DAGGER. A West Indian name for *Yucca aloefolia*.

SPANISH JUICE. The extract of the root of the Liquorice, *Glycyrrhiza glabra*.

SPANISH NEEDLES. A name given in the West Indies to the fruits of a species of *Bidens*.

SPARASSIS. A fine genus of hymenomycetous *Fungi*, exactly intermediate as regards form between the club-shaped natural order *Clavati* on the one hand, and the ear-shaped *Auriculariæ* on the other, but in substance and natural affinity really belonging to the former. It forms large subhemispherical masses a foot or more in diameter, consisting of numerous plates, which fructify all round and re-

semble a particular form of macaroni. Two species at least afford a most excellent and abundant food. They are found in the pine and mixed woods of Sweden and Germany, and both are said to be equally delicious. Neither appears in a considerable collection made in Hungary, nor do their esculent properties appear to be recognised there. *S. crispa* has recently been found in Britain. [M. J. B.]

SPARATTOSPERMA. *Tecoma*.

SPARAXIS. The species composing this genus of *Iridaceæ* inhabit the Cape of Good Hope, and are herbs with bulbous tubers, simple or paniculate stems, serrate narrow leaves, and large showy flowers arranged in spikes. Both calyx and corolla are composed of three parts; there are three stamens, and a three-celled capsule enclosing numerous round seeds. The bulbous tubers of *S. bulbifera* are edible. [B. S.]

SPARGANIUM. A genus of water-plants belonging to *Typhaceæ*, and found in almost every part of the world, including the British Islands. The leaves are linear, and the flowers are monœcious and arranged in globular heads, the upper ones containing the male flowers. There is no perianth; the stamens are numerous; and there are several ovaries, each containing one pendulous ovule. The fruit is drupaceous, and one to two-celled. The root of *S. ramosum* and of *S. simplex* was formerly used medicinally under the name of Radix Sparganii, and was supposed to cure snake-bites. The stem has been used for making paper. [B. S.]

SPARGELLE. (Fr.) *Genista sagittalis*.

SPARGOULE, or SPARGOUTE. (Fr.) *Spergula*.

SPARMANNIA. A genus of *Tiliaceæ*, known from among its allies by the outer series of the very numerous stamens being destitute of anthers, and by the globular or ovoid capsular fruits (the size of a marble or larger) being covered with prickles or tubercles. The three known species, natives of Abyssinia and Southern Africa, are shrubs or trees, with heart-shaped toothed or lobed leaves, and terminal cymes of white flowers.

The genus bears the name of Dr. A. Sparmann, a Swedish botanist, who went with Captain Cook on his second voyage round the world, and introduced the well-known *S. africana*, which is commonly met with in greenhouses. It is a shrub of three to twelve feet, with long-stalked heart-shaped leaves, clothed with soft downy and pretty white flowers produced in stalked umbels; and consisting of four narrow sepals, four petals, many stamens with yellow filaments and purple anthers, and a five-celled ovary tipped with a simple style. [A. A. B.]

SPARROWGRASS. A corruption of *Aspergula*.

SPARROWTONGUE. *Polygonum aviculare*.

SPARROWWORT. *Passerina*.

SPARSE. Scattered, irregularly distributed.

SPARSETTE. (Fr.) *Nardus stricta*.

SPART. The Esparto, *Macchrochloa tenacissima*.

SPARTIANTHUS. *Spartium*.

SPARTINA. A genus of grasses belonging to the tribe *Chlorideæ*. It has the inflorescence in raceme-like spikes; spikelets one-sided, inserted in a double row; glumes keeled membranaceous, pointed or shortly awned; pales two awnless, cleft and toothed, shorter than the glumes; stamens three; styles two, very long; seed compressed and smooth. Stuedel describes twenty species under this genus, the greater part of which are American. The British representatives, *S. stricta* and *S. alternifolia*, are among the rarest of British grasses. [D. M.]

SPARTIUM. The generic name of the well-known Spanish Broom, which differs from our native broom, *Sarothamnus scoparius*, in the calyx being split above, and thus one instead of two-lipped. The plant is widely spread over the Mediterranean region, and has been cultivated in British gardens for upwards of 800 years. The growth is like that of the common broom, but the green polished twigs are terete and rush-like, instead of angular; while they are usually devoid of leaves, the latter when present being lance-shaped or linear. The handsome yellow pea-flowers, arranged in racemes at the ends of the twigs, are highly perfumed, and very attractive to bees. A double-flowered variety is in cultivation.

By macerating the twigs a good fibre is obtained, which is made into thread in Languedoc, and into cord and a coarse sort of cloth in Dalmatia. The flowers are said to afford a yellow dye, and the seeds in large doses are emetic and purgative, and sometimes used in dropsy like those of the common broom. Besides its name of *S. junceum*, the plant is known by those of *Spartianthus junceus* and *Genista hispanica*. The name *Spartium* is from the Greek word denoting 'cordage,' in allusion to the use of the plant. [A. A. B.]

SPARTOTHAMNUS. A genus of *Myoporaceæ*, containing a single species from Australia. It is a branching shrub, having the habit of some species of *Spartium*. The branches are tetragonous opposite and rigid, and bear a few small deciduous and opposite leaves; while the white flowers are borne on short pedicels in the axils of the uppermost leaves. The calyx is five parted, the corolla campanulate and subregular, the four stamens are somewhat unequal, the style is bifid at the apex, and the ovary is four-celled, with a single ovule in each cell. [W. C.]

SPATHACEÆ. A Linnæan order equivalent to *Amaryllidaceæ*.

SPATHACEOUS. Having the appearance of a spathe, or being furnished with one.

SPATHE. A large bract rolling over an inflorescence and guarding it while young.

SPATHELIA. A genus of *Simarubaceæ*, comprising trees, natives of mountainous regions in the West Indies. They are lofty and handsome, with large pinnate leaves, and terminal panicles of small reddish flowers. The calyx is five-parted; the petals five, overlapping; stamens of the male flower five, flattened, generally but not always having a cleft scale at their base; ovary rudimentary, on a short stalk. In the perfect flowers are five stamens and a three-celled ovary, surmounted by a short three-cleft style; fruit dry three-cornered winged, three-celled. *S. simplex* is a very handsome stove-plant, with large spreading panicles of red flowers. [M. T. M.]

SPATHELLEÆ. The pales and glumes of grasses.

SPATHICARPA. This name has been given to an herbaceous plant forming a genus of *Araceæ*. The species is a native of La Plata, and throws up a single hastate leaf, a slender erect stalk longer than the leaf, and terminated by the inflorescence, which consists of a spathe adherent to the spadix. The flowers are arranged in three rows; the central one consists of male flowers, the lateral ones of female flowers; the anthers open by pores; the ovaries are free one-celled, with a single ovule; and the fruit fleshy. [M. T. M.]

SPATHILLA. A secondary spathe in a spathaceous inflorescence, as in Palma.

SPATHIUM. One of the subdivisions of the genus *Epidendrum*, including those species (between forty and fifty in number) with slender leafy erect stems, and flowers on a long peduncle proceeding from a spathe consisting of one or more equitant bracts. The flowers have the lip wholly attached to the column. [A. S.]

SPATHODEA. A genus of *Bignoniaceæ*, composed of tall trees inhabiting Tropical Asia and Africa, having imparipinnate leaves, paniculate flowers, a spathaceous calyx, a more or less bell or funnel-shaped corolla of a bright-yellow orange or purplish colour, and a capsular fruit divided into two cells by a partition placed contrary to the direction of the valves. *S. laeta* is an inmate of our hothouses, and is like all the other species highly ornamental on account of its foliage and blossoms. All the climbing species (natives of America) formerly classed with this genus have been referred to *Dolichandra* and *Macfadyena*; whilst all the white flowering kinds (including the New Holland ones) constitute the genus *Dolichandrone*. [B. S.]

SPATHOGLOTTIS. One of the genera of

the *Blattidea* tribe of epidendrous orchids, distinguished from *Blatta* itself by the middle segment of its deeply three-parted lip having a claw or stalk, with two tubercles or plates at its base, and by its two-celled anther. All its species are Asiatic, and terrestrial plants, with subterranean corms, plicate sword-shaped leaves, and generally yellow flowers. [A. S.]

SPATHULATE. Oblong, with the lower end very much attenuated, so that the whole resembles a druggist's spatula.

SPATHULEA, or **SPATHULARIA.** A genus of *Fungi* allied to *Helvella*, and distinguished by the compressed receptacle running down the stem on either side, and confluent with it. The only species, *S. flavida*, which has the hymenium of a beautiful buff, contrasting well with the whitish stem, is not uncommon in firwood, and is very beautiful. [M. J. B.]

SPATULE. (Fr.) *Iris fatidissima*.

SPATULUM. A North-west American name for *Lewisia rediviva*.

SPAWN. The same as Mycellum.

SPEARMINT. *Mentha viridis*.

SPEARWOOD. *Acacia doratoxylon*.

SPEARWORT. *Ranunculus Lingua* and *R. Flammula*.

SPEAUTRE. (Fr.) *Triticum Spelta*.

SPECIFIC CHARACTERS. The short descriptions by which botanists endeavour to distinguish one species from another.

SPECULARIA. A genus of *Campnulaceæ* having the tube of the calyx long, the corolla wheel-shaped and five-lobed, five stamens with flat hairy filaments, a short style with ten lines of hairs, and a long seed-vessel opening by valves above the middle or near the apex. The species are small herbs, natives of Europe and Middle Asia (one found in America), having the leaves alternate, the lower differing in form from the others, and the flowers varying in colour—blue purple or white. The name is from the Latin *speculum* 'a mirror,' to indicate the brightness of the flowers in sunshine. [G. D.]

SPEEDWELL. *Veronica*.

SPELT. An inferior kind of wheat grown in France and Flanders, *Triticum Spelta*.

SPERAGE. *Asparagus officinalis*.

SPIERGULA. Herbaceous plants of humble growth, with slender stems and very narrow leaves belonging to the order *Caryophyllaceæ*. The characters are:—Calyx five-parted; petals five, entire; stamens five or ten, inserted on a perigynous ring; styles five, distinct; seeds numerous, keeled or winged round the edge. *S. arvensis*, the Corn Spurrey, a common weed in cornfields and cultivated ground generally, especially where the soil is light or sandy, is a straggling plant about a foot high, with some

what downy stems and leaves, the latter awl-shaped and nearly cylindrical—the longest an inch long or more, disposed in opposite tufts at the knots of the stems which are swollen. The flowers, which are white, grow in loose terminal panicles; and their stalks, when the fruit is approaching maturity, become reflexed so as to form an acute angle with the stem. According to Don, this plant is grown on the Continent to serve as pasture for cattle, imparting a fine flavour to mutton, and enriching the milk of cows. *S. pitifera* has of late years been grown in English gardens as a substitute for grass on lawns. Its foliage is of a pleasant green colour and delicate texture; it soon establishes itself, and possesses the recommendation of retaining its verdure in the driest and hottest seasons. The latter advantage it owes to the fact that it belongs to a class of plants which evaporate their moisture slowly, while its long fibrous roots descend to a sufficient depth to be little affected by drought. French: *Spergule*; German: *Ackerpergel*.

[C. A. J.]

SPERGULARIA. A genus of *Mecobraceae* often called *Lepigonum*, and consisting of small weedy herbs, occurring in the temperate zones chiefly on the seacoast, with opposite or fasciculate-whorled setaceous or more or less cylindrical fleshy leaves, scarious stipules, and lilac or pink flowers in dichotomous or racemose cymes, the pedicels reflexed after flowering. The calyx is five-parted; the petals five, rarely absent; stamens five or ten (sometimes fewer), situated on an obsolete perigynous ring; style three or five (rarely two) cleft; capsule three or five-valved; seeds often margined or membranously winged. There are several British species. [J. T. S.]

SPERMACOE. Tropical weeds of the family *Cinchonaceae*. The flowers are axillary sessile or somewhat whorled, white or blue, the corolla salver-shaped. When ripe the fruit splits into two valves from above downwards, one valve remaining attached to the partition, and therefore the cavity formed by those parts remains, for a time at least, closed; the other valve becomes detached from the partition, so that the second cell of the fruit is thus opened. Both cells contain a single seed. *S. ferruginea* is employed instead of *Ipecacuanha* in Brazil; so also is *S. Poeyi*. In the West Indies *S. verticillata* is used for the same purpose. The root of *S. hispida* is employed in India as a sudorific; it is said to possess similar properties to *Sarsaparilla*. The generic name is derived from *sperma* 'seed' and *ake* 'point,' said to be in allusion to the point-like calyx-teeth surmounting the seed-vessel. [M. T. M.]

SPERMANGIUM. The case containing the spores of *Algae*.

SPERMATIA. See **SPERMOGONIA**.

SPERMATOOCYSTIDIUM. The supposed male organs of the muscal alliance. See **ANTHERIDIA**.

SPERMATOZOIDS. It is now as certain that impregnation takes place in many cryptogams as in phænogams, but the mode in the two is very different, and that in cryptogams follows rather the type of the animal than that of the vegetable kingdom. As however there was some doubt on the subject when the structure of the male organs was at first well ascertained, the spiral bodies by which impregnation is accomplished in acrogens were called *Spermatozoïda*, to distinguish them from the spermatozoa of animals. In acrogens they appear always to be more or less spiral, though the spire is sometimes much expanded; and the bodies in this case, with their two lash-like appendages, approach the type which is usual amongst *Algae*, in which class they are sometimes with difficulty distinguished from the really reproductive zoospores. In *Fungi*, unless *Saprolegnia* and its allies be included, the impregnating bodies or *Spermatis* are more like minute pollen-grains, though there is no evidence at present that they perform their functions by a kind of germination. In ferns, *Equiseta*, and *Salvinia*, instead of the two long appendages there are a multitude of shorter ones. Their motion when immersed in water is very lively and various. They are produced in a peculiar cellular tissue from the endochrome, and not, as has been supposed, partly from that and partly from the walls of the cells. It was once believed, in consequence of the faith reposed in Schleiden's theory of reproduction in phænogams, that the *Spermatozoïda* of ferns when entering the archegonia did not perform the office of impregnation, but themselves by cellular division became the new plant. This notion, however, is now exploded. [M. J. B.]

SPERMIDIUM. One of the names of the Achene.

SPERMODERM. The skin or testa of a seed.

SPERMODON. A genus of sedge-grasses, belonging to the tribe *Rhynchosporre*. Spikelets of inflorescence one or few-flowered; flowers hermaphrodite or polygamous; scales subdistichous, without bristles; stamens one to three; styles two to three-cleft. The few species described under this genus are natives of Brazil and New Holland. [D. M.]

SPERMOGONIA. Almost all Lichens exhibit in different parts of their thallus black or brownish specks, whose nature has been variously interpreted by authors. Some have considered them as transformations of the shields by which *Lecidea* or other shield-bearing genera are transformed into *Endocarpa* or *Verrucaria*; while others like Hedwig, with more probability, have regarded them as male organs. With the older microscopes it was impossible to ascertain their structure. It now however appears that they all produce, either on simple or branched threads, naked extremely minute bodies, which are mostly short and linear and straight or

curved, but in some cases elliptic or irregular like the stylospores of *Fungi*. These bodies were at first asserted by Iizigsohn to have active motion, but this has not been confirmed by the generality of observers, who regard whatever motion may appear as simply molecular or (as it is sometimes called) Brownian. Certain it is that they have no whip-like appendages, such as are so commonly found in the spermatozooids of *Algae*, or even in their zoospores. As these bodies are so general in Lichens, as appears from the admirable memoirs of the Tulasnes and Dr. Lindsay, it is highly probable that they are of sexual importance. The case scarcely admits of direct proof, but the absence of motile threads or active motion, however produced, is of little consequence, as it does not follow, because they exist in some Cryptogams, that they should exist in all. Since there is some difference of structure, and doubts may exist as to their real nature, the Messrs. Tulasne have thought it best to propose for the cysts the name *Spermogonia*, and for the spore-like bodies that of *Spermatia*. In a few cases, as in *Peltidea*, the spermatia, as said above, resemble stylospores, but on the contrary in several *Fungi* there are bodiēs exactly resembling spermatia as well as stylospores. [M. J. B.]

SPERMOPHORUM. A cord which bears the seeds of some plants; also the placenta itself.

SPERMOTHECA. The seed-vessel; the case in which seeds are contained.

SPERMUM. In Greek compounds a seed, or any seed-like part.

SPHACELE. A genus of *Labiata*, distinguished from its congeners by the following characters:—Corolla having a wide tube, the upper lip slightly bifid, the lower longest and notched; filaments of the stamens smooth. The species are undershrubs, natives of Western America from California to Chili, with wrinkled and opposite leaves, which are hoary beneath, the flowers in loose whorls. The name is from the Greek word *sphakes* 'sage,' indicating some resemblance to that plant. [G. D.]

SPHERALOE. Closely allied to *Malva*, and belonging to the *Malvaceae*, this genus is principally distinguished by the presence of three ovules in each compartment of the ovary; the upper one ascending, the two lower ones pendulous. The fruit is globular, consisting of several carpels containing three seeds, or by abortion one only. The carpels open along one edge, and ultimately separate one from the other. The species are natives of Tropical America. Some of them are employed medicinally for their demulcent properties, as marsh-mallow is with us. [M. T. M.]

SPHERANTHUS. A genus of the *Compositae* containing about a dozen species of much-branched glutinous smooth or downy annual weeds, found in tropical or subtropical parts of Asia, Africa, and Australasia. They have winged stems furnished

with oblong or lance-shaped decurrent leaves, and the flower-heads are borne in dense spherical clusters, so that without examination a cluster of flower-heads might be readily mistaken for a single one. The florets are pink, all tubular, the outer ones fertile and three-toothed, the inner sterile and five-toothed; the achenes are smooth or downy, and without pappus. *S. mollis*, a common Indian weed on dry cultivated land, is remarkable when fresh for the strong honey-like odour secreted by the innumerable soft glandular hairs which clothe the whole plant. [A. A. B.]

SPHÆRENCHYMA. Spherical or spheroidal cellular tissue, such as is found in the pulp of fruits.

SPHÆRIACEÆ. A large and interesting order of sporidiferous *Fungi*, but more important in a botanical than an economical point of view. They are characterised by carbonaceous or membranaceous cysts, or perithecia composed of cells or very rarely of interwoven threads pierced at the tip with a pore or narrow slit, and often ending in a distinct short or elongated nipple or crest-like process. The walls are lined within with a diffuent gelatinous mass of asci and barren threads (paraphyses). The cysts are either free from any stroma, whether naked or exposed, or variously seated on or within a filamentous fleshy or corky cellular mass called, according to the prevalence of a floccose or cellular structure, a subiculum or stroma. Though the normal form of fruit is ascigerous, there is reason to believe that many of them produce a second form of fruit, consisting of naked spores contained like the asci within a perithecium. In the highest genus, the sporiferous state, if we may judge from *Cordicosea purpurea* and its allies, is a mere thin stratum of exposed cells, while in some true *Sphærice* and *Hypocystis* it assumes the form of different genera of moulds. The subject is, however, still in its infancy, and the whole theory of secondary fruit requires many repeated observations before it can be considered as decisive, though the analogy of the red-spored *Algae* and some others, is in its favour.

Sphæriaceæ are abundantly produced upon decayed wood, herbaceous stems, &c.; they affect also more fugacious organs, and appear sometimes when there is some degree of vitality left in the matrix. They occur also on dung, on the naked soil, and on animal substances, as caterpillars, chrysalides, &c. They are not uncommon on cryptogams, and occur even on marine *Algae*, while one at least in every stage of growth is covered by the sea. One or two curious species are found on truffles while still in their native place of growth. They are found in all parts of the world which are not subject to such extremes of temperature as are hostile to all vegetation, save that of the lowest *Algae*. [M. J. B.]

SPHÆRIA. The typical genus of the natural order of *Fungi Sphæriaceæ*, formerly

almost coextensive with the order, and consisting of at least 1800 species, but still containing numerous representatives, after repeated reduction by the separation of distinct genera. *Sphæria* as now defined consists of those *Sphæriaceæ* which have carbonaceous perithecia which are not immersed in a distinct stroma, but are either quite exposed, partially sunk into their matrix, or covered by the cuticle, and accompanied by a more or less decided growth of threads constituting the mycelium. A few genera are separated in consequence of slight modifications of the perithecia and their contents which it is not necessary to indicate here. After every reduction we have still above 200 species in Great Britain, and there are probably at least 500 good species. The characters depend on the mode of growth, on the form clothing and sculpture of the perithecia, on the comparative abundance of mycelium or subiculum, but above all on the structure of the sporidia, which exhibit a marvellous variety of colour, outline, division, &c., which makes them admirable subjects for the microscope. Though the whole development of each sporidium must be taken into account, together with the variations to which it may be subject, and species must not be proposed on slight or untenable grounds, there are certain limits within which change can take place, and with proper caution the fruit affords the most certain distinctive characters. Though, however, the sporidia afford good specific characters, they are not in general to be depended upon for generic distinctions—an observation which applies to other *Sphæriaceæ*, and to the great mass of lichens. [M. J. B.]

SPHERINE. A genus of *Amaryllidaceæ*, consisting of perennial herbs, with erect or adscendent stems, scattered leaves, and umbellate terminal flowers. It is closely related to *Alstromeria*, but the ovary is but little superior, and the capsule is indehiscent. They are natives of Peru. [T. M.]

SPHÆROBLASTUS. A cotyledon which rises above-ground, bearing at its end a spheroid tumour.

SPHÆROBOLUS. A curious genus of *Nidulariaceæ*, distinguished by the sporangium being solitary, and at length ejected by the eversion of the lining-membrane of the common peridium, which splits in a stellate manner, and remains attached by the points of the rays like a little bladder. *S. stellatus* is the most common species, and is found occasionally on rotten sticks in woods, though in such situations seldom abundantly. On the contrary, it occurs in the greatest profusion on heaps of sawdust, or in hothouses. The sporangia are thrown like a shell out of a mortar to a considerable distance considering the size of the plant, which scarcely exceeds that of a hemp-seed, and adhere closely to whatever substances they may chance to meet with in their course.

A year or two since this little plant excited considerable alarm in a large establishment in Scotland, especially from its prevalence in an orchid-house. The very walls of the houses, the leaves of the orchids, and, in short, every substance in the conservatories were studded with little brown pellets, which adhered with great tenacity. The gardener, ignorant of the cause, fancied that it must be some new disease, which might possibly prove as fatal as the vine and potato murrain. He was, however, requested to send some of the *Sphægnum* which surrounded the orchid-roots, which was suspected to be the seat of the mischief; and when a portion of this was placed under a bell-glass the inside was soon in the same condition as the orchid-leaf, and the origin of the supposed mischief was clear, to the great delight of the gardener. All lovers of curious plants should look out for this singular fungus, which will amply repay a close observation. [M. J. B.]

SPHÆROCARPUS. A genus of Liverworts allied to *Riccia*, and distinguished by the superficial fruit being collected in clusters on the filmy frond, surrounded by a sessile or pedicellate undivided pitcher-shaped or ovate proper involucre. The spores have their surface divided into little areas, each of which has a minute wart in the centre. The cells of the walls of the capsule are filled with starch-grains. *S. terrestris* is found on the ground in clover fields or fallows, but appears to be more common in the eastern counties, than in the rest of England. [M. J. B.]

SPHÆROCARYA. A genus of sandalworts, distinguished by having the calyx persistent and five-cleft, the tube club-shaped; ten glands in the throat of the calyx, five of which (alternate with its divisions) are small and petaloid; and five stamens opposite the divisions of the calyx. The species are Indian trees, with alternate oblong leaves, and clusters of small green flowers. *S. edulis*, indigenous to Nepal, bears a fruit which is used by the natives. The name is derived from Greek words signifying 'sphere' and 'nut,' in allusion to the shape of the fruit. [G. D.]

SPHÆROCEPHALUS. Having flowers growing in close spherical heads.

SPHÆROCIONIUM. *Hymenophyllum*.

SPHÆROCOCCOIDEÆ. A natural order of rose-spored *Algae* belonging to the series with spores contained in necklace-like strings, the nucleus lodged in an external conceptacle, which is hollow, and has a placenta at the base; all the cells of the fertile threads being gradually changed into spores, and at length separating. The substance of the frond is cartilaginous or membranaceous. It contains many of our most beautiful *Algae* belonging to the genera *Delesseria* and *Nitzschium*, and has representatives in most parts of the habitable world. *Delesseria Leprieurii* occurs in the Hudson River at Westpoint.

sixty miles from the sea, and in the estuaries of several rivers in the Southern States of America. The same species is found also in New Zealand. [M. J. B.]

SPHÆROCOCCUS. A genus of rose-spired *Algae*, the type of the natural order *Sphærococcoides*. It once embraced many species now referred to other genera, and is now nearly restricted to the European *S. coronopifolius* and *S. crinitus*. The characters of the genus, as given by Dr. Harvey, are:—Fond cartilaginous, compressed, two-edged, linear, with two-ranked branches and an internal rib, cellular; central cells fibrous; medial many-sided, those of the surface minute and disposed in filaments. Fruit spherical tubercles, having a thick fibro-cellular pericarp, and containing a mass of minute spores on a central placenta. *S. coronopifolius* is common on the Irish shores, but rare in Great Britain, except on the southern coasts. [M. J. B.]

SPHÆROCOMA. A dwarf much branched shrub or undershrub, with small opposite linear fleshy leaves, and small flowers in dense clusters, which after flowering become globular heads, hispid with the numerous abortive sepals. It is a native of the deserts about Aden, and forms an exceptional genus of *Caryophyllaceae*, allied to *Polycarpha*, but having only two ovules to the ovary, and a single seed in the small utricular fruit.

SPHÆROLOBIUM. A genus of a small group of *Leguminosae*, exclusively Australian, in which the ten stamens are free, and the minute pods contain but two seeds. It differs from its near allies in the distinctly two-lipped calyx, the upper lip the larger and bifid, the lower three-parted. The species are small bushes, with wiry terete rush-like stems usually devoid of leaves, and abundantly clothed near the apex with small red or yellow pea-flowers. *S. alatum* is exceptional in having winged stems; and *S. vimineum*—cultivated in England—is peculiar to Tasmania and South-eastern Australia, while all the others are natives of Western Australia. [A. A. B.]

SPHÆROPTERIS. *Peranema*.

SPHÆROSPORE. The quadruple spore of some algae.

SPHÆROSTEMA. A name under which the Asiatic species of *Scissandra* have been distinguished as a genus.

SPHÆROSTEPHANOS. *Mesochlora*.

SPHÆROSTIGMA. About a dozen species of *Enothera*, having spherical instead of four-lobed stigmas, have been on this account separated as a distinct genus by some botanists with the above name. The most desirable species is *E. biatoria*, a large-flowered variety of which, called *Vetchiana*, is in cultivation. It is a pretty annual, with stems about a foot high, furnished with linear or lance-shaped and sessile sharply-toothed leaves, and axillary solitary bright-yellow flowers about an inch

across. It is a native of California, as are most of the species. The flowers are in most cases diurnal. [A. A. B.]

SPHÆROTHALAMUS. A genus of *Algae*, comprising a shrub, native of Bornen, with lance-shaped nearly sessile leaves, handsome orange-coloured flowers, having three roundish leafy erect sepals, six thick petals in two rows, placed with the numerous stamens on a globular thalamus, and numerous carpels, each with a short style and two ovules. The only species is *S. pulcherrimus*. [M. T. M.]

SPHÆROZYGA. A genus of green-spired *Algae* containing many beautiful microscopical objects, allied to *Oscillatoria*, and distinguished by the free threads, which are not immersed in a dense jelly, as in *Nostoc*, exhibiting at intervals large swollen connecting joints, either solitary or in chains, which are sometimes furnished with cilia, and ultimately contain zoospores. *S. spiralis* is remarkable for its spiral threads, which occur in such quantities as to tinge the water in which they grow of a delicate green. The species occur in various parts of the world, and though many of them affect comparatively high latitudes, they are also abundant in some hot springs, where they are used *en masse* as an application to diseased glands, to which they may possibly do good from containing in minute quantities an alkaline iodide. [M. J. B.]

SPHAGNEI. A natural order of mosses distinguishable at once by their habit, but technically characterised by their apparently perfectly sessile globose capsule, supported upon the elongated swollen sheath (vaginium), within which is a very short stem, the spore-sac passing over the top of the short columella, their pale tint often changing to lilac, their fasciculate branchlets, the absence of proper roots, and the peculiar structure of the leaves, which consist of large cells with orbicular perforations in their walls, between which runs a spiral thread, and surrounded by narrow elongated cells derived from the stem. The veil does not burst till the lid flies off. When this is ruptured, according to some authorities, a slight but distinct detonation takes place. The female flowers occupy the place of a branch, while the male flowers (which are globose and stalked like those of *Jungmannioides*) are seated at the tips of the branches—not in the axils but at the side of the leaves, as in *Pontania*. The branches, moreover, have a similar origin. They are distinguished from other Mosses by the difference of germination. While Mosses produce conovoid threads, *Sphagnei* produce a prothallus resembling the frond of some leafless *Jungmannioides*.

hagnei are essentially aquatic plants, though sometimes left dry by the subsiding of the water, they cannot flourish without considerable moisture. Few plants more rapidly form turf-beds, but unless mixed with other plants the turf which arises from them is useless for economical purposes on account of its

spongy nature. No plant affords a better material for packing than dry *Sphagnum* on account of its great elasticity, and when slightly moistened it is the best of all substances for enveloping the roots of plants which have a long distance to travel before planting. They afford also a useful material in the cultivation of orchids and some other plants in the conservatory. There is but one genus, *Sphagnum*, which occurs in all parts of the world in temperate climates. The species are difficult of definition, and are probably far less numerous than is supposed. [M. J. B.]

SPHAGNUM. See **SPHAGNEL.**

SPHAIGNE. (Fr.) *Sphagnum*.

SPHALEROCARPIUM. A bony one-seeded seed-vessel, inclosed in a fleshy cup, not belonging to the pericarp.

SPHENOCLÆA. A genus of bellworts, having the following characters:—The calyx has five deep-keeled lobes; the corolla is shortly tubular, its five divisions with inflexed margins concealing the anthers; the style is very short, ending in two obscure points; and the capsule is two-celled, opening by a lid at the top. The only species is an Indian herb inhabiting marshy places, having alternate narrow and entire leaves, and flowers in close terminal heads. [G. D.]

SPHENOGYNE. A genus of Cape *Compositæ*, some of which form handsome annuals in our flower-gardens. They have an imbricated involucre, the inner scales of which or all have a dilated scarious termination; the receptacle is paleaceous, and the pappus simple in a single row of obovate or wedge-shaped blunt scales, which become opaque-white when mature. The stigmas have a dilated truncate apex. They are herbs or subshrubs, with the aspect of *Anthemis*; and have large spreading rayed flower-heads, of an orange colour barred with black. [T. M.]

SPHENOTOMA. A small genus of *Epidendrea* distinguished by its calyx of five sepals, with two bracts at the base; its salver-shaped corolla, with a slender tube and beardless limb divided into five obtuse spreading wedge-shaped segments; its included stamens, and its five-celled seed-vessel. It comprises shrubs, natives of the southern coast of Australia, having the branches annulated when naked: imbricated sharp-pointed leaves, cucullate and half-sheathing at the base; and white flowers, in simple terminal spikes. [R. H.]

SPHEROIDAL. Any solid with a figure approaching to that of a sphere.

SPHERULA. A globose peridium through whose opening sporidia buried in pulp are emitted.

SPHINOTOLIBIUM. A name given by Vogel to three Brazilian trees of the *Leguminosæ*, with unequally pinnate leaves, and panicles of rose-coloured flowers. These plants are now placed in *Lon-*

chocarpus, of which they have all the characters. [A. A. B.]

SPHONDYLUM. *Heracleum*.

SPHRIGOSIS. We have already under the article *BANKSIA* noticed one form of this disease, which may be either constitutional or the effect of over-nutritment. Fruit-trees are not however the only members of the vegetable kingdom which suffer from this evil, which is notorious in many of our cultivated crops, and no less deceptive than injurious. Here, however, over-luxuriance may arise from constitutional defects rather than from injudicious manuring. Those persons who undertake to supply good turnip-seed check the luxuriance of the root by repeated transplanting, as it is found that seed raised from the finest roots produce plants which have a tendency to make a luxuriant head rather than a large and sound root. Where crops are to be consumed in the green state, it is always a question whether increased weight may not be attained at the expense of nutritious quality; and in the case of potatoes, though a large crop of tubers may be obtained, their keeping properties will in proportion be diminished, — a circumstance which may not be of much consequence where an immediate sale is the object, except indeed to the purchaser, but which would prove disastrous where the crop is to be stored.

Fungi seem occasionally to exercise some influence on the apparent luxuriance of a crop by their action on chlorophyll. No crops look better than those of the potato, which will ultimately fall a prey to the murrain, and the peculiar green hue of bunted wheat foretells the disease to the practised eye months before the ear bursts through the sheath. The bright green of fairy rings is perhaps due merely to the manure from the fungi of the previous year, but we could quote other instances in which the presence of the spawn of fungi in tissues increases the green tint of the leaves. [M. J. B.]

SPIO. (Fr.) *Lavandula Spica*.

SPICA. See **SPIKE.**

SPIOANARD FAUX. (Fr.) *Allium Victorialis*.

SPIOANTA. *Blechnum*.

SPICE-BUSH. *Oreodaphne californica*; also *Benzoin odoriferum*.

SPIOEWOOD. A North American name for *Benzoin odoriferum*.

SPICKNEL. *Athamanta*.

SPICULA (adj. **SPICULATE**). A fine fleshy erect point.

SPICULÆ, or **SPICULES.** The points of the basidia of fungi; also their aciculi.

SPICULÆA. A terrestrial genus of orchids, belonging to the tribe *Neottieæ*. The only described species is from South-western Australia, and is a small glabrous

SPINACIA. A genus of *Chenopodiaceae*, composed almost entirely of uninteresting weedy-looking plants, with small flowers of no beauty. Of this genus, which is bisexual, the male flowers being borne on one plant and the female flowers on another, there is only one species, the *S. oleracea*, well known as a favourite pot-herb during the early spring and summer months.

The Common Spinach is a hardy annual whose native country is unknown, though generally supposed to be Western Asia. It has been cultivated in this country for more than 300 years, and is noticed in Turner's *Herbal* of 1568 as 'an herb lately found, and not much in use.' The plant has large thick succulent deep-green leaves, of a somewhat triangular form, produced on long footstalks. The stem is erect large round and hollow, about two feet high. The male plants are distinguished by their green uninteresting flowers, growing in long terminal spikes; while those of the females are axillary sessile and clustered. The seeds are prickly in some varieties, and smooth in others.

Spinach is solely cultivated for its large fleshy leaves, which, although rather insipid, are considered wholesome; and when properly dressed, and thoroughly deprived of all moisture before being mashed with butter or rich gravy and a few sorrel leaves, they make an excellent dish, which may be eaten with any kind of meat. It is a singular fact that the water drained from Spinach after being boiled is capable of making as good match-paper as that made by a solution of nitre. [W. B. B.]

SPINDLE-SHAPED. The same as Fusiform.

SPINDLE-TREE. *Euonymus europæus*.

SPINE. A stiff sharp-pointed body, consisting of woody tissue covered with cellular tissue. A hardened leafstalk, stipule, abortive branch, or any other process into the composition of which woody tissue enters. *Spines of the leaves* are the hardened extremities of lobes, or in some cases superficial spiny elevations.

SPINESCENS, SPINIGER, SPINOSUS. Covered with spines.

SPINIFEX. A genus of grasses belonging to the tribe *Panicæe*, and having the heads or bundles of inflorescence terminal and axillary, with the male and fruiting plants distinct; glumes thin and membranaceous, seven to nine-nerved, those of the male plant unequal, the inner the shortest, those of the fruiting plant equal and acuminate; flowers two, sessile; anthers three; lowest flower neuter, upper hermaphrodite. The few species belonging to this small genus are mostly natives of New Holland. [D. M.]

SPINKS. *Cardamine pratensis*.

SPINOSO-DENTATE. Having teeth tipped with spines.

SPINULOSO-CILIATE. Ciliated with fine spines.

SPIRÆA. An extensive genus of shrubby or herbaceous plants belonging to the tribe *Spiræideæ* of rosaceous plants, and thus characterised:—Petals five; seed-vessels oblong, opening at the side (follicles), and containing one to six seeds suspended from the inner edges of the follicle. The best-known British species is *S. Ulmaria*, the Meadow-sweet, or Queen of the Meadows, an herbaceous plant with pinnate leaves having a large terminal lobe, erect slender rigid stems about two feet high, and terminal dense corymbs of white highly fragrant flowers. It is common near watercourses and in damp meadows. *S. Filipendula*, or Dropwort, also a British species, is a plant of similar habit; but the leaves are pinnate, with all the leaflets jagged and deeply serrated. The white scentless flowers while in bud are tinged with crimson externally. This species grows in dry pastures and on heaths; a pretty variety of it with double flowers is frequent in gardens. *S. salicifolia*, a shrub with terminal compound clusters of dull rose-coloured flowers, is a common plant in scrubberies, and is found to some extent naturalized in the North of England and in Scotland.

Of the foreign shrubby kinds of *Spiræa* some are very handsome: for example, *S. prunifolia*, with double flowers, a native of Japan, a beautiful shrub, with leaves like those of the plum, silky beneath, and pure white flowers; *S. hypericifolia* and *S. chamaedrifolia*, with white flowers; *S. bella* from Nepal, with rose-coloured flowers growing in lateral and terminal corymbs; *S. tomentosa* from Canada, with cottony leaves and pyramidal panicles of rose-coloured flowers; *S. Fortunei* from China, with ovate smooth toothed leaves, often tinged with purple, and rose-coloured flowers—and many others. Some are valued from the rapidity of their growth, and others for their remaining in flower during many months. French: *Reine des prés*; German: *Wiesenkönigin*. [C. A. J.]

SPIRÆANTHEMUM. A genus referred to *Saxifragaceæ* by A. Gray, comprising Polynesian plants, with opposite or verticillate leaves, interpetiolar deciduous stipules, and small paniculate perfect or polygamo-dioecious flowers. The calyx is eight or five-cleft; petals nine; stamens four or ten; follicles four or five, compressed dehiscent, one or two-seeded. [J. T. S.]

SPIRALTHREAD. *Spironema*.

SPIRANTHES. A terrestrial genus of orchids forming the type of a tribe called the *Spiranthideæ*, consisting of about fifty species, for the most part inhabitants of the New World. One species, *S. australis*, is common to Australia, New Zealand, and tropical and subtropical Asia. They are herbs with tuberous or thick fibrous roots, numerous linear grass-like leaves growing from the root and stem (occasionally wanting, or represented by small brown scales),

and small flowers in a spirally-twisted spike, by which the genus is easily recognised. The name is derived from *spira* a 'spiral' and *anthos* a 'flower,' in allusion to the spiral arrangement of the flowers. The tuberous roots of *S. autumnalis* were formerly esteemed as an aphrodisiac. *S. dioretica* is administered in Chili in cases of ichthy. Three species are found in the British Isles. [W. B. H.]

SPIRÉE. (Fr.) *Spiraea*.

SPIRES. *Phragmites communis*; also applied to Rushes and Sedges.

SPIRIDENS. A genus of mosses remarkable both as regards size and structure. The peristome is double, the outer composed of sixteen long teeth, which when free curl up from within into a spiral, while the inner consists of a membrane divided into as many cilia, in part free, in part combined above. The capsule is lateral and unequal. Though the genus is pleurocarpous, it has rather the habit of a gigantic *Bartramia* than of a *Hypnum*. *S. Reinwardtii* occurs in Java, Taliti, and the Philippine Isles, attaining a length of more than a foot. It belongs to a small natural order, *Cryptothecet*, distinguished by the cylindrical stem, imbricated leaves, and mitriform veil. The order is represented in this country by *Cryptaea heteromalla*, which is common on trees, and by the rare *Dallonia splachnoides*, which has not been found out of Ireland. A species of *Dendropogon*, which belongs to the same order, hangs down in great masses from trees in Mexico, and is an admirable substance for packing. [M. J. B.]

SPIRIT-LEAF, or SPIRIT-WEED. *Ruellia tuberosa*, now called *Cryptanthus barbadensis*.

SPIROCHETA. A genus of *Compositae*, comprising an annual herb of Columbia. The stem is decumbent; the involucre is of two rows of bracts; the flowers equal, each with a slender tube, dilated above into a five-cleft throat; and the style divided into two linear awl-shaped branches. Fruits multicostate, oblong, covered with glandular hairs; pappus in one row, consisting of four smooth hairs twisted spirally at the points, whence the name of the genus. [M. T. M.]

SPIRODELA differs from *Lemna* in the presence of spiral vessels in all its parts, as well as in some points of less cardinal importance. The genus is represented in this country by the Greater Duckweed, *S. polyrrhiza*, the largest of our British species. Its fronds are roundish fleshy, nearly half an inch in length, green above, purple below, the roots numerous and clustered. The flowers are very rarely observed, and the fruit is unknown. [M. T. M.]

SPIROLOBEZE. One of the divisions of the *Cruciferae*, distinguished by having the cotyledons incumbent and spirally twisted.

SPIRONEMA. A genus of *Commelyna-*

ceae, established by Lindley for a Mexican plant, more curious than handsome, with large oblong-lanceolate acute radical leaves, and erect leafless almost rush-like flowering stems, having the small fragrant flowers clustered along its rigid branches, in the axils of chaffy scales. The three rigid sepals and three extremely delicate petals are the same as in many other *Commelynaceae*, but the structure of the stamens is peculiar: the very slender filaments contain spirally-twisted bundles of vessels, and the anthers are placed transversely at the base of a large delicate heart-shaped connective.

SPIROSTACHYS. A South African tree constituting a genus of *Euphorbiaceae*. The leaves are entire stalked smooth; the flowers monœcious; the males in crowded catkins, with spirally arranged bracts, their calyx enclosed within the bract; and the females solitary at the base of the male catkin, or in pairs, with a three-celled ovary, and thick style supporting three thick recurved stigmas. The generic name is given in allusion to the spirally arranged bracts of the catkin. [M. T. M.]

SPITHAMA (adj. *SPITHAMÆUS*). Seven inches, or the space between the tip of the thumb and the forefinger separated as widely as possible.

SPIXIA. A genus of Brazilian trees of the family *Euphorbiaceae*. The leaves are large and leathery; the flowers are axillary diœcious, surrounded by an involucre of somewhat globular form, studded by star-shaped hairs; the calyx is small, two to three-parted; stamens two to three, longer than the calyx, surrounding four rudimentary ovaries. In the female flowers there is a two-leaved calyx surrounding an oblong hairy three-celled ovary; stigma entire; fruit capsular. [M. T. M.]

SPLACHNEI. A natural order of acrocarpous mosses, characterised by a straight capsule with a well-marked and often large swelling (apophysis) at the base, diaphanous large-celled leaves, the spores radiating in lines from the columella, and the plants growing on decayed wood or the dung of animals. They are amongst the most remarkable of mosses, especially those which occur in the Northern Hemisphere. The peristome is generally well-marked, and in *Tayloria splachnoides* the teeth are remarkably long, and singularly curled after the lid has fallen. In *Oedipodium*, however, there is no peristome. It is singular that the species of the Northern Hemisphere grow on dung, while those of the Southern Hemisphere (with one exception) only occur on decayed wood. [M. J. B.]

SPLACHNUM. A beautiful genus of mosses remarkable for the immense development of the apophysis in several species, which gives them a very striking appearance. In *S. rubrum* and *luteum* (the former of which is European, and the latter extends to America) it is shaped like an umbrella, and is of a red or yellowish hue; while in *S. vasculorum*, which occurs in the

Scottish Highlands, it is rugged, and of a deep purple. In *S. Gunnii*, a fine Tasmanian species, it resembles a Turk's-cap gourd; while in *S. ampullaceum*, which occurs in marshy places on a level with the sea or on the dung of animals, it is pitcher-shaped, and of a reddish or golden-yellow colour. The swelling is hollow, the central portion (a continuation of the axis) being connected with the outer by delicate threads. Several genera have been separated from it, but most of them rest on insufficient grounds. French: *Splanc*. [M. J. B.]

SPLEENWORT. *Asplenium*.

SPLENDENS. The same as polished, but having the lustre a little broken from slight irregularity of surface.

SPLITGERBERA. A Japanese shrub forming a genus of *Urticaceæ*. The leaves are opposite or in threes, entire or two-lobed, membranous; and the flowers in axillary spikes, with four-leaved unequal involucre; perianth of the male flowers four-parted, with four stamens opposite its segments; filaments flattened petaloid, at first infolded, afterwards spreading. The female flowers are placed above the males in the upper part of the stem; they have an ovate perianth closely applied to the ovary, and nearly adnate to it. The ovary is one-celled, with a single ovule, and a cylindrical style terminated by an elongated hairy stigma. [M. T. M.]

SPODO. In Greek compounds = ash-grey.

SPONDIACEÆ, or **SPONDIEÆ**. A tribe of *Anacardiaceæ*, considered by some botanists as a distinct order, but only differing from the other tribes by the ovary being completely two to five-celled instead of being reduced by abortion to a single cell. Besides *Spondias* itself, it only includes nine species distributed into six genera.

SPONDIAS. By some authors this genus is considered as the type of a distinct natural order, while others refer it to *Anacardiaceæ*. The points of distinction are to be sought in the alternate dotless leaves, and in the cup-like disk surrounding the five distinct carpels, each of which contains a single pendulous seed.

The species are natives of the tropics of both hemispheres, and the fruits of some of them are edible. Thus in Brazil and the West Indies, *S. lutea*, *S. Mombin*, *S. tuberosa*, &c. yield fruits eaten under the name of Hog Plum, the taste of which is said to be peculiar, and not agreeable to strangers. These fruits are chiefly used to fatten swine. *S. dulcis*, a native of the Society Isles, yields a fruit compared in flavour to that of the pine-apple. *S. mangifera* yields a yellowish-green fruit, which is eaten in India, and is used as a pickle in the unripe state.

Some of the species are employed medicinally. Thus the bark leaves and wood of *S. mangifera* are used in various complaints in India. An insipid gum also

exudes from the bark of this tree. *S. Mombin* has astringent leaves, while its fruits are laxative, and its seeds are said to be poisonous. The bark of *S. venulosa* has aromatic astringent properties. *S. tuberosa* is also employed in fevers; the fruit is the part used. *S. Birrea* affords to the natives of Abyssinia an edible kernel, while its fruits are employed in Senegal in the preparation of an alcoholic drink.

The flower-buds of *S. Mombin* are used as a sweetmeat with sugar. One or two species are in cultivation in this country. The generic name is said to be derived from the Greek name for a kind of plum; it may also be derived from *sponds* 'a cup,' in allusion to the peculiar cup-like disk in the flowers. [M. T. M.]

SPONÉE. (Fr.) *Spergula*.

SPONGELET, **SPONGIOLE**. The young tender extremity of a root, by which fluid food is absorbed from the earth.

SPONGE-TREE. *Acacia Farnesiana*.

SPONGEWOOD. *Æschynomene aspera*.

SPONGIOCARPÆÆ. A natural order of rose-spored *Alga*, consisting of a solitary genus, **POLYIDES**: which see. [M. J. B.]

SPONGY. Having the texture of a sponge, that is to say, very cellular, with the cellulæ filled with air: as the coats of many seeds.

SPONTANEOUS GENERATION. In the days of Aristotle, and to a late date in the last century, the notion that corruption is the source of life was almost universal, and it is a common popular opinion even in the present day. In the scientific world indeed, except amongst a few philosophers of the German school, the opinion has been all but exploded, that organised beings can arise without pre-existent germs. It has, however, of late been revived by Pouchet and others in France; and if their facts could be implicitly depended upon, the doctrine would certainly be in a condition less exposed to doubt than it has of late been considered. Its opponents, however, in France—amongst whom may be reckoned men of no mean pretensions, as Payen, Quatrefages, Bernard, and Dumas—have met the subject with counter-statements which appear quite irresistible.

Wherever due attention has been paid to prevent the possibility of access of atmospheric air, no vegetation has ever appeared, provided proper precautions have been taken to place all possibly pre-existent germs in such a condition that their reproductive powers must be destroyed. If the residue of rain or snow-flakes or the dust of tradewinds is carefully examined, numerous animal and vegetable productions may always be detected; and the lower forms of either kingdom are propagated with such extreme rapidity, that the swarming of animals or vegetables in infusions seems almost magical. Some of these will bear

a heat equal or even much superior to that of boiling-water for some time without losing their vitality; therefore the simple boiling of water is not sufficient, even should care be taken to exclude the outward air, or to prevent its containing reproductive germs by passing it through a furnace. Concentrated sulphuric acid has sometimes been used for the same purpose, but this plan is subject to error, as, whatever may be the case with germs which may be present on the outside of a bubble passing through the acid, it does not follow that those in the middle of the bubble should be killed. The existence of intestinal worms even in infants in the womb, and that in situations in which it seemed impossible that there could be any access from without, was once regarded as decisive on the question; but the discoveries of Van Beneden and others have set this at rest, except with the sworn advocates of Heterogenesis, who deny their doctrine with a sneer at their small pretensions to credit, inasmuch as they are not Frenchmen. No observations, indeed, require greater caution and nicety than those which are requisite to establish or disprove the doctrine, and there is no subject which has less excuse for anything like dogmatism. In trustworthy hands the proof of Heterogenesis has always failed, and true philosophy will not readily adopt a theory which is *a priori* opposed by such a multitude of facts.

A parting observation may be offered respecting organisable lymph in animals, or protoplasm in plants. Undoubtedly new living cells and structures seem to be generated in such substances without any immediate connection with the contiguous tissues. It must, however, be remembered that such matters can only generate new tissues or organs when still endowed with life and in contact with living tissues. The serum of blood, for instance, when removed from its fountain (though kept at the proper temperature), will never generate blood-globules, and other similar examples might be adduced. [M. J. B.]

SPOONWORT. *Cochlearia officinalis*.

SPORANGIOLUM. A case containing sporidia.

SPORANGIOPHORUM. The axis or columella on which are borne the spore-cases of some ferns.

SPORANGIUM. A word used in cryptogams to denote the case in which the spores are formed. In ferns it is applied to the little cysts with their elastic ring; in pseudoferns to the organs immediately containing the spores, whether naked or contained in a common receptacle; in mosses to the urn-shaped bodies which are often called capsules and thecae. Amongst algae lichens and fungi it is seldom used in a general sense. In the latter it is sometimes applied to asci when large and pear-shaped as in truffles, to the spore-bearing vesicles of moulds, or to the

lens-shaped bodies contained in the receptacles of plants like *Nidularia*, though they are certainly not of the same nature as, or in scientific language homologous with) the organs just mentioned. [M. J. B.]

SPORE. As the reproductive bodies of cryptogams do not contain an embryo, but are merely cellular, consisting of one or more cells variously combined together, they are called spores to distinguish them from true seeds. Amongst *Fungi* the name is restricted to those reproductive bodies which are produced either singly, or in little chains at the tips of the fruit-bearing threads. In many cases, however, these bodies are generated within cells or asci, and they are then for distinction's sake termed sporidia. It is however desirable that the word spore should be used in the more general sense as opposed to seed, the grand distinction between cryptogams and phenogams consisting in the different nature of their mode of reproduction. The spores of acrogens are produced mostly in mother-cells four together, after the manner of pollen-grains—often however retaining their original form, so that when mature they have one spherical and three plain sides. In a few genera, however, there is only a single spore in each sporangium. In *Algae* the spores are sometimes, as in *Desmosperma*, nothing more than the transformed joints of certain threads; sometimes they appear, as in most if not all *Gongyloperma*, to be formed from the contents of a cell, as in the ascigerous *Fungi*, sometimes they are endowed with active motion like animals, and are then called Zoospores. In lichens they are of the same nature as the sporidia of *Fungi*. The word sporules is sometimes used generally in the sense of spores, sometimes to denote distinct granules within spores. These are occasionally called sporidiola.

Spores germinate either by elongation of some particular part, and subsequent cell-division, or by cell-division without any protrusion of a thread or membranous expansion. In *Myxogastres* they germinate sometimes after the fashion of other *Fungi*, but sometimes the outer case is ruptured, and a body appears with the attributes of some of the lower *Infusoria*, which, apparently without any cellular division, produces the semigelatinous mycelium peculiar to those *Fungi*. [M. J. B.]

SPORE-CASE. The immediate covering of the spores of cryptogams.

SPORENDONEMA. A genus of *Fungi* proposed at first on erroneous characters, of which one supposed species, which forms scarlet masses on decayed cheese, differs from *Torula* only in its bright colour. *S. Musca* occurs in flies in autumn, coozing out between the rings of the abdomen, and at length killing them. The species requires further study, and will probably be traced to some higher stage of development. The flies which are attacked by it before death fasten themselves by their proboscis to leaves or other sub-

stances, where they remain attached for some time. See *SAPROLEGNIA*. [M. J. B.]

SPORIDESMIUM. An obscure genus of naked-spored *Fungi* (*Contomyces*), consisting of a multitude of species forming conspicuous black soot-like patches on rails, decayed wood, &c. Many of them are probably merely conditions of *Fungi* and lichens. There is scarcely any mycelium, and the whole plant consists of nothing more than cellular spores of various shapes. The genus is worthy of notice here only as explaining the origin of the above-mentioned patches, which must attract every eye the least attentive, and whose nature it may be desirable to ascertain. [M. J. B.]

SPORIDIA. A name given to the spores of *Fungi* and lichens when they are contained in asci. Sporidia like spores may consist of one or more cells, and these may be covered with a distinctly organised cuticle as in many truffles. They have frequently a thick gelatinous coat, which is usually absorbed as the contents of the cells become fully organised. They germinate by the protrusion of the inner membrane, the outer being ruptured or perforated, or in some cases by the elongation of both. In compound sporidia a distinct germinating thread is often produced by each cell. Sporidia often contain one or more oil-globules, and occasionally distinct cytoblasts, which are sometimes confounded with the oil-globules. Like other organs they are subject to disease, and may be either wholly effete, or so distorted and altered in chemical composition as to be incapable of germination. It is a mistake to suppose that they are constant in size and form. Great differences of dimensions and outline may exist in the same ascus. Microscopical measurements are therefore valuable only within certain limits, and the same may be said of form. Sporidia have sometimes a very different outline when seen from the back or side; and in some cases, like the spores of so many agarics, they are hollowed out on one side like the seed of a *Veronica* or a fragment of a bombshell. In many cases the ascus in which they were generated is absorbed, so that they appear naked; and it is probable that occasionally they undergo further development when free, as is certainly the case with some spores or protospores of *Fungi*. [M. J. B.]

SPORIDIIFEROUS. Bearing sporidia.

SPORIDIOLA. The spores or sporules of thalloogens and acrogens.

SPOROBOLUS. A genus of grasses belonging to the tribe *Agrostideæ*, the species of which are now placed in *Vilfa*, &c. by Steudel. [D. M.]

SPOROCARP. The involucre of pepper-worts; the spore-cases of lycopods; any spore case.

SPOROCLADIUM. A branch on which

the reproductive bodies of some algae are found.

SPOROCTYST. The spore-case of algae.

SPORODERM. The skin of a spore.

SPOROPHORE. A name given to the fertile cells in the naked-spored *Fungi*, and synonymous with the basidia of French authors. In such *Fungi* as agarics the sporophores are clavate or swollen above, and bear generally four little points called spicules, or by the French *sterigmata*, on which the spores are seated. In *Tremella* the sporophores are globular or quadripartite, the spicules being drawn out into long threads, in *Contomyces* they are often very short and obtuse, or thread-shaped, and occasionally branched. [M. J. B.]

SPOROPHYLLA. A name given to the little leaflets which, as in *Plocamium*, bear the tetraspores. [M. J. B.]

SPORULE. See *SPORE*.

SPRAGUEA. A Californian herb forming a genus of *Portulacaceæ* allied to *Claytonia*, but differing in the petals being reduced to four, the stamens to three, and the styles and valves of the capsule to two, and by the remarkable large orbicular cordate thin and transparent sepals. The leaves are all radical, and somewhat succulent; the flowers are densely imbricate in spikes, several of which form a dense umbel on a leafless scape, the large sepals giving it an elegant and singular aspect.

SPREADING. Having a gradually outward direction, as petals from the ovary.

SPREKELIA. The genus of the Jacobean Lily, *S. formosissima*, and one or two other species. It is remarkable for its declinate perianth, with scarcely any tube, and a limb of which the upper segments are reflexed, and the lower aloped downwards and convolute at the base. The filaments are inserted equally with a connecting membrane, and are fasciculate declinate and recurved like the style; the leaves are linear-lorate, produced after the flowers, and the scape somewhat two-edged hollow and one-flowered. [T. M.]

SPRENGELIA. A small genus of *Epidendraceæ*, natives of South and Eastern Australia and Tasmania, distinguished by having a five-parted slightly-coloured calyx, surrounded by numerous bracts; a five-parted heartless corolla; stamens free, the anthers occasionally united; and the seed-vessel five-celled. They are upright branching shrubs; the leaves sharp-pointed cucullate and half-sheathing at the base; and the flowers terminal, on short lateral branchlets. [R. H.]

SPRING-BEAUTY. An American name for the *Claytonias*.

SPRINGERS. A local name applied to the variety of *Agaricus arvensis* figured by Bulliard, and distinguished by its elongated pileus, tall stem, and thinner ring.

They grow in very large rings, and sometimes (as in 1860) occur in thousands, yielding excellent buttons for pickling where it is not thought essential to retain a pale colour, as in the buttons of *A. campestris*. This, however, is next to impossible, as the plant when bruised at once turns yellow, and unless thrown at once into water acquires soon a brown tint which is indelible. When full-grown they are very good for stewing, though not so delicate in flavour as the true mushroom, neither do they yield such good ketchup as that species. [M. J. B.]

SPLIT. *Juncus articulatus*.

SPRUCE. *Abies*. *A. nigra* is the Black Spruce, *A. alba* White Spruce, and *A. rubra* Red Spruce. —, **HEMLOCK.** *Abies canadensis*. —, **NORWAY.** *Abies excelsa*.

SPRUCE. A fermented liquor made from molasses or treacle, and a decoction of the twigs of the Spruce Fir.

SPRUCEA. A handsome tall bushy shrub discovered by Mr. Spruce on the shores of the Amazon near the mouth of the Rio Negro, and named after him as a genus of *Cinchonaceae*. The flowers, of a yellowish cream-colour and with a fine scent of *Vanilla*, are in dense terminal corymbs. The almost globular tube of the corolla with minute broad lobes, and the long projecting stamens, distinguish it from all allied genera; the two-celled ovary, with numerous imbricate ovules, and the evidently capsular fruit, show that it belongs either to the tribe *Cinchonae* or to that of *Bonadeleae*, but the ripe seeds being as yet unknown it cannot at present be determined to which of these groups it should be referred.

SPUMARIA. One of the most conspicuous genera of the semigelatinous puffballs, occurring in the form of frothy and at length lobed masses, white without and dusty within, on the stems of grasses, amongst dead leaves, &c. The peridia are at length completely confluent. There is no beauty to recommend the two or three species of the genus. [M. J. B.]

SPUNK. *Polyporus igniarius*.

SPUR. A hollow terete extension of some part of the flower. The same as Calcar.

SPURGE. *Euphorbia*. —, **BRANCHED.** *Eriogonum littorale*. —, **CAPER.** *Euphorbia Lathyris*. —, **CYPRESS.** *Euphorbia Cyparissia*. —, **PETTY.** *Euphorbia Peplus*. —, **SUN.** *Euphorbia helioscopia*.

SPURGEWORTS. Lindley's name for the *Euphorbiaceae*.

SPURRY. *Spergula*. —, **CORN.** *Spergula arvensis*. —, **KNOTTED.** *Sagina nodosa*. —, **SAND.** *Spergularia*.

SPUR-TREE. *Pettitia domingensis*.

SPURWORT. *Sherardia arvensis*.

SPYRIDIDIUM. A genus of *Rhamnaceae*, *chica*.

comprising a considerable number of Australian species very nearly allied to *Trymalium* and to *Cryptandra*, and many of them have been described under one or other or both of these genera. They agree also with both genera in their more or less inferior three-celled ovary, and in their capsule enclosing three membranous or crustaceous cocci; but differ from *Trymalium* chiefly in their flowers being closely sessile in little heads, surrounded by small brown bracts; and from *Cryptandra* in their stamens being inserted immediately round the disk, not adnate to the calyx-tube above the disk. They are all small procumbent or heath-like shrubs, more or less hoary with a close tomentum, with small entire leaves, and very small flowers, the heads usually collected into axillary or terminal cymes or compound heads. Few, if any, out of nearly thirty species known, are likely to be ornamental enough for cultivation.

SQUAMA. A scale-like rudimentary leaf, such as coats and guards the leaf-bud.

SQUAMATE. Covered with small scale-like leaves.

SQUAMATIO. A disease, consisting in a preternatural formation of rosettes of scale-shaped leaves, such as occasionally appears on the rose-willow.

SQUAMELLA. A scale-like membranous bract, such as is found very commonly on the receptacle of composites.

SQUAMOSE. Scale-like.

SQUAMULÆ. The hypogynous scales of grasses.

SQUARROSE. Covered with bodies which spread at right angles, or at a greater angle, from the surface which bears them, or being so arranged.

SQUARROSO DENTATE. Having teeth which do not lie in the plane of the leaf, but form an angle with it.

SQUARROSO-LACINIATE. Lacerated in a squarrose way.

SQUARROSO-PINNATIPARTITE. Deeply pinnatifid with squarrose divisions, as the leaf of *Achillea Millefolium*.

SQUARROSO-PINNATISECT. Pinnatifid, with the segments so straggling as to appear on different planes.

SQUASH. A variety of *Cucurbita Melopepo*. —, **LONG.** An American name for *Cucumis verrucosa*.

SQUAW-ROOT. *Conopholis*.

SQUAW-WEED. *Senecio aureus*.

SQUILL. *Urginea maritima*; also the genus *Scilla*. —, **CHINESE.** *Barnardid*. —, **ROMAN.** *Bellveria*.

SQUILLE. (Fr.) *Urginea maritima*.

SQUINANCY-BERRY. *Ribes nigrum*.

SQUINANCYWORT. *Asperula cynanchica*.

SQUINE. (Fr.) *Smilax China*.

SQUIRREL-CORN. An American name for *Dicentra canadensis*.

SQUIRREL-TAIL. *Hordeum maritimum*.

SQUITCH. *Triticum repens*; also *Agrostis stolonifera*.

SRIGUNDA. An Indian name for Sandalwood.

STAAVIA. A genus of *Burseraceae*, distinguished by the corolla being of five lanceolate petals, thick and fleshy below; and the seed-vessel half-inferior and two-horned. The species are Cape shrubs, with linear leaves hard at the end; and flowers intermixed with chaffy scales, arranged in heads with numerous white bracts. The genus was named after Martin Staaf, a correspondent of Linnaeus. [G. D.]

STACHIDE. (Fr.) *Stachys*.

STACHYANTHUS. A genus of *Compositae*, comprising a Brazilian herbaceous plant of somewhat shrubby habit, covered with closely pressed white hairs, and having partially-toothed leaves, globular flower-heads surrounded by an involucre of oblong scales; the achenes hairy, surmounted by a pappus of many rows of hairs, the outer ones shorter than the inner. [M. T. M.]

STACHYS. In Greek compounds = a spike.

STACHYS. The generic name of plants belonging to the order *Labiatae*, and distinguished from their congeners by the following characters:—The calyx is somewhat bell-shaped, with five nearly equal teeth; the tube of the corolla is about as long as the calyx, its upper lip arched and entire, the lower three-lobed, the two lateral lobes bent down; and the two anterior stamens are longest. The species are herbs shrubs or undershrubs, widely distributed, and varying greatly in habit. The flowers are two or more in a whorl, usually in terminal masses. The name is from *stachys*, the Greek for 'spike,' in allusion to the aspect of the inflorescence. [G. D.]

STACHYTARPHA, or STACHYTARPHETA. A genus of *Verbenaceae*, generally considered as a section of *Verbena*. It differs from the true *Verbenas* in having a two-celled fruit, splitting into two seed-like nutlets, and having the two upper stamens without anthers. The species are aromatic herbs or shrubs, natives for the most part of tropical or subtropical America. The flowers are densely packed upon somewhat fleshy spikes. *S. jamaicensis* is possessed of remarkable medicinal virtues according to the Brazilians; its leaves are sometimes used to adulterate tea, and in Austria they are sold under the name of Brazilian tea. [W. O.]

STACKHOUSIA, STACKHOUSIACEÆ. A genus of polypetalous dicotyledons allied to *Celastraceae*, but differing in so

many points that it is universally adopted as a distinct order. It consists of about twenty species, all Australian excepting two, one from New Zealand, the other from the Philippine Islands. They are all herbs, with a perennial often woody stock, and simple or little branched erect stems; the leaves are alternate narrow or small, the flowers white or yellow in a terminal raceme. The calyx is small five-lobed, the tube lined with the disk, on which the stamens are inserted alternately with the petals as in *Celastraceae*; but the petals are more or less combined in a tubular corolla, the stamens are unequal, and the ovary and fruit are divided into two to five (usually three) lobes or cocci, all which characters are as different from those of *Celastraceae* as is the habit. None of the species present any interest beyond their botanical structure. The genera *Tripterooccus* and *Platystigma*, proposed to be separated from *Stackhousia*, have not been generally adopted.

STÆHELINA. A genus of *Compositae*, so named in honour of a Swiss physician and botanist. The species are shrubs, natives of the Mediterranean regions, with narrow leaves, downy on the under-surface, and terminal flower-heads, surrounded by a cylindrical involucre of overlapping scales; receptacle flat, scaly; corollas all tubular, five-cleft; style tumid, and hairy at its upper part; achenes oblong, surmounted by a pappus of one row of hairs, combined at the base into four or six bundles. [M. T. M.]

STAFF-TREE. *Celastrus*.

STAGGER-BUSH. *Lyonia mariana*.

STAGGERWORT. *Senecio Jacobææ*.

STAGS-HORN. *Rhus typhina*; also *Cenomyce cervicornis*, and *Lycopodium clavatum*.

STALK. The stem or support to an organ; as the petiole of a leaf, the peduncle or pedicel of a flower, &c.

STALKLESS. See **SESSILE**.

STALKLETS. Secondary petioles; petiolules; the stalks of leaflets.

STAMEN. That organ of the flower to which the pollen belongs. —, **STERILE.** A body belonging to the series of the stamens, but without pollen.

STAMINAL. Consisting of stamens.

STAMINIDIA. The antheridia of cryptogamic plants.

STAMINIGEROUS. Bearing stamens.

STAMINODE, STAMINODIUM. A rudimentary stamen, or what appears to be so.

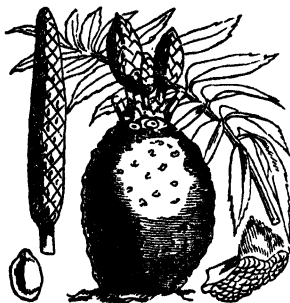
STANDARD. The fifth petal of a papilionaceous flower.

STANDERWORT. *Orchis mascula*.

STONE-RAW, or STANEY-RAG. A name of the *omphalodes* variety of *Parmentia saxatilis*, which is also called Black

Crotties. It is employed by the Highland peasants to prepare a brown dye which is much used for domestic purposes. Both the dye and the lichen are called by the Shetlanders *Scrottyle*. (M. J. B.)

STANGERIA. A very remarkable genus of *Cycadaceae*, quite distinct from any other of the order in its fern-like foliage. It is a Natal plant, with a thick napiform trunk, a few coarse pinnate leaves, the pinnae of which are oblong-lanceolate spinuloso-serrate, and traversed by parallel forked veins like those of a *Lomaria*.



Stangeria paradoxa.

The fructification is in cones, the male cylindrical, with numerous stamens inserted on the under-side of its compound scales; the females on separate plants, ovoid, with two inverse ovules in the base of each scale. The genus, of which only one species (*S. paradoxa*, figured above) is known, is closely related to *Encephalartos* in structural characters, but differs remarkably in habit and foliage. [T. M.]

STANHOPEA. A most beautiful though not very extensive genus of epiphytal orchids belonging to the *Vanda* tribe. About twenty-six species have been described, natives of South and Central America: one, *S. grandiflora*, being found in Trinidad. They are pseudobulbous herbs, with broad membranaceous plicate leaves, radical sheathing often pendulous scapes, and large spotted fragrant flowers. The species may generally be recognised by the lip being divided into hypochil or lower cavity, mesochil or middle part (from which the horns proceed), and epichil or front moveable lobe; and by the pendulous flowers, with a spreading or reflexed perianth. The genus is named in honour of Earl Stanhope, who was at one time President of the Medical-Botanical Society of London. *S. tigrina*, of which a figure is subjoined, together with *S. Barkeriana*, *Wardii*, and *Ducepha-*

lus, are amongst the finest species of this genus. [W. B. H.]



Stanhopea tigrina.

STANHOPEASTRUM. An epiphytal genus of orchids belonging to the *Vandee*. The only species at present known is highly curious, and until lately has been referred to *Stanhopea*; but it differs from that genus in having a lip quite free from horns, and not divided into separate parts. The lip is described as being ovate, obsoletely triangular at the end, short, in form resembling a slipper, very fleshy, of a bright-yellow orange colour passing towards the point into pure white, and mottled on its sides with handsome purple blotches. The remaining parts of the flower are white, with purple spots near the base of the petals. The flowers, which grow in pairs, are large and showy. It is a native of Central America. [W. B. H.]

STANLEYA. A genus of *Cruciferae* from North-western America, consisting of smooth glaucous perennials, with lyrate-pinnatifid or entire leaves, and long racemes of yellow flowers. The pod is slender cylindrical on a long stipe. [J. T. S.]

STANMARCH. *Smyrnatum Olusatrum.*

STANNIA. A genus of *Cinchonaceae*, differing little from *Posoqueria*, save in the one-celled berry. The corolla is funnel-shaped, with a very long tube; its limb divided into five lobes, opposite to which are five scaly prominences; and the stamens are of unequal length, and project beyond the mouth of the corolla. *S. formosa*, a native of the Caraccas, is a fine tree with lance-shaped laurel-like leaves, and white fragrant flowers three to four inches in length. It is in cultivation as a highly ornamental stove-plant. [M. T. M.]

STAPELIA. An extensive genus of *Asclepiadaceae*, containing upwards of 100 species of succulent branching plants without leaves, natives of the Cape of

Good Hope. The branches are generally four-sided and toothed, and covered over with dark tubercles, giving the plants a very grotesque appearance; the calyx is five-parted; the corolla rotate five-cleft and fleshy; the staminal corona double, the outer series of leaves or lobes entire or cleft, the inner subulate and entire or bifid; the gynostegium is generally exserted; the anthers are simple at the top, the pollen-masses being fixed by their base, and having one edge cartilaginous and



Stapelia Asterias.

pellucid; and there are two subcylindrical follicles containing numerous comose seeds. The singular and beautiful large flowers spring from uncertain points of the succulent stems. They exhibit a variety of colours, forming exquisite marbled or dotted patterns; and notwithstanding the repulsive odour (like carrion) which almost all the flowers possess, they are extensively cultivated because of their beauty. One of the finest of the species is *S. Asterias*, figured above. [W. C.]

STAPHISAGRIA. *Delphinium Staphisagria*.

STAPHYLEACEÆ. (*Bladder-nuts.*) A small group of polypetalous *Thalamifloræ*, formerly united with *Celastraceæ*, but now recognised as having the essential characters of *Sapindaceæ*, and added by many botanists to that order as a tribe, distinguished by the stamens being inserted outside instead of inside the disk, and by albuminous seeds. They consist of trees or shrubs, with opposite pinnate leaves furnished with stipules, and white usually small flowers in racemes or panicles. They are natives of Europe, Asia, and Tropical and North America, and comprise three genera, *Staphylea*, *Euscaphis*, and *Turpinia*. By some they are made a separate order.

STAPHYLEA. A genus of *Staphyleaceæ*, distinguished in that order (or suborder) chiefly by the large inflated capsule. There are four species known, dispersed over the temperate regions of the northern hemisphere. They are all shrubs, with opposite pinnate leaves, consisting of three five or more leaflets, and white

pendulous flowers in axillary racemes or panicles. *S. pinnata* from Central and Eastern Europe, and sometimes also *S. trifoliata* from North America, are cultivated in our shrubberies under the name of Bladder-nuts.

STARCH-CORN. *Triticum Spelta*.

STARCHWORT. *Arum maculatum*.

STARE, or STARR. *Ammophila arundinacea*, *Carex arenaria*, and other coarse seaside sedges and grasses.

STAR-FLOWER. *Trientalis americana*.

STAR-FRUIT. *Damasotium stellatum* alias *Actinocarpus Damasotium*.

STAR-HEAD. *Asterocephalus*.

STAR-JELLY. *Nostoc communis*.

STAR OF BETHLEHEM. *Ornithogalum umbellatum*; also *Hypoxis decumbens*.

STAR OF JERUSALEM. *Tragopogon porrifolius*.

STAR OF NIGHT. *Clusia rosea*.

STAR OF THE EARTH. *Plantago Coronopus*.

STARRY. Arranged in rays like the points of a star. The same as Stellate.

STARRY PUFFBALL. *Geastrum*.

STAR-SHAPED. The same as Stellate.

STAR-SLOUGH. A name which is applied in some districts to the common *Nostoc*, supposing it to be the remains of fallen stars. [M. J. B.]

STARWORT. *Stellaria*; also *Aster Triptolium* and *Helonias dioica*. —, ITALIAN. *Aster Amellus*. —, WATER. *Callitriche*.

STATICÆ. A very extensive genus of herbaceous or subshrubby plants of the order *Plumbaginaceæ*, characterised by their flowers being spiked or panicked; the calyx funnel-shaped, of one piece, plaited and somewhat scarious; the petals five, slightly connate; the stamens attached to the base of the petals, and the nut one-seeded, enclosed in the calyx. They are amongst the most interesting ornaments of our greenhouses and flower-gardens, and are found in the south and east of Europe, in the Canary group, and in Central Asia. [T. M.]

STATICÆ. (Fr.) *Armeria vulgaris*.

STAUNTONIA. Now that the Indian plants formerly referred to *Stauntonia* have been separated and formed into distinct genera under the names *Purvatia* and *Holboellia*, the present genus is reduced to two species, one of which (*S. chinensis*) is a native of China, and the other (*S. hexaphylla*) of Japan. These are woody climbing shrubs, with compound leaves composed of from three to seven (usually five) radiating leaflets, and few-flowered racemes of largish unisexual flowers produced from the axils of the leaves. Both sexes of flowers have six fleshy sepals, but neither possess any petals; and the

genus is thus distinguished from the two allied genera above mentioned, both of which have petals. The males contain six stamens, with the filaments united instead of free, as in *Hobboldia*; and the females six sterile stamens and three distinct ovaries, containing several ovules intermixed with hairs. The generic name is given in honour of Sir George Staunton, who accompanied Lord Macartney to China in A.D. 1782, and afterwards wrote the account of the embassy. It belongs to the *Lardizabalaceae*. The Japanese species has leaves composed of five or six lance-shaped leaflets terminating in short bristly points. It is called Nibe Kadsura or Tuso So by the Japanese, who eat its roundish watery berries, and use their juice as a remedy for ophthalmia. [A.S.]

STAURACANTHUS. A genus of *Leguminosae*, including a Portuguese shrub, destitute of leaves, and with the habit of *Ulex nanus*; the branches being spiny, each of the spines branching into two smaller spines at the sides, and the flowers yellow; calyx two-lipped, the upper lip deeply divided into two segments, the lower three-toothed; vexillum folded, longer than the lance-shaped wings; keel blunt; stamens ten, monadelphous; pod compressed hairy many-seeded. *S. aphyllus*, a dwarf shrub, is a handsome plant, but only half-hardy. The generic name is derived from the Greek *stauros* 'a cross' and *akantha* 'a thorn,' in reference to the cross-like spines. [M. T. M.]

STAURANTHERA grandifolia is the only known representative of a genus of cyrtandrous *Cesneraceae*, peculiar to Pulo Penang, and having very much the habit of *Glossanthus*. It is a herb with rather large leaves; the flowers are paniculate, the calyx subrotate bell-shaped and almost ten-cleft; the corolla is large, furnished with a short tube having a spur at the base, and a border divided into five lobes. There are four fertile stamens, and the anthers are coherent, whilst the capsule is dehiscent. [B.S.]

STAURANTHUS. The name of a Mexican evergreen tree, with alternate leathery dotted leaves, and greenish flowers arranged in racemes. Calyx persistent, with four small teeth; petals four, longer than the calyx, bent downwards, and having thickened margins; stamens four, inserted on the receptacle, alternate with the petals; ovary sessile one-celled, with a single pendulous ovule; stigma sessile, four-lobed; fruit fleshy olive-shaped red, covered with small glands like an orange. [It is considered as the type of a genus of *Aurantaceae*, but its position is somewhat doubtful, and it should perhaps be referred to *Toddalia*.] The name is derived from the Greek *stauros* 'a cross' and *anthos* 'flower,' in allusion probably to the four petals. [M. T. M.]

STAUROGLOTTIS. *Phalanopsis*.

STAUROPERAGMA. A genus of *Serophulariaceae*, having the calyx deeply

divided into five segments, the capsule cylindrical indehiscent, and the valves involute at the margin. *S. natolicum*, a native of Natolia, has the leaves covered with grey down, and the flowers yellow and scented. The name, from the Greek *stauros* 'a cross,' refers to the appearance presented by a transverse section of the capsule. [G.D.]

STAYERWORT. *Senecio Jacobaea*.

STAVESACRE. The acrid emetic purgative seeds of *Delphinium Staphisagria*.

STAVEWOOD. *Simaruba amara*.

STAY-PLOUGH. The Restharrow, *Ononis arvensis*.

STÉBÉ. (Fr.) *Stobé*.

STEENHAMMARIA (often written STEENHAMMERA). A genus of *Boraginaceae*, usually called *Mertensia*, included in *Pulmonaria* by Linnaeus, from which it differs by the short open five-parted calyx and longer stamens, as well as by the nuts being slightly fleshy on the outside. It has also been referred to *Lithospermum*, but the limb of the corolla is not spreading, and the nuts have not the hard and stony pericarp of that genus. The species have blue or red flowers, in paniculate, or corymbosely arranged scorpion-like racemes, and smooth glaucous leaves.

S. maritima, which is not uncommon on the northern coasts of Britain, is a trailing glaucous plant with fleshy ovate leaves, tasting like oysters (whence it is sometimes called the Oyster-plant); and pretty blue flowers, red while in bud. The other species are from Siberia, Kamtschatka, and North America. [J. T. B.]

STEEPLE-BUSH. *Spiraea tomentosa*.

STEGANIA. *Lomaria*.

STEGNOGRAMMA. A genus of poly-podiaceous ferns related to *Gymnogramma*, and having the veins connitively anastomosing as in *Nephrodium*. They are herbaceous, pinnately or pinnato-pinnatifidly divided ferns, with a stoutish caudex, sometimes subarborescent, and linear or oblong oblique parallel sori. There are two or three species, from India and the Eastern Archipelago. [T.M.]

STEIRODISCUS. Two Cape annuals, forming a genus of *Compositae*, the leaves of which are pinnately divided; and the flower-heads terminal, surrounded by ventricose many-leaved involucre; receptacle naked; florets yellow—those of the ray strap-shaped, of the disk tubular; stigmas conical; fruits linear smooth, with no pappus, the inner ones always sterile—whence the name of the genus, from the Greek *steiros* 'sterile.' [M. T. M.]

STELIS. A genus of orchids belonging to the tribe *Malaxideae*, consisting of about 130 species, inhabiting South and Central America and the West Indian Islands. They are small herbs, from two or three inches to two feet high, generally

found growing on the trunks and branches of trees. The stems are simple, with one sheathing leaf, and ochreate bracts; and the flowers are in terminal spikes or racemes, usually very minute, green yellow or purple. *Stella* is distinguished from *Pleranthalia*, to which genus it is closely allied, by having a short truncate three-lobed column, the front angles of whose anthers are uniformly mucilaginous. The flowers of some species are irritable, closing suddenly when moved or touched. In one species, *S. purpurascens*, eight pollen-masses have been found, the only case at present known. [W. B. H.]

STELLARIA. A genus of herbaceous plants belonging to the tribe *Alismaceae* of the order *Caryophyllaceae*, and distinguished by the following characters:—Sepals five; petals two-cleft; stamens ten; styles three; capsule opening by six valves. Several species are indigenous to Great Britain. *S. Holosteia*, the Greater Stitchwort, called also Satin-flower and Adder's-mouth, is one of our early hedge-flowers, with long straggling quadrangular stems, narrow grass-like leaves, and large panicked lustrous white flowers with deeply-cloven petals. *S. media* is the common Chickweed, sufficiently marked by a line of hairs on one side of the stem, changing to the opposite side whenever it reaches a pair of leaves. French: *Stellure*; German: *Augenrostgras*. [C. A. J.]

STELLATE, or STELLATES. A group of monopetalous dioecious, scarcely differing from *Cinchonaceae*, but sometimes distinguished as a separate order under the name of *GALLIACEAE*: which see.

STELLATE, STELLIFORM. Having a number of narrow divisions placed round the stem like the rays of a star.

STELLATO-PILOSE. Having hairs formed in a stellate manner.

STEM. That part of a plant which bears or has borne leaves or their rudiments; the ascending axis of growth. It may be either subterranean, or exposed to the air and light.

STEM-CLASPING. When the base of a leaf surrounds a stem. The same as *Amplexicaul*.

STEMLESS. Having no visible or obvious stem. See *ACAUILLIA*.

STEMONACANTHUS. A genus of *Acanthaceae* from tropical America, containing a few species of shrubs or herbs, with the flowers in paniculate or contracted cymes. The calyx is five-cleft or five-parted; the corolla-tube slightly curved and clavate, with the subequal lobes spreading or reflexed; the didynamous stamens exserted; the anther-cells parallel, and often produced beyond the connective; and the capsule four to eight-seeded. [W. C.]

STEMONITIS. A genus of myxogastrous *Fungi*, with a more or less elongated delicate single deciduous peridium, filled

with a network of threads connected with the stem, which penetrates more or less completely the whole mass. *S. fuca* is one of those species which occasionally occur in great profusion in hothouses, and is common in woods amongst fallen leaves, &c.; forming large tufts of cylindrical peridia supported on dark bristle-shaped stems, which are often more persistent than the network. This species is found in all parts of the world with slight modifications. [M. J. B.]

STEMONOPORUS. A name proposed by Thwaites for a genus of *Dipteraceae*, which other botanists consider as a section only of *Valeria*, as it has the fruit of that genus, and only differs from the original type in the stamens not numbering more than fifteen, with obtuse not acuminate anthers. It consists of several species, tall resiniferous trees, with alternate entire coriaceous leaves, and white flowers either axillary or in terminal panicles. There are several species known, natives of Tropical Asia, but chiefly of Ceylon.

STEMONURUS. A genus of *Olinaceae*, established by Blume for three or four trees from the Indian Archipelago. In the species which suggested the name the anthers have at their back a curious long tuft of hairs, which is turned inwards over their face. This species, however, proves to be strictly a congener of the previously published *Lanlanthera* from Tropical Africa; and the other species, for which Blume's name is no longer applicable, belong to Wallich's genus *Comphandra*. The name *Stemonurus* is therefore now suppressed.

STENACTIS. A genus of erect branched herbs, natives of North America, Northern India, &c. The leaves are toothed; the flower-heads solitary at the ends of the branches, surrounded by an involucre of two or three rows of narrow overlapping scales; receptacle flat, naked; florets of the ray strap-shaped, white or violet,—those of the disk yellow, tubular; achenes compressed; pappus of the outer ones hairy deciduous, arranged in one row, that of the inner in two rows. [M. T. M.]

STENANDRIUM. A genus of *Acanthaceae*, containing several small plants from South America. It is allied to *Orossandra*, differing chiefly in its more lowly habit, and in having more slender anthers. [W. C.]

STENANTHERA. A genus of *Epacridaceae* containing a single species, *S. pistifolia*, which has a five-parted calyx surrounded by numerous bracts; a tubular corolla twice the length of the calyx, with a short spreading half-bearded limb; stamens included within the throat of the corolla; and a one-seeded drupe. The flowers are axillary erect, with a slightly swollen scarlet tube and greenish-yellow limb; and the leaves needle-shaped, and much crowded on the branches. [R. H.]

STENANTHIUM. A North American genus of *Melasthaceae* allied to *Veratrum*,

from which it differs in the perianth-segments being united at the base, and there adhering to the ovary. It is a smooth perennial, with a rod-like leafy stem from a somewhat bulbous base; the leaves are long and grass-like; and the flowers small white, in a long terminal panicle. [J. T. S.]

STENIA. An epiphytal genus of orchids belonging to the tribe *Vandee*. The only species, *S. pallida*, is from Demerara, and is a stemless herb without pseudobulbs, having oblong leaves narrowed at the base, recurved at the apex; and solitary radical yellow flowers about two inches in diameter. In habit it very much resembles *Maxillaria*, but it may easily be distinguished from that genus by the labellum not being articulated with the foot of the column. [W. B. H.]

STENOCARPUS. A genus of *Proteeaceæ*, having a tubular calyx, cleft at the back; the four sepals bear each a sessile anther; the style is filiform, with an oblique stigma; and the seed-vessel a linear or cylindrical follicle containing several seeds



Stenocarpus Cunninghamii.

having a wing at their base. They are mostly large shrubs, one species however, *S. Cunninghamii*, being a lofty tree, its flowers dark-yellow or orange, in axillary or terminal umbels, and its leaves leathery, entire or sinuate. The species are natives of New South Wales, Tropical Australia, and New Caledonia. [R. H.]

STENOCHILUS. A genus of *Mycoporaceæ*, containing several species, natives of Australia. They are shrubs with alternate leaves, and solitary sometimes double axillary pedicels; the calyx is five-parted, and the lobes are imbricate at the base; the corolla is irregular and funnel-shaped; the four didynamous stamens are exserted; the style has a simple apex; and the two-celled ovary has two pendent ovules in each cell. [W. C.]

STENOCHLÆNA. An acrostichaceous genus of ferns having dimorphous fronds (the sterile ones pinnate, the fertile contracted and either pinnate or bipinnate) borne on scandent rhizomes. The pinnae have a marginal gland near the base on the upper edge, and the veins form narrow costal areoles (sometimes hardly distinguishable), from which parallel forked veins run out to the margin. One tropical species abounds in India and the Pacific Islands; another is met with in South Africa and Madagascar. The costal areoles are often apparent near the apex of the pinnae when they are not evident near the base. [T. M.]

STENOCORYNE. A genus of orchids belonging to the tribe *Vandee*. It is an epiphytal herb, with elongated quadrangular pseudobulbs, solitary cartilaginous leaves, and the flowers in a close raceme, orange spotted with brown. The scape is produced from below the pseudobulbs. The genus is nearly related to *Bifrenaria*, but differs in having two distinct glands at the base of the caudicles. The only known species is from Demerara. [W. B. H.]

STENOGASTRA. A small genus of *Gesneraceæ* confined to Tropical America, of which *S. hirsuta* (*Gloxinia hirsuta* of the gardens) is the type. The calyx is small and obliquely bell-shaped, the tube of the corolla very narrow and cylindrical, the ovary surrounded by five distinct glands, and the stigma mouth-shaped. *S. hirsuta* is a stemless perennial, with almost radical leaves, several clothed with long hairs, ovate or oblong in shape; whilst the pedicels are one-flowered, and bear pale blue flowers. [R. S.]

STENOGYNE. The name of a genus of *Labiata*, in which the calyx has the three upper teeth smaller than the others; the corolla about as long as the calyx, curved, hairy inside, the upper lip erect and notched, the lower of three nearly equal and entire divisions; and the style ends in two equal lobes. The species are herbaceous, natives of the Sandwich Islands, with hard cretate leaves, and flowers in the axils of small awl-shaped bracts. The name, derived from the Greek, alludes to the narrow lobes of the style. [G. D.]

STENOLOBIUM. A small genus of *Bignoniaceæ*, not to be confounded with the *Stenolobium* of Benthams, a leguminous type noticed below. It is peculiar to Tropical America, but *S. stans* (*Bignonia* or *Toocoma stans* of botanical writers) has become naturalised in many parts of the Old World, and has for many years been an inmate of our hothouses. It is reported to be diuretic. The *Stenolobiums* are erect bushes, somewhat resembling the ash in foliage. When young the leaves are often unifoliate, but in older plants they are generally pinnate, and the leaflets deeply serrated at the margin. The flowers are placed in rich clusters at the ends of the branches, and they are invariably yellow, more or less deep in colour. The calyx is

regular, and has five ribs terminating in five pointed teeth; the corolla is funnel or bell-shaped; the stamens (four with the rudiment of a fifth) have divergent anthers, which are either glabrous or covered with long hairs, and afford excellent characters for distinguishing the different otherwise very similar-looking species; the capsule is linear and flat, its partition placed contrary to the direction of the valves; and its numerous winged seeds are in single rows. [B. S.]

The same name has been applied to a genus of papilionaceous *Leguminosae*, consisting of climbing shrubs, with trifoliate leaves, and axillary flower-stalks bearing numerous tufts of blue flowers. The calyx is bell-shaped, two-lipped; the vexillum erect, provided with a membranous appendage on each side at the base; stamens ten, diadelphous; ovary sessile; style filiform; pod sessile, linear compressed, thickened at the sutures, many-seeded—the seeds separated one from the other by transverse cellular partitions.

The generic name is derived from the Greek *stenos* 'narrow,' in allusion to the structure of the pods. The species are natives of Tropical America. [M. T. M.]

STENOMESSON. An amaryllidaceous genus of bulbs, chiefly from Peru. They produce linear or lanceolate leaves, and a solid terete scape, bearing a few or many-flowered umbel of erect or drooping blossoms, which have a slender cylindrical tube constricted in the middle, and subventricose in the upper part; and with a six-cleft regular limb, and a six-toothed coronet bearing stamens between the teeth. The style is filiform, with a clavate dilated apex. The flowers are yellow orange-coloured or scarlet, and very handsome. [T. M.]

STENOPETALUM. A genus of *Cruciferae* from Australia, consisting of herbs with linear leaves, entire or the lower ones lyrate pinnatifid, and terminal racemes. The pouch is obovate or elliptical, slightly compressed, parallel to the septum, the valves slightly concave; the seeds numerous, with short seed-stalks. [J. T. S.]

STENORHYNCHUS. A terrestrial genus of orchids belonging to the *Neottieae*. About ten species have been described, inhabitants of Tropical America and the West Indian Islands. They are herbs with fascicled roots, broad radical leaves, spikes densely imbricated with large coloured bracts, and the flowers generally hairy and showy. It differs from *Spiranthes*, to which it is closely allied, in its large showy flowers and coloured bracts, and the want of calli at the base of the lip; while from *Pelocia* it differs in its large flowers and bracts, and in the rostellum being hard and horny, remaining as a rigid spine upon the apex of the stigma after the pollen-masses have fallen away. The name is derived from *stenos* 'narrow' and *rhyrachos* 'a beak.' [W. B. H.]

STENOSENNIA. A genus of acrostichoid

ferns of the reticulated series. The two or three known species are dwarf plants with ternately divided fronds, having the two pinnae very oblique and bipinnatifid, and bulbiferous in their axils. The fertile fronds are cut up into many irregular narrow segments. The lowermost veins anastomose, so as to form costal areoles, while the ultimate or marginal ones are free. The plants are natives of the Indian Archipelago. [T. M.]

STENOSIPHON. A genus of *Onagraceae*, in which the tube of the calyx is narrow and long; the corolla is of four petals, the two posterior largest; and the stamens eight in number, the four opposite the petals being longest. The only species is a native of Texas, of herbaceous habit, with slender branches; the leaves alternate, very narrow, and rigid; and the flowers white, in dense spikes. The name is from the Greek *stenos* 'narrow' and *siphon* 'a tube,' and refers to the narrow tube of the calyx. [G. D.]

STENOSIPHONIUM. A genus of *Acanthaceae*, containing four species of shrubs from India. They have toothed leaves, and axillary and terminal spikes. They differ from *Ruellia* in having the calyx divided to the middle, and in the slender tube of the corolla opening upwards into a campanulate limb. [W. C.]

STENOSTOMUM. A small West Indian genus of *Cinchonaceae*, consisting for the most part of low trees, with elliptical or oblong leaves furnished with deciduous or persistent stipules, and sometimes covered with a sticky resinous exudation on the upper surface; and bearing axillary two-branched flower-spikes, having the flowers (which are small whitish and stalkless) arranged along the inner sides of the branches, with one also in the fork. It is characterised by the flowers having the short free part or limb of the calyx four or five-toothed or almost entire, and persistent on the mature fruit; by the salver-shaped corolla, with four or five overlapping lobes, and with the stamens (which have narrow anthers and very short filaments) inserted below its throat, and either entirely included within the tube or half protruded; and by the two to six-celled ovary with a simple style and round-headed stigma, the ovary ultimately forming an unopening fruit, containing a two to six-celled stone, with as many cylindrical seeds. [A. S.]

STEPHANANDRA. A Japanese shrub, with alternate broadly ovate lobed or cut leaves, and small flowers in loose terminal cymes, forming a genus of *Rosaceae* allied to *Spiraea*, and resembling some of its species in habit. It differs essentially, however, in the ovary being reduced to a single carpel with two pendulous ovules; and in the fruit, which is a small follicle, with one or two globular albuminous seeds.

STEPHANOPHYTUM. A genus of

Acanthaceæ containing several species of herbs, from Tropical America. The calyx has five equal divisions; the tube and limb of the corolla are small, but the throat is more or less inflated; and the stamens are just included, and have slender anthers. The flowers are in axillary cymes, which have an umbellate arrangement in most of the species. [W. C.]

STEPHANOPODIUM. The name of a Peruvian tree, constituting a genus of *Chailletaceæ*. The leaves are entire bipinnate, and the flowers placed in heads on the swollen tops of the flower-stalks. The calyx is five-cleft, the tube of the corolla equalling the calyx, its limb five-lobed and bilabiate; stamens five; ovary two-celled, with two ovules in each compartment, surrounded at the base by five glands; style simple, stigma two-lobed; fruit drupaceous, two-celled. [M. T. M.]

STEPHANOTIS. A genus of *Asclepiadaceæ*, containing a few species from Madagascar. They are sinistorse climbing shrubs, with smooth coriaceous leaves, and beautiful fragrant pedicellate flowers in interpetiolar umbels. The calyx is five-leaved; the corolla salver-shaped, with a tube somewhat swollen at the base, and a limb with five oblique segments; the staminal corona composed of five erect simple short acuminate leaves; the anthers terminated by a membrane; the stigma conical and entire or obscurely two-lobed; and the two follicles thick horizontal and acuminate, containing many comose seeds. The species are generally cultivated for the great beauty of their flowers. [W. C.]

STEPHENSONIA. ... garden name of *Phanicephorium* more correctly *Stevensonia*.

STERCULIACEÆ. (*Bombacæ*, *Sterculiads*.) An order of polypetalous dicotyledons, with the valvate calyx, contorted petals (sometimes wanting), and monadelphous stamens of *Malvaceæ*, but differing from them in their anthers being always two-celled. They consist of tropical South African or Australian herbs shrubs or trees, with alternate entire lobed or digitately compound leaves, furnished with stipules; and axillary or rarely terminal flowers, often large and handsome. The order has been variously extended or broken up into smaller ones by different botanists. By the most recent arrangement the *Bombacæ* have been referred to *Malvaceæ*, as having always one-celled anthers; and *Sterculiaceæ*, including *Byttneriaceæ*, have been divided into seven tribes, comprising forty-one genera:—1. *Sterculieæ* proper, with unisexual flowers, no petals, five to fifteen anthers, adnate to the top of the column, and carpels distinct when in fruit. They are all trees or shrubs, including *Sterculia*, *Hemitelia*, and three other genera. 2. *Helicteres*: trees or shrubs, with hermaphrodite flowers, five petals, five to fifteen anthers, singly or by twos or threes alternating with the teeth or lobes of the staminal column, comprising six genera,

of which *Helicteres* and *Pterospermum* are the largest. 3. *Eriolanceæ*, or the genus *Eriolancea*, with numerous anthers covering the upper half of the staminal column. 4. *Dombeyæ*: consisting of herbs shrubs or rarely trees, with ten to twenty stamens on a short column, two to four together, alternating with the barren lobes of the column or staminodia. They include *Dombeya*, *Pentapetes*, *Melhania*, and four other genera, all African or Asiatic. 5. *Hermaniææ*: herbs or shrubs, with only five stamens, including the large African genus *Hermannia*, the tropical genera *Melochia* and *Waltheria*, and three others. 6. *Byttneriææ*: mostly shrubs or trees remarkable for their petals being concave or hood-shaped at the base, and often terminating in a long appendage. The principal genera are *Theobroma*, *Guazuma*, *Byttneria*, and *Commersonia*. 7. *Lasiopetalææ*: shrubs almost exclusively Australian, with five stamens almost free, and petals reduced to small scales or entirely wanting; eight genera, including *Lasiopetalum* and *Thonasia*. See **BYTTNERIACEÆ**.

STERCULIA. Although much reduced by the separation of numerous groups under the names *Cola*, *Firmiana*, *Brachychiton*, &c., *Sterculia* (which gives its name to the order *Sterculiaceæ*) is still one of considerable extent; and its species are widely dispersed through the tropics of both hemispheres, occurring most abundantly, however, in Asia and the Asiatic Islands, more sparingly in America and Africa, and rarely in Australia. Nearly all the species are trees, sometimes of considerable size; and by far the greater number have simple undivided feather-veined leaves, comparatively few having their leaves lobed so as to resemble a hand, or divided into several distinct leaflets radiating from a common centre. Their flowers are borne in usually somewhat drooping panicles, and are most commonly of one sex only. They have a coloured bell-shaped calyx, and no petals; and their fruits consist of five or fewer more or less woody pieces called follicles, radiating from a common centre and opening along their inner or top edge, each follicle containing several albuminous seeds.

S. carthaginensis, a fine tree forty feet high or upwards, native of America from Mexico to Brazil, has large roundish three to five-lobed leaves, covered with velvety hairs underneath but smooth above; and its yellowish flowers are scurvy outside and spotted with purple inside. It is called *Clithea* by the Brazilians, and *Panama* by the Panamians; and its seeds, which are about the size of pigeon's eggs, are, like those of many other species, commonly eaten by the inhabitants as nuts.

S. urens, an Indian and Cingalese species, has five-lobed hand-shaped leaves velvety underneath, erect panicles of flowers covered with sticky yellow down, and fruits clothed with stiff bristly stings.

ing hairs. All the *Sterculias* contain mucilage, and the trunks of some exude large quantities of mucilaginous gum, resembling tragacanth both in appearance and in its property of not dissolving in cold water, but merely swelling and becoming jelly-like, owing to the presence of bassorin. The present species yields part of the gum known in India as Gum Kuteera, a quantity of which was some years ago sent to this country as a substitute for tragacanth, but was found unsuitable, although Dr. Thomson states that it has been used by calico-printers. Another kind from Sierra Leone is the produce of *S. Tragacantha*.

S. villosa, a native of Peninsular India, has five to seven-lobed leaves velvety underneath, with the lobes either again three-lobed or deeply toothed, pendulous panicles of flowers, and fruits clothed with star-like hairs. The inner bark of the *Sterculias* is composed of very tough fibres. That of the present species is called Oadai or Oodhali in India, where very strong pliable ropes which are not affected by wet are made of it, and are commonly used by the elephant hunters. In Goa and Canara capital bags, used for the conveyance of rice and other merchandises, are made by soaking logs of the trunk or large branches for a few days in water, and then stripping off the bark entire and sewing up the bottom. The bark of another species (*S. guttata*) is used on the Malabar Coast for making articles of clothing. French: *Sterculier*. [A. S.]

STEREOSPERMUM (Including *Dipterosperma*). A genus of *Bignoniaceae*, embracing about a dozen species, all of which are confined to tropical parts of Africa and Asia. They are all trees, with imparipinnate leaves, and terminal panicles bearing white often highly fragrant flowers. The almost bony scarcely winged seeds, attached to the very corky septum of a cylindrical or almost square capsule, together with a cup-shaped calyx and almost bell-shaped corolla, at once distinguish the genus from all others of the order to which it belongs. [B. S.]

STEREUM. A genus of hymenomycetous *Fungi* belonging to the division in which the hymenium is perfectly even, without gills, spines, folds or other prominences. The substance is coriaceous, and the fruit-bearing surface free from bristles, and neither soft nor fleshy. Many of the species are extremely common on dead trunks or timber. *S. purpureum*, with purplish and lilac tints, is to be found on every fallen poplar, the hairy orange-yellow *S. hirsutum* on oak, and the pallid cinereous *S. sanguinolentum*, which bleeds when scratched, on fallen conifers. The species are too tough for food, and they have, as far as we know, no available economical properties. Some of the exotic species attain a large size, and are extremely handsome. *S. lobatum*, than which there are few handsomer *Fungi*

when well grown, occurs in every tropical or subtropical collection. [M. J. B.]

STERIGMATA. The elevated lines or plates upon stems produced by the bases of decurrent leaves.

STERIGMUM. An indehiscent superior many-celled dry fruit, such as that of *Tropaeolum*.

STERILITAS, or STERILITY (adj. **STERILE**). Barrenness in the vegetable as in the animal world may be either constitutional or accidental. In Italy it is observed that those Stone Pines which are of a more vivid green than usual do not produce fruit, and the effect of constitutional rankness in this respect is known to every cultivator. Again, there may be constitutional peculiarities which prevent the formation of fruit where all the necessary organs seem properly developed. It frequently happens, however, that all these organs are not present, or, if they are, it is in such a metamorphosed condition that they cannot perform their proper functions. The sepals may be multiplied to the total suppression of the other parts of the flower; the stamens may be turned into leaves or petals, and the pistil into leaves. The suppression of petals does not, however, seem to be so disastrous as their multiplication, and even stamens may be wanting without destroying fertility, as in *Culebogyne*, not to mention violets and other plants. Far more frequently, however, sterility arises from outward agents, from the effect of long-continued drought or moisture, from frost or cutting winds or other atmospheric conditions, or again from outward injuries. Even when impregnation has taken place, the ovules in the same pistil will not in every case attain perfection; and where fruit has been set abundantly, the demands of all may be so urgent that every one may fail. The fruit indeed may increase to a considerable size, or even approach maturity; but in most cases, if the ovules have proved abortive, it will fall off. In a few varieties, however, when the fruit has once swelled from the stimulus of impregnation, it may arrive at perfection even though no seeds are present, which is however, except in the gardener's view, no less a case of sterility, strictly speaking, than the other. Parasites mostly induce or promote sterility; but in the grape-mildew, where the development of the berry is so much checked, the growth of the seeds on the contrary seems actually to be promoted. [M. J. B.]

STERIPHOMA. A genus of *Cappariaceae*, comprising a shrub whose branches are invested with star-shaped brownish hairs, stalked leaves, with a prominent swelling at the end of the stalk next to the blade of the leaf, and solitary flowers on axillary stalks. The calyx is hairy, two-lobed; petals four, yellowish, sessile, the two anterior ones larger than the others; stamens six, protruding beyond the corolla; ovary on a long stalk, two-celled; stigma

sessile; fruit with a thick rind, internally fleshy. *S. cleomoides*, a native of Caracacas, is in cultivation as a houseous shrub. [M. T. M.]

STERNBERGIA. A genus of *Amaryllidaceae*, consisting of dwarf bulbous plants found in Eastern and Central Europe, and having linear-lorate leaves, often later than the flowers, and solid scapes bearing a single erect flower of a funnel-like form, with a straight tube widened upwards, and a six-parted semipatent limb; the six stamens are inserted unequally in the throat; and the style is filiform, with a three-lobed stigma. *S. lutea* is a well-known garden flower, blooming at the end of summer, and looking like a large yellow autumnal crocus. [T. M.]

STEUDELIA. A genus of *Paronychiaceae*, the same as *Adenogramma*, which is the name more generally adopted.

STEVENIA. A genus of *Cruciferae* from Siberia, an annual covered with grey stellate pubescence, having an ascending branched stem, with oblong linear entire leaves, and corymbose racemes of white flowers; calyx with the two outer sepals bulging at the base; pod oblong, constricted between the seeds, with plane valves; seeds two to four in each cell, ovate-compressed, immarginate. [L. T. S.]

STEVENSONIA. *Phaniceophorum* (Surr.)

STEVIA. Esteve was a professor of botany at Valencia. The present genus of plants named in honour of him, consists of numerous species of herbaceous or somewhat shrubby *Compositae*, natives for the most part of Tropical America. The leaves are entire or three-cleft, occasionally whorled, but usually opposite; and the heads of flowers are arranged in dense corymbs; the involucre is cylindrical, and consists of a few acuminate scales; receptacle naked; corollas all tubular, white pink or purple; stigmas cylindrical, club-shaped; achenes striated; pappus scaly, the scales sometimes awned. Numerous species are cultivated as bedding or border plants in this country. [M. T. M.]

STICHIDIA. A name given to the pod-like processes containing tetraspores in some of the rose-spored *Algae*, as in *Dasya* and *Odonthalia*. [M. J. B.]

STICHUS. In Greek compounds = a row of anything.

STICKADORE. *Lavandula Stoechas*.

STICKSEED. *Echinopspermum*.

STICTA. A fine genus of foliaceous coriaceous or membranaceous, velvety tomentose or more rarely smooth lichens, belonging to the same group as *Parmelia*, with the habit of the ground liverworts (*Pellidae*), and remarkable for the round white or yellow pits on the under-side, which extend to the medullary stratum, and have been called cyphellae. Several of the species are very large, and even our own *S. glomulifera* is sometimes three

feet across. The genus is by no means confined to temperate regions, some of the finest occurring in warm countries. *S. pulmonaria* is a popular remedy in diseases



Stictis pulmonaria.

of the lungs, under the names of Lungwort, Hazel Rag, Hazel Crotiles, or Hags. *S. sylvatica* and *fuliginosa* are remarkable for their fetid fish-like smell. [M. J. B.]

STICTOPHYLLUM. A genus of *Compositae*, comprising an herbaceous plant, native of Northern India, with linear-oblong sessile leaves, revolute at the margins, and with a thick midrib. The flowers are like those of a *Serratula*, from which and other allied genera the present one may be distinguished by its persistent feathery pappus of distinct hairs; and by the scales of the involucre, which are destitute of any appendage. [M. T. M.]

STIFFTIA. A genus of Brazilian arborescent *Compositae*, of the mutisaceous group, distinguished by its closely-imbriicated involucre, of which the outer scales are roundish ovate, and the inner linear; its naked alveolate receptacle; its glabrous regular florets, with five circinnately recurved lobes; its much exerted caudate anthers; its short-armed blind style; and its glabrous elongated achenes, and multiseriate pappus of linear serrated hairs. *S. chrysantha* is a handsome species, with lanceolate acuminate leaves, and terminal heads of showy orange-coloured flowers, issuing from amongst the long coloured pappus-hairs. It is now more commonly referred to *Augusta*. [T. M.]

STIGMA (pl. **STIGMATA**). That surface of a style, usually at its extremity, to which the pollen adheres when it fertilises the ovules.

STIGMAPHYLLON (sometimes written **STIGMATOPHYLLON**). This name is expressive of the leafy nature of the stigmas in the flowers of the genus of *Malpighiaceae* to which it is applied. The species are tropical American shrubs, for the most part of climbing habit, the root usually tuberous; inflorescence umbel-like, the pedicels usually thickened at the top; calyx five-parted, the four outer segments with two glands

at the base, externally; petals five, stalked, longer than the sepals, unequal; stamens ten, unequal in size—the four opposite to the glands of the calyx sterile, the remainder fertile; styles three, dilated at the top into a leafy stigmatic expansion; fruit of three or fewer winged carpels. Some of the species are in cultivation, and have handsome yellow flowers. [M. T. M.]

STIGMATIC. Of the nature of a stigma.

STIGMATOPHORUS. That part of the style of composites which bears the stigma.

STIGMATOSTEMON. A body formed by the union of anthers with the stigma.

STILAGINACEÆ. (*Antidesmeæ*.) A name originally proposed by Agardh for a small group of genera, including *Antidesma*, whose affinities had been little understood; but they have recently been included in the large order *Euphorbiaceæ*, an arrangement which appears to be generally adopted.

STILAGINELLA. A genus of *Euphorbiaceæ* of the tribe *Antidesmeæ*, established by Tulasne for a few trees or shrubs from Tropical America, nearly allied to the Asiatic *Antidesmas*, but differing from them chiefly in their ovary being two-celled with two ovules in each cell, instead of being reduced to a single carpel. Eight species have been described, all remarkable for the minute peltate scales, which give a hoary appearance to the branches and foliage, and for the numerous small flowers in axillary racemes or panicles. It has since been ascertained that the genus had been a short time previously published by Allemão at Rio Janeiro under the name of *Hieronyma*.

STILAGO. A genus originally proposed by Linnaeus, but which has proved not to be distinct from *Antidesma*.

STILBACEÆ. (*Stilbideæ*.) A small order of monopetalous dicotyledons whose immediate affinities are very uncertain. It consists of South African shrubs, with small crowded entire leaves like those of a *Phytica* or of some heaths; the flowers sessile, in dense terminal spikes. The calyx is five-cleft, the corolla also five-cleft, with four perfect stamens inserted between its lobes, the place of the fifth being occupied by a small rudimentary stamen or empty; the ovary is free two-celled, with one erect ovule in each, and the style simple. The fruit is a small nut, or rarely a two-valved capsule, with a single erect seed, containing a minute embryo in firm albumen. The order is usually placed near *Verbenaceæ* and *Selaginaceæ*, but Lindley regards it as more nearly allied to *Diapensiaceæ*. To the original genus, *Stilbe*, have been added three others, separated from it upon rather trifling characters.

STILBE. The principal genus of *Stilbaceæ*, distinguished from the others by straight flowering spikes, narrow corolla-lobes, parallel anther-cells, and an indehis-

cent fruit. It only contains four species, all from the Cape Colony, and offering very little if any interest.

STILLINGIA. The Tallow-tree of China is the best-known representative of this genus of *Euphorbiaceæ*; but there are two or three other Chinese and Japanese species, and as many more natives of the Southern States of America. With the exception of the tallow-tree and one herbaceous species, they are shrubs; and all have alternate entire leaves, and terminal catkin-like spikes of flowers. The fruit is a capsule composed of three one-seeded opening pieces, and is girded at the base by an enlarged bract.

S. sebifera, the Tallow-tree, is a native of China and the adjacent islands, but it has been introduced into and partly naturalised in India and the warm parts of America. It has rhomboid-shaped sharply taper-pointed leaves about two inches broad, on slender stalks with two prominent glands at the point of attachment between the stalk and leaf; and its flower-catkins are from two to four inches long. Its fruits are about half an inch in diameter, and contain three seeds thickly coated with a fatty substance which yields the tallow. This is obtained by steaming the seeds in large cauldrons, then bruising them sufficiently to loosen the fat without breaking the seeds, which are removed by sifting; and the fat is afterwards made into flat circular cakes and pressed in a wedge-press, when the pure tallow exudes in a liquid state, and soon hardens into a white brittle mass. This tallow is very extensively used for candle-making in China; but, as they get soft in hot weather, the candles generally receive a coating of insect-wax. A liquid oil is obtained from the seeds by pressing. The tree yields a hard wood, used by the Chinese for printing blocks, and its leaves are employed for dyeing black. [A. S.]

STIMULI (adj. **STIMULANS**). Stings; sharp stiff hairs, containing an acrid fluid which when they pierce the skin produces pain.

STIMULOSE. Covered with stings.

STINKHORN. *Phallus impudicus*.

STINKING-WEED, or STINKING-WOOD. *Cassia occidentalis*.

STINKWEED. A local South of England name for *Dipsacis muralis*.

STINKWOOD. The useful wood of *Oreodaphne bullata*, which has a most unpleasant odour lasting for a long time. Also that of *Fatidia mauritiana* and *Zieria macrophylla*.

STIPA. A genus of grasses belonging to the tribe *Stipeæ*. The inflorescence is in nearly simple lax panicles, the spikelets of which are one-flowered; glumes two, membranous, longer than the two cartilaginous palea, of which the lower is convolute, with a long beard at the apex, and

the upper entire; beard jointed at the base, and deciduous. Steudel describes 104 species under this remarkable genus, which has a wide geographical distribution, obtaining its maximum in the warm temperate zones. The well-known Feather Grass of gardens, *S. pennata*, is a very ornamental species, and is frequently planted in flower-borders on that account. It is, when dry, dyed of various bright colours to make household ornaments. [D. M.]

STIPAGROSTIS. A genus of grasses belonging to the tribe *Stipeæ*, and now placed as one of the sections of the genus *Aristida*. [D. M.]

STIPELS. Secondary stipules, such as are found at the base of the leaflets of compound leaves.

STIPES. The petiole of the leaves of ferns. The stem which carries the plicus of such fungals as agarics.

STIPIFORM. Having the appearance of the trunk of an endogenous tree; as the papaw and other simple-stemmed exogens.

STIPITATE. Elevated on a stalk which is neither a petiole nor a peduncle; as, for example, some kinds of carpels.

STIPULAR. Of or belonging to or standing in the place of stipules.

STIPULES. Processes of various kinds arising from the base of a leaf, usually from its sides. See *COHREA* and *RETICULUM*.

STIRLINGIA. A genus of *Proteaceæ*, having a regular four-cleft calyx, with plane reflexed spreading lobes; four stamens longer than the tube, inserted in the upper part of it, the anthers cohering at first, but finally free; a smooth filiform style, with a dilated stigma; and a seed-vessel, or nut containing a single obconical hairy seed. They are small shrubs, natives of South-western Australia, with repeatedly cut leaves, and small yellow flowers in racemes or panicles. [L. H.]

STIRPS. A race or permanent variety: as the Red Cabbage.

STITCHWORT. *Stellaria*, especially *S. Holostea*.

STOCK. *Matthiola*. —, TEN WEEKS'. *Matthiola annua*. —, VIRGINIAN. *Malcolmia maritima*.

STOCKSIA. A rigid branching glaucous and thorny shrub from the mountains of Beloochistan, forming a genus of *Sapindaceæ*, remarkable chiefly for its few simple linear and entire leaves. The flowers are rather small, clustered along the branches. The fruit is unknown.

STORBE. A genus of *Compositæ*, including a number of small Cape shrubs, having awl-shaped crowded leaves, frequently spirally twisted, the younger ones hairy, the older smooth. The flower-heads are aggregated into roundish or spike-like masses, each surrounded by an involucre

of overlapping dry membranous scales; corolla solitary, tubular; anthers provided with two little hairs at the base; stigmas feathery at the top; achenes oblong; pappus of one row of scales, membranous below, feathery above. Three or four species are in cultivation as greenhouse plants. The Greeks had a plant known to them as *stoibe*, and this word has furnished a name for the present genus. [M. T. M.]

STOECHAS. (Fr.) *Lavandula Stoechas*. — CITRIN. *Gnaphalium Stoechas*.

STOKESIA. A genus of *Compositæ*, including a perennial erect-branched glaucescent herbaceous plant, having the upper part of the stem very hairy, some of the leaves spiny at the margins, and the flower-heads solitary at the ends of the branches; each surrounded by a somewhat globose involucre, the outer scales of which are prolonged into a leafy spiny-margined appendage, the inner ones ciliated; the receptacle is fleshy and naked; corollas blue, palmately divided, sprinkled over with glands; stigmas somewhat awl-shaped; achenes short, quadrangular; pappus of one row of deciduous membranous scales. *S. cyanea* is cultivated in open borders, in summer, for the sake of its handsome blue flowers. [M. T. M.]

STOLE, STOLON. A sucker which at first appears at the surface of the earth, and then turns downwards, piercing the soil or rooting into it.

STOMA, STOMIUM. The opening provided on the side of the spore-cases of ferns, through which dehiscence takes place. Also the ostium of certain fungals.

STOMATE, STOMATIUM. An organic aperture in the skin of a plant, by means of which respiration is maintained, to provide for which it is always placed over a cavity in the parenchyma, beneath it.

STOMATECHIUM. A genus of *Boraginaceæ* from the Cape of Good Hope, with the habit of *Echium*, having the calyx pentagonal five-cleft; the corolla tubular, with a five-cleft limb, the segments of which are obtuse, closed at the throat by five roundish fleshy scales, mucronate externally; the stamens included; and the nuts four, subrotund rugose. [J. T. S.]

STOMATIFEROUS. Bearing stomates.

STOMATOMORPHOUS. Mouth-shaped.

STONE. A hard body found in certain fruits, and produced by the ossification of the endocarp or lining of the fruit.

STONEBREAK. *Saxifraga*.

STONECROP. *Sedum*. —, COMMON. *Sedum acre*. —, DITCH. *Penthorum*. — VIRGINIAN. *Penthorum sedoides*.

STONE-FRUIT. A drupe, such as the plum, peach, cherry, &c.

STONE-HORE. *Sedum reflexum*, the Stone Orpine.

STONEWORT. *Chara*.

STOOL. A stemless mother-plant used for propagation by annually bending its branches or 'layers' into the soil.

STORAX. A gum-resin obtained from *Styrax officinale*; also from several species of *Liquidambar*.

STORAXWORKS. Lindley's name for the *Styracaceæ*.

STORK'S-BILL. *Pelargonium*.

STRACHEYA. A Himalayan herbaceous plant forming a genus of *Leguminosæ* of the suborder *Papilionaceæ*. The very short stem, with almost radical pinnate leaves, and leafless scapes bearing one to four red flowers, as well as the shape and structure of those flowers, render it difficult to distinguish the plant in that state from the smaller species of *Hedysarum*; but the fruit is very different, and places *Stracheya* in the tribe *Galegeæ*. The pod is oblong-linear, flat and thin, indehiscent, with the faces often covered with prickly tubercles, as in *Hedysarum*; but it has no trace of transverse joints between the seeds, and is bordered by prickly teeth. The nearest affinity of the genus is with the Siberian *Eversmannia*.

STRAKBA. A genus of *Aristolochiaceæ*, comprising a tree or shrub, native of the Molucca Isles. The branches are jointed; the leaves stalked leathery and palmately nerved; and the flowers sessile on a branched spike. The tube of the perianth is elongated four-cornered, and its limb divided into three or four ovate concave segments; stamens nine to twelve; ovary four-celled; style short, stigma peltate; fruit pod-like four-celled, four inches in length, and tapering at the base. [M. T. M.]

STRAMINEUS. Straw-coloured; dull-yellow mixed with white.

STRAMOINE. (Fr.) *Datura*.

STRAMONIUM. The Thorn Apple, *Datura Stramonium*.

STRANGLE-TARE. *Vicia lathyroides*; also *Cuscuta europæa*.

STRANGULATE. Contracted and expanded in an irregular manner.

STRANVÆSIA. An interesting genus of *Pomaceæ*, inasmuch as its fruits are intermediate between true capsules and pomes. The species is a native of Nepal, and has evergreen lance-shaped saw-toothed leaves, and white flowers in woolly corymbs. The tube of the calyx is top-shaped, not adherent to the ovary, its limb five-toothed; stamens twenty, alternately long and short; ovary free five-celled, each cell with two collateral ascending ovules; style five-cleft at the top; fruit capsular, enclosed within the orange-coloured calyx-tube, dividing into five valves. *S. glaucescens*, better known under the old name of *Ornatagus glauca*, is grown in sheltered spots as an ornamental tree. The generic name commemorates

the botanical services of the Hon. W. Fox-Strangways. [M. T. M.]

STRAP-SHAPED. The same as *Ligulate*.

STRAPWORT. *Corrigiola*.

STRATIOTES. The Water Soldier, a plant of angular appearance, belonging to the order *Hydrocharitaceæ*. The barren and fertile flowers grow on separate plants, and are contained in two-leaved spathes; the former numerous, with twelve to thirteen stamens, and twice as many imperfect ones; the latter solitary, with six stigmas, and numerous sterile stamens, which however sometimes become perfect. The plant, which resembles an American sedge in miniature (hence its name, *S. aloides*), is attached to the mud by a cord-like runner, or is suspended free in the water, elevating only its flowers and a portion of its leaves above the surface. The leaves are of a highly cellular structure, and pellucid. The Water Soldier is a dangerous plant to introduce into artificial water, as it increases with great rapidity, and is more curious than ornamental. French: *Aloides*; German: *Wasserfeder*. [C. A. J.]

STRATUM. A layer of tissue. *Str. cellulolum* is a cellular layer forming the exterior of bark, immediately below the epidermis; *Str. corticale* is any layer belonging to bark; and *Str. ligneum* is one of the woody layers in the stem of exogens. *Str. sporidiferum* is the flesh, and *Str. sporophorum* the hymenium, of certain fungi.

STRAVADIUM. A Latinised version of a Malabar name applied to certain Indian trees of the family *Barringtoniaceæ*. The genus is nearly allied to *Barringtonia*, but is distinguished from it by its four-parted calyx, two-celled ovary, and ribbed four-sided fruit. The root of *S. racemosum* has aperient qualities, and its bark has a bitter taste, and is employed in fovers. [M. T. M.]

STRAW. The above-ground stem of Grasses, especially of the cereals.

STRAWBERRY. *Fragaria*. —, ALPINE. *Fragaria vesca*. —, BARREN. *Potentilla Fragariastrum*; also *Waldsteinia fragarioides*. —, DALMATIAN. *Arbutus Unedo*. —, HAUTOBOIS. *Fragaria elatior*. —, PINE. *Fragaria grandiflora*. —, SCARLET. *Fragaria virginiana*. —, WOOD. *Fragaria vesca*.

STRAWBERRY-BUSH. *Euonymus americanus*.

STRAWBERRY-TREE. *Arbutus Unedo*.

STREAMWORKS. A name sometimes given to the *Haloragaceæ*.

STREBLORHIZA. *Chinithus*.

STRELESKIA. A Tasmanian genus of *Lobeliaceæ*, comprising a small herbaceous species with a rosette of leaves, from the midst of which springs a flower-stalk bearing a single flower; calyx four or five-

lobed; corolla bell-shaped, its tube entire, not split, its limb four or five-cleft, the segments being unequal in size; filaments short, dilated at the base, and hairy; anthers within the corolla, detached, two of them hairy; capsule leathery. [M. T. M.]

STRELITZIA. This gorgeous-flowered genus of *Musaceae* was so named in honour of Charlotte of Mecklenburg-Strelitz, the Queen of George III. The species are large herbaceous plants, natives of the Cape of Good Hope. Their foliage is handsome, consisting of long-stalked glaucous leaves arising from a contracted stem, the base of the leafstalk sheathing. The common flower-stalk is encircled below by the sheath of the leafstalk; while its upper portion gives origin to a large bract or spathe placed obliquely, within which are the flowers. The perianth consists of six segments, in two rows; the three outer ones (sepals) are ovate lance-shaped, nearly equal, usually of a bright orange-colour; the three inner ones (petals) are unequal in size; the two lower or front ones are bright purple, united together, each one lobed on the outer side towards the upper part, so that the two united petals are distinctly halbert-shaped, and conceal within a fold the five perfect and one sterile stamen; the third or posterior petal is much smaller than the other two, somewhat hooded. The style is thread-like, and the stigma divided into three linear branches; fruit capsular three-celled, bursting through the cells into three valves; seeds numerous, with an orange-coloured tuft of hairs attached to them.

The seeds of *S. reginae* are eaten by the Kaffirs. The fine leaves and large orange and purple flowers render this one of the most splendid of plants. Four or five species are in cultivation. *S. reginae* is the most magnificent of all, the other species being in some instances smaller. *S. humilis* is, as it were, a reduced copy of the larger kind.

S. juncea is remarkable for the general absence of a blade to the leaf, so that the leafstalks resemble the stems of large rushes. The writer has, however, occasionally observed a small ovate-acute blade on the top of these stalks. [M. T. M.]

STREPTACHNE. A genus of grasses belonging to the tribe *Stipeae*. Spikelets one-flowered; florets stalked; glumes lax, with short awns; lowest pale cylindrical, upper terminating in a simple awn, not jointed at the base; stamens three; styles two, the stigmas feathery. The three species are all natives of New Holland. [D. M.]

STREPTOCARPUS. A genus of *Gesneraceae* of the tribe *Cyrtandreeae*, inhabiting Southern Africa, and consisting of herbs furnished with a stem, or being altogether without it. The leaves are opposite, one of the pair being usually smaller than its companion. From their axils arises a scape bearing one (rarely two) or a panicle of bluish or purplish flowers, and being coiled

up before the unfolding of the blossoms. The calyx is five-cleft; the corolla tubulose funnel-shaped; the stamens five in number, only two of them fertile; and the capsule pod-like, and towards the point spirally twisted. [B. S.]

STREPTOCAULON. A genus of *Asclepiadaceae*, containing six species of twining plants, generally pubescent or tomentose, natives of India and the Eastern Archipelago. They have opposite leaves, and small flowers in interpetiolar cymes. The calyx is five-parted; the corolla rotate and five-parted, with five scales in the throat alternate with the segments; the filaments are distinct, and the anthers are united to the lower margin of the stigma; the pollen-masses are granular, the stigma is pentagonal; and the follicles are cylindrical spreading and smooth, and contain many comose seeds. [W. C.]

STREPTODESMA. A low scrubby rigid and thorny shrub from the deserts of Patagonia, forming a genus of *Leguminosae* of the tribe *Hedysaeae*, scarcely to be distinguished from *Adesmia*, except by the pods consisting of globular joints, and more or less spirally twisted within the calyx and persistent corolla.

STREPTOLIRION. A genus referred to *Commelinaceae* by some authors, and to *Trilliacae* by others. They are Indian plants, with the characters very nearly the same as in *Tradescantia*, only differing in the petals being small (shorter than the sepals), and the anthers, which are all perfect as in that genus, shaped like the sterile ones of *Anelisma*. The habit, however, is very different, resembling that of *Smilax*; as it has a twining stem, and ovate cordate-acuminate leaves. The flowers are in axillary and terminal racemes, containing from two to six blossoms; the filaments bearded with yellow hairs. [J. T. S.]

STREPTOPUS. A genus of *Melanthaceae*, consisting of perennial herbaceous plants, with creeping rootstocks, from which are thrown up ovate net-veined leaves, which embrace the stem, and whose under-surface is woolly. The flowers are usually solitary, stalked, the stalks curiously bent in the middle; the perianth is six-parted deciduous bell-shaped; ovary three-celled; ovules numerous; style thread-shaped; fruit succulent; seeds numerous, whitish, with a loose coating. Three or four species are in cultivation in English gardens, having been originally imported from North America Hungary and Nepal. The generic name is derived from *streptos* 'twisted,' and *pous* 'a foot,' in allusion to the bent flower-stalks. [M. T. M.]

STREPTOSTIGMA. A name given by Thwaites to a sapindaceous tree from Ceylon, which proves to be a congener of *Harpullia* of Roxburgh. Presl gave the same name to the *Thinogeton*, a sesooat herb from Western Tropical America belonging to *Solanaceae*.

STRILÆ (adj. STRIATE). Streaks; any

sort of longitudinal lines, whether arising from veins, or fine streaks of colour, or long channellings.

STRICTUS. Very upright, or very straight.

STRIGA. A genus of *Scrophulariaceae*, containing several scabrous herbs, which are parasitic on the roots of plants. They are natives of Asia Africa and Australia. The lower leaves are opposite, and the upper alternate; they are linear, or sometimes reduced to mere scales. The flowers spring singly from the axils, forming a terminal spike; the calyx is tubular and ciliate; the corolla-tube is incurved, and the spreading limb two-lipped. [W. C.]

STRIGÆ. Sharp close-pressed rigid hairs.

STRIGOSE. Covered with strigæ. Linnaeus considered this word synonymous with *Hispid*.

STRIGULA. A genus of lichens belonging to the section with crust-like fruit, occurring on the leaves of trees principally in tropical countries. The thallus is produced beneath the true cuticle, whence it has usually a bright shining appearance, which, in connection with the pure white or green tint and jet-black fruit, makes the species (though small) very conspicuous. The European species are doubtful, and perhaps *S. Babingtoni*, which occurs on box and laurel-leaves in this country, might be referred to the fungal genus *Asterina*: at any rate, it differs greatly in its dingy hue and partly filamentous thallus from the tropical species.

Strigulae are subject to a curious change, in which the filaments of the thallus are predominant and become erect, bearing gonidia at their tips. In this state they have been described as species of *Cephaleurus*. [M. J. B.]

STRINGWOOD. *Acalypha rubra*.

STRIPED. Marked with longitudinal stripes of colour.

STROBILACEOUS, STROBILIFORM. Having the appearance of a strobilus.

STROBILANTHES. A large genus of *Acanthaceae*, comprising many herbs and shrubs scattered over Tropical Asia and Africa. The flowers are in axillary or terminal heads, or spikes that are sessile or pedunculate; the calyx is divided to the base into five sepals; the five lobes of the corolla are nearly equal, and spreading; the four stamens have parallel and equal anther-cells; the two cells of the ovary have each two ovules; the style is subulate and entire, or with a very minute upper tooth; and the capsule generally has the seeds towards its middle. [W. C.]

STROBILORHACHIS. A genus of *Acanthaceae*, containing two handsome species from Tropical America. They are shrubs or herbs, with four-sided spikes, which are covered with the broad limbs of the bright-coloured corolla; the corolla is

two-lipped, with a slender incurved tube opening upwards into a broad limb, the upper lip of which is two-lobed, and the lower three-lobed; the stamens are included; and the stigma is two-lipped and compressed, funnel-shaped. [W. C.]

STROBILUS. A fir-cone; also any fruit which resembles a fir-cone; an imbricated scaly inflorescence; a collection of hard scales, representing distinct flowers arranged spirally, but closely imbricated.

STROMA. A word synonymous with *Thallus*, but applied especially to the substance in which the perithecia are immersed in such genera as *Hypozytion*, or which contains the fructifying cells as in *Dothidea*. [M. J. B.]

STROMANTHE. A genus of *Marantaceae*, comprising an East Indian species, with large stalked variegated leaves, and flowers in a branched spike arranged in pairs between two coloured bracts. The distinguishing characteristics reside in the inner segments of the corolla, of which there are two of unequal size, while the third (or lip) is absent. The staminode is petal-like, very large, roundish concave at the top; the two stamens are petaloid, united at the base with the staminode; the sterile one concave at the top, the concavity concealing the deflected stigma; the fertile stamen bears a one-celled anther on its outer surface; the ovary is two-celled. [M. T. M.]

STROMBOCARPA. A section of *Prosope*, distinguished by the pod being spirally twisted like a corkscrew, and which some botanists have proposed to adopt as a distinct genus of *Mimosae*. There are several species, chiefly bushy shrubs, some of them abundant in the plains of Buenos Ayres and Patagonia, as well as in New Mexico, and known by the names of *Retorquillo* and some others, expressive of the singular shape of their fruits.

STROMBOSIA. A genus of *Oleaceae*, consisting of trees with alternate entire coriaceous leaves, and very small flowers in axillary clusters or small cymes. It is distinguished in the order by having five stamens opposite the petals, and the ovary almost completely superior, divided nearly to the top into three four or five cells; whilst the fruit, a one-seeded drupe as in other genera, is almost completely inferior. There are six species known, one from Tropical Africa, the remainder from Tropical Asia.

STROMBUS-SHAPED, STROMBULIFORM. Twisted in a long spire, so as to resemble the convolutions of the shell called a *Strombus*—as the pod of *Acacia strombulifera* or *Medicago polymorpha*.

STRONG-MAN'S-WEED. *Petiveria alliacea*.

STROPHANTHUS. This name, derived from the Greek *strophos* 'a twisted cord or rope,' and *anthos* 'a flower,' is expressive of the chief peculiarity of the flowers

In this genus of *Apocynaceæ*, the species referred to which are shrubs, natives of Tropical Africa and Asia. The flowers are in terminal heads; the corolla funnel-shaped, its throat partly closed by ten scales, its limb divided into five long tail-like segments, whence the name of the genus; the style thread-like, dilated at the top, with a cylindrical stigma; the fruit a double follicle. Two or three Indian and West African species are grown in this country for the pretty appearance and singularity of their flowers. The wood of *S. dichotomus* is used for planks, &c. in India. [M. T. M.]

STROPHE. A term applied to the spirals formed in the development of leaves.

STROPHIOLE. A tubercle found surrounding the hilum of some kinds of seeds.

STRUMA. A cushion-like swelling; a goitre. A protuberance at the base of the spore-cases of some urn-mosses.

STRUMARIA. A genus of *Amaryllidaceæ*, consisting of Cape bulbous herbs, with lorate linear leaves, and solid scapes bearing many-flowered umbels of erect blossoms, which have a regular six-parted perianth with a short tube and stellated patent limb, six stamens, the filaments connected at the base, and an erect filiform angular columnar style, thickened or strumous below, with a trifid stigma. The flowers are white lined with red or green, or wholly red. [T. M.]

STRUMIFORM. Having the appearance of a struma.

STRUMULOSE. Furnished with a small struma.

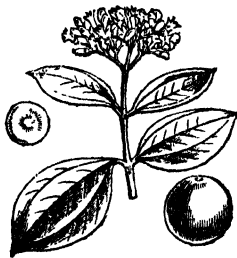
STRUTHIOLA. A genus of *Thymelacææ*, consisting of South African shrubs, with the heath-like habit and foliage and almost all the characters of *Gnidia*, but differing from that genus essentially in their stamens, which are always four instead of eight; and generally in their flowers, which are axillary along the upper branches, and not in terminal heads. Nineteen species have been described, amongst which *S. virgata* with pink flowers, *S. erecta*, and some others have occasionally been grown in our greenhouses amongst Cape shrubs.

STRUTHIOPTERIS. A genus of hardy ferns of the polypodiaceous division, remarkable for their handsome growth. The fronds grow erect around a short upright caudex: the sterile ones in an outer series pinnato-pinnatifid; the fertile in the centre pinnae, with the pinnae contracted moniliform, the margins rolled inwards so as to cover the sori. The veins are free. They are easily recognised by their dissimilar fronds, though technically very little different from *Polypodium* beyond the contraction and revolution of the fertile fronds. One species is European, another (or perhaps a variety) North American, and a third is found in India and Japan. [T. M.]

STRYCHNINE. The poisonous principle obtained from *Strychnos nux-vomica*.

STRYCHNOS. Certain solanaceous plants were known to the ancient Greeks by this name, which is now applied to a genus of *Loganiaceæ*. The species consist of trees or climbing shrubs, natives of the tropics of Asia and America. The leaves are entire strongly-nerved opposite, one of them, however, being frequently abortive, and developing from its axil a tendril-like branch. The flowers are in terminal or axillary corymbs or panicles, greenish-white and generally fragrant; the calyx has four or five overlapping segments; the corolla is tubular, its limb divided into four or five valvate segments; there are four or five stamens; and the fruit is a kind of berry, enclosing a single cavity, and generally many-seeded; the seeds being flattened disk-like and silky, surrounded by pulp. The valvate ostivation of the corolla and the succulent indehiscent fruit are the distinguishing characteristics.

The species to which the greatest interest is attached is that yielding the seeds known under the name of *Nux-vomica*.



Strychnos nux-vomica.

This is a moderate-sized tree, destitute of spines or tendrils, native of the Coromandel Coast and Cochín China. The fruit is very like an orange in appearance, and contains numerous seeds of a flattened circular outline, about the size of a halfpenny, rather thicker near the circumference than elsewhere, the exterior of an ash-grey colour, covered with fine silky hairs, and the interior consisting of very hard grey albumen, in which, near the circumference, the embryo is embedded. The seeds have an intensely bitter taste, owing to the presence of two most energetic poisons, *strychnia*, and *brucia*, which exist in the seeds conjoined with certain peculiar acids; but the pulp is innocuous, and is said to be greedily eaten by birds. If nitric acid be added to the powdered seeds a deep orange-yellow colour is produced.

Nux-vomica acts as a poison on man and animals, producing stiffness of the muscles,

great distress, tetanic convulsions, and ultimately death. *Strychnia* and *brucia* produce precisely similar effects, but are far more powerful; inasmuch that Dr. Christison reports that he has seen a dog killed in two minutes, when not more than the sixth part of a grain had been injected into the animal's chest. These substances act for the most part on the spinal cord. In cases of poisoning by these formidable drugs, but little can be done beyond emptying the stomach immediately, as no antidote has yet been discovered. Astringents and narcotics are recommended, and also the use of artificial respiration. It is also said that the fruit of the cucurbitaceous *Peculia cordifolia* is an antidote against this and other poisons, but this statement requires confirmation. Medically nux-vomica is used, in the shape of extract or tincture, in certain forms of paralysis and indigestion; and in small doses it acts as a tonic and diuretic. The bark of the tree possesses similar properties to the seeds, but in a less degree.

Serious consequences ensued in the early part of the present century from this bark having been imported and used as Angostura bark (see GALIPEA); and in Calcutta it is still said to be sold for the harmless bark of *Soyimida febrifuga*, or Rohun-bark. Owing to the timely interposition of Dr. O'Shaughnessy, an error was rectified which otherwise might have had frightful consequences. It appears that a chemist procured, as he thought, a new alkaloid from the Rohun-bark, analogous to quinine, and which was therefore manufactured for the purpose of being employed in the Indian Army as a substitute for that drug. Dr. O'Shaughnessy, however, detected that the alkaloid in question was brucia, and that it had been derived from nux-vomica bark sold under the name of the harmless Rohun-bark.

The wood of the nux-vomica tree is hard and very bitter; it is said to be used in India in cases of intermittent fever and in snake-bites. A decoction of the leaves is used externally in rheumatism.

S. Tiewé, a climbing shrub, growing in Java, yields a juice which is used by the natives for poisoning their arrows. Its effects are precisely similar to those of nux-vomica, being dependent on the same ingredients. This poison is called Upas Tiewé, but must not be confounded with the true Upas: see ANTIRIA. *S. toxicaria* also yields a frightful poison called Ourari or Wourali, employed by the natives of Guiana. It has been tried in cases of hydrophobia, but with no good result. *S. colubrina*, a native of Malabar, furnishes one kind of *Unguine colubrinum*, or Snake-wood; it is considered by the natives as an infallible remedy in cases of snake-bite, and is also given in fevers and other complaints. *S. lignastrum* and other species are said to yield in Java various kinds of Snake-wood, used for similar purposes to the one last mentioned. *S. Pseudo-Quina*, a native of Brazil, yields Colpache-bark, which is largely used in

that country in cases of fever, and is considered to equal quinine in value; its fruit is edible. It is stated that this species does not contain strychnin in spite of its bitter taste, and hence it is not considered to be poisonous.

From *S. potatorium*, a tree found in the mountains and forests of India, are obtained the seeds known in that country as Clearing Nuts. The fruit is black, of the size of a cherry, and contains only a single seed. These seeds are employed to clear muddy water; they are simply rubbed round the inside of the vessel for a minute or two, and then the water is allowed to settle. Their efficacy for this purpose depends, according to Dr. Pereira, on their albumen and casein, which act as fining agents, like those employed for wine or beer. Many other seeds might be used for the same purpose. The fruits and seeds are also used medicinally in India.

The pulp of the fruit of several species is harmless and edible: thus in Egypt and Senegal the natives eat the fruit of *S. tinocua*; the Indians do not scruple to eat the fruits of *S. potatorium*; and the pulp of the Tiente even is said to be edible. The plant yielding St. Ignatius-beans is not known with certainty; it is, however, surmised to be a species of *Strychnos* from the quantity of strychnin contained in the seeds: see IGNATIA. [M. T. M.]

STRYPHNODENDRON. A genus of *Leguminosae*, closely allied to *Inga*, but distinguished by the following characteristics:—Stamens ten; pod linear compressed, indehiscent leathery, pulpy within, and becoming baccate as it ripens; seeds numerous, pendulous. These trees are mostly natives of Brazil, and possess astringent properties, whence the name of the genus, from *straphnos* 'astringent' and *dendron* 'a tree.' [M. T. M.]

STUARTIA. A genus of *Ternstroemiaceae*, consisting of North American shrubs, with membranous serrate leaves, white on the under-surface; and large white flowers, on solitary or double axillary stalks. The calyx is persistent, divided into five lanceolate segments; petals five, somewhat coherent at the base, crenulate at the margin; stamens numerous, in many rows, adherent to the petals; ovary free five-celled, with two ovules in each compartment; styles five, distinct or connate; fruit capsular, five-valved; seeds winged. *S. virginica* and *S. Malacodendron* are grown in this country; they are somewhat tender, but the beauty of their flowers renders them very desirable inmates of a garden; they flower in autumn. [M. T. M.]

STUBWORT. *Oxalis acetosella*.

STUPA (adj. STUPPEUS, STUPOSE). Tow; a tuft of long hairs.

STURMIA. A terrestrial genus of orchids, belonging to the *Malacoides*, generally included in the genus *Liparis*, consisting of one species, which is found in bogs and wet places in Europe and North

America. It grows about six inches in height, and has a tuberous root, and two leaves about half the length of the stem; the flowers are few small and racemose. It is a native of some of the south-eastern counties of England. [W. B. H.]

STURTIA. A genus of *Malvaceae*, named in compliment to an Australian explorer, and founded upon a somewhat shrubby species, with smooth stalked leaves, and solitary stalked flowers, the outer calyx of which consists of three entire leaves, the inner being five-toothed, the petals wedge-shaped, the ovaries five many-seeded, the styles united, and the stigmas linear. The plant is a native of Central tropical Australia. [M. T. M.]

STYLAPTERUS. A genus of *Penaceae*, comprising a small number of heath-like small-flowered undershrubs from Southern Africa, chiefly distinguished from *Pentaea* by the want of the large persistent coloured bracts of that genus.

STYLATE. Having a persistent style.

STYLE. The narrowed upper end of a carpellary leaf; the part which bears the stigma.

STYLEWORT. *Styidium*.

STYLETOWORTS. Lindley's name for the *Styidiaceae*.

STYLIDIACEÆ. A small order of monopetalous dicotyledons, nearly allied to the irregular-flowered *Campanulaceæ* or *Lobeliaceæ*, of which it has the inferior two-celled ovary and capsular fruit, with numerous albuminous seeds; but it is remarkable for the stamens, two in number, being united with the style in a highly irritable column of curious structure, the stigma lying in a cavity at the apex, surrounded and concealed by the anthers. It consists of small herbs or undershrubs, chiefly Australian, with a few species from New Zealand, the Straits of Magelhaens, or Tropical Asia; and is divided into three four or five genera, of which *Styidium* itself contains the great majority of the species.

STYLIIDIUM. A genus of *Styidiaceæ* having an adherent two-lipped calyx of from two to five divisions; a monopetalous corolla, with an irregular limb and a twisted tube; two stamens, united with the style into a column longer than the limb of the corolla; the stigma lying in a cavity at the apex of the column, surrounded and concealed by the anthers. This column is extremely irritable; it hangs down on one side of the flower until it is touched, when it instantly springs up, and shifts at once to the opposite side with great force. The seed-vessel is two-celled, and contains numerous small seeds, which are sometimes stalked. The species are herbaceous plants or small shrubs, with scattered entire leaves, sometimes in whorls, and pink flowers.

tion, and also of Tasmania. Two species, *S. Kunthii* and *S. tenellum*, are found in India; and *S. uliginosum* is a native of Ceylon. [R. H.]

STYLENE. Of or belonging to the style.

STYLISCUUS. The channel which passes from the stigma through the style into the ovary.

STYLOBASIUM. A genus of *Rosaceæ* (*Chrysobalanaceæ*), confined to West Australia, and containing only two species. It differs from the whole order in its hypogynous stamens, and is connected with the American genus *Leptosiphon* alone by its large anthers. They are unarmed shrubs with entire alternate leaves, the flowers apetalous and solitary in the axils of the leaves, the upper ones forming a terminal cyme, usually polygamous; the females with long filiform stamens; the males with small abortive ovary. [J. Br.]

STYLOCERAS. A genus of American trees of the *Euphorbiaceæ*. The leaves resemble those of the cherry-laurel, *Cerasus Laurocerasus*; and the flowers are either monœcious or dioecious: when monœcious, arranged in solitary or double axillary spikes, the lower flowers of which are male, the terminal female; when dioecious, the males in spikes, and the females solitary, stalked. The fruit is capsular globose, surmounted by the persistent horn-like styles, from which latter organs the genus derives its name. The fruit is said to be edible. [M. T. M.]

STYLOCORYNE. One of the genera of *Cinchonaceæ*, consisting of trees, with flowers on axillary stalks. The limb of the calyx is short tubular five-toothed; the corolla salver or funnel-shaped, its limb five-parted; stamens five, inserted on to the throat of the corolla; the anthers linear and very long; the style projecting beyond the corolla, and terminated by a club-like stigma; the fruit succulent, surmounted by the limb of the calyx. The name is expressive of the club-like stigma surmounting the style. [M. T. M.]

STYLODISCUS. A genus of *Euphorbiaceæ*, represented by a large tree, native of India, the leaves of which are pinnate, and the flowers dioecious, very numerous, small, and arranged in axillary panicles. The calyx has five concave sepals, encircling as many stamens, which are united below into a column; ovary rudimentary; in the female flowers there is a five-parted calyx, with five glands opposite to the segments, and representing the stamens. Fruit baccate, each cell with two seeds. [M. T. M.]

STYLOGYNE. A genus of *Myrsinaceæ*, including a Brazilian shrub, whose leaves are entire, marked by pellucid spots; and whose flowers are in terminal panicles.

the style probably suggested the name of the genus. [M. T. M.]

STYLOPHORUM. Certain North American herbs of the family *Papaveraceae* have been comprised in a genus of this name. They are described as having a yellow juice, divided leaves, and yellow somewhat corymbose flowers. The calyx is of two hairy caducous sepals; petals four; stamens numerous; ovary one-celled, with three to four parietal placentas; style column-like; stigma three to four-lobed; fruit a capsule, bursting by three or four valves. The genus derives its name from the presence of a style surmounting the ovary, a rare circumstance in the plants of the poppy family. [M. T. M.]

STYLOPODIUM. The double fleshy disk from which the styles of umbellifers arise.

STYLOSANTHES. A genus of papilionaceous *Leguminosae*, consisting of herbs or undershrubs, usually covered with sticky hairs, and natives of the tropics of both hemispheres. The leaves have three leaflets, and the flowers are grouped in a dense terminal or axillary spike, bearing a number of bracts, in the axils of which the flowers are placed either singly or in pairs—if in pairs one of them frequently imperfect. The flowers are polygamous: the hermaphrodite ones are sterile, and have a calyx with a long tube surmounted by a two-lipped limb, a papilionaceous corolla, and ten monadelphous stamens, while the female flowers are fertile, and have no calyx or corolla, but an erect ovary with two ovules, a short hooked style, and a thick stigma. The pod is jointed, the lower joint occasionally empty, the upper terminated by the persistent style, whence the name of the genus. The dimorphism of the flowers is curious. Some of the species with yellow blossoms are grown in this country. [M. T. M.]

STYLOSPORE. A name proposed by the Tulanes for the naked spores in such genera as *Diplodia*, *Hendersonia*, &c., in consequence of their being produced at the tips of short thread-like cells, or more rarely on branched threads. If the distinction of spores and sporidia hold good there is no necessity for the name, except in connection with the theory that these genera are mere conditions of true ascigerous *Fungi* belonging to the genus *Sphaeria* and its allies. This theory is founded on the fact that supposed species of these genera often grow on the same matrix with *Sphaeria*, and are not distinguishable without microscopical examination; that, as in the case of *Sphaeria inquinans*, the naked and inclosed spores are produced on different parts of the same thallus; and that in some genera, as in *Tympania*, naked spores and asci are produced from the same hymenium. These stylospores are regarded therefore as a secondary kind of fruit, comparable with the conidia of other *Fungi*, or the oldid spores of *Mysethe*, though in that genus stylospores of two kinds (or possibly

at lospores and spermatia) are produced as well as conidia. It is not supposed that these stylospores have sexual functions, as they are sometimes observed to germinate, and in several *Fungi* spermatia have been observed very similar to those of lichens—as, for instance, in *Valsa hypodermia*. The cysts which inclose the stylospores are called Pycnidia. [M. J. B.]

STYLOSTEMON. An epigynous stamen.

STYLOTEGIUM. The coronal or orbicular mass which forms part of the androecium of such aclepiads as *Stapelia*.

STYPPANDRA. A genus of *Liliaceae* from Southern Australia, consisting of perennial herbs, with creeping rhizomes, and linear-ensiform leaves. The flowers are blue or whitish, on pedicels articulated with the perianth, paniculate-corymbose; the perianth is six-parted, with equal spreading segments; the stamens six, with curved filaments, bearded at the apex; the capsule subglobose, three-celled; the seeds few oval smooth, without a strophole at the hilum. [J. T. S.]

STYPHELIA. A genus of *Epacridaceae*, distinguished by having a five-parted calyx, surrounded by a few bracts; an elongated tubular corolla, the segments of the limb bearded and revolute; stamens longer than the tube, with oblong-linear anthers; and a five-celled nearly dry seed-vessel containing a single seed. They are harsh erect shrubby plants, natives of New South Wales and Tasmania, with scattered oblong or lanceolate sharp-pointed leaves on short footstalks; and the flowers generally axillary, drooping, red or green. [R. H.]

STYPHNOLOBIUM. A genus of papilionaceous *Leguminosae*, represented by a tree, with unequally pinnate leaves, and flowers in terminal racemes or panicles; calyx five-toothed; vexillum rounded reflected, scarcely larger than the wings; keel blunt, as long as the wings; stamens ten, monadelphous or distinct; ovary stalked; style filiform, curved; pod moniliform fleshy indehiscent many-seeded, the seeds encircled by a austere pulp, whence the name of the genus, from the Greek *staphnos* 'astringent.' The pulp of the fruit of *S. japonica* yields a yellow dye. This tree, which is better known as *Sophora japonica*, thrives well in this country. A fine example of it may be seen growing in the Oxford Botanic Garden. [M. T. M.]

STYPTIC. Astringent.

STYRACACEÆ. (*Symplocaceae*, *Symplocineae*, *Halesiaceae*, *Storacaceae*.) An order of dicotyledons connecting in some measure *Monopetalae* with *Polypetalae*, but usually classed with the former. It consists of trees or shrubs, chiefly tropical, a very few being found in North America. They have alternate undivided leaves without stipules, and solitary clustered or paniculate flowers, often white and usually axillary. The calyx is free or more or less

adherent, with four or five teeth; the corolla consists of as many divisions or petals, often only cohering by their adhesion to the staminal ring; stamens definite or indefinite, inserted on or adhering to the base of the corolla; ovary superior or more or less inferior, with two or more ovules in each cell; fruit drupaceous, with one or few seeds containing a slender embryo in the midst of albumen. The two principal genera, *Symplocos* and *Styrax*, are considered by some botanists as types of two distinct orders, but are more generally regarded as tribes only of *Styracaceæ*. Among the smaller genera *Halesia*, or the American Snowdrop-tree, is the only one of general interest.

STYRAX. The typical genus of the *Styracaceæ*, consisting of trees and shrubs, natives of Asia and North America. The leaves are entire, frequently covered with star-shaped hairs; and the flowers are white, in racemes. The calyx is bell-shaped, five-toothed; corolla five-parted, longer than the calyx; stamens ten, adherent to the base of the petals, filaments cohering below, distinct above; ovary partially three-celled; fruit globose, adnate to the base of the persistent calyx, one-celled one-seeded.

S. officinale, a native of the Levant, &c., yields a balsamic resinous substance known as Storax, and which is obtained by stripping off pieces of the bark of the shrub, and submitting them to pressure. [This fragrant gum resin is now quite lost to commerce, the Storax now used by perfumers, and in medicine, being furnished by *Liquidambar orientalis*, a tree of Asia Minor.] Storax is used by perfumers for its agreeable odour, and medicinally as a stimulating expectorant.

S. Benzoin, a native of Sumatra, Borneo, &c., yields the resin called Benzoin. Incisions are made into the tree, the juice exudes, dries, and the dried mass is removed by a knife or chisel. Each tree yields annually about three pounds of benzoin, that which is formed during the first three years being of better quality than that which exudes subsequently. Benzoin is employed medicinally in chronic pulmonary disorders, and also by perfumers for various purposes. It is used in Roman Catholic churches in the composition of incense. Other species, mentioned, yield a fragrant resin. The kinds are grown in this country pure white flowers rendering them very ornamental in shrubberies. [M. T. M.]

SUÆDA. The plants belonging to this genus of *Chenopodiaceæ* grow only on seashores, or in saline plains and other places where the soil is impregnated with salt. They are almost exclusively confined to the temperate and tropical regions of the Northern Hemisphere, very few being found in the Southern. They are smooth or downy herbaceous or more frequently shrubby plants, with alternate somewhat tapering fleshy stalkless leaves, bearing solitary or clustered stalkless or short-stalked usually perfect flowers in their axils. Their fruits, called utricle, are

enclosed in the slightly enlarged or inflated berry-like calyx, but do not adhere to it. *S. fruticosa* alias *Chenopodium fruticosum*, or *Salsola fruticosa*, is one of our rarer British species; but it is very common in the warmer parts of Europe, and also in Northern Africa and Western Asia. It is a shrubby erect branching evergreen perennial plant, from two to three feet high, with thick and succulent semicylindrical bluish pale green leaves, and small stalkless flowers, either solitary or two or three together. In England it is found only on some parts of the eastern and southern coasts. It is one of the plants burned in Southern Europe for the manufacture of barilla. [A. S.]

SUB. In composition usually = somewhat; as *sub-rotund*, somewhat round; or *sub-globose*, approaching the globular form. Also nearly; as *sub-insipidus*, nearly insipid.

SUBARBORESCENT. Having a somewhat tree-like aspect.

SUBER (adj. **SUBEROSE**). Cork: The epiphæum of bark, when it acquires an elastic soft texture, and is preternaturally enlarged.

SUBER. *Quercus Suber*, the Cork-tree.

SUBJEE. An Indian name for the leaves or capsules of the Indian Hemp.

SUBMERSED. Buried beneath water.

SUBMARGINAL. Situated near the margin.

SUBORDER. One of the minor groups into which Natural Orders are divided; as the *Papilionaceæ* and *Mimosææ* of the order *Leguminosæ*.

SUBRAMEAL. Growing on a branch below a leaf.

SUBRAMOSE. Having a slight tendency to branch.

SUBROSEUS. Having something of a rose-colour.

SUBULARIA. A minute stemless aquatic annual belonging to the order *Cruciferae*, found in the gravelly bottoms of lakes, usually in shallow water.

whole plant composed merely of a few fibrous roots, a few very narrow awl-shaped leaves about an inch long, and a leafless stalk two inches high, bearing a few scattered small white flowers which expand and ripen their seeds under water. *S. aquatica*, or *Awliwort*, the only species, is indigenous to Scotland and the North of England and Ireland. French: *Subulaire*; German: *Wassergriemen*. [C. A. J.]

SUBULATE, SUBULIFORM. Awl-shaped; linear, very narrow, tapering to a very fine point from a broadish base.

SUBULI. The aculeis or sharp processes formed by some fungi.

SUCOSE. (Fr.) *Scabiosa succisa*.

SUCCISUS. Abruptly broken off, or appearing to be so.

SUCCOORY. *Ochlerium Intybus*. —, **GUM.** *Chondrilla*. —, **HOG or SWINE'S.** *Hyoseris*. —, **LAMB.** *Arnoseris*. —, **POISON-IOUS.** *Aposeria fastida*.

SUCCOSE. Full of juice.

SUCCOWIA. A genus of *Cruciferae*, comprising an annual inhabiting Northern Africa, the Mediterranean, and the Canary Islands; and having pinnatifid leaves, and erect elongated racemes opposite them. The pouch is two-valved ovate-globose, with the valves concave, prickly, with a four-aided subulate style. [J.T.S.]

SUCCOUBOUS. A term used in the description of *Jungermanniaceae*, intimating that the anterior margin of each leaf as set on the branches passes beneath the posterior margin of that which succeeds it. See **INCUBOUS**. [M.J.B.]

SUCCULENT. Very cellular and juicy, as the stems of *Stapelia*.

SUCE-PIN. (Fr.) *Hypophyllum multiflora*.

SUCKER. A shoot thrown up by a plant from beneath the surface of the ground, as is common with roses, &c.

SUCKLING. *Trifolium filiforme*.

SUCRION. (Fr.) A kind of barley.

SUDORIFIC. Having the power of causing perspiration.

SUERCE. (Fr.) *Suertia*.

SUÉRIN DE TOURS. (Fr.) *Cucumis Melo*.

SUFFIS. (Fr.) *Pinus Pumilio*.

SUFFRUTEX. An undershrub or shrub of small size, herbaceous at the ends of the shoots, though woody at their base.

SUFFRUTICOSE. Having a somewhat shrubby habit.

SUGAR. The saccharine constituent of organised bodies, that of commerce being obtained from the juice or sap of certain plants, and especially of the Sugar-cane. —, **BEST.** The product of different varieties of beet-root, of which the Silesian is the most prolific. —, **CANE.** The product of the sugar-cane, *Saccharum officinarum*, and its varieties. —, **DATE.** The product of the date, *Phoenix sylvestris*, and other palms, as *Saguarus saccharifer*; this is less sweetening than cane-sugar. —, **GRAPE.** A granular kind of sugar obtainable from grapes, less sweetening than cane-sugar. —, **LIQUORICE.** An uncrystallisable extract obtained from the root of *Glycyrrhiza glabra*. —, **MAPLE.** The product of the sugar-maple, *Acer saccharinum*.

SUGAR-BERRY. The fruit of *Oxalis co-*

SUGAR-CANE. *Saccharum officinarum*. —, **CHINESE.** *Sorghum saccharatum*.

SUGAR-TREE. *Myoporum platycarpum*.

SUIN. (Fr.) *Sambucus nigra*.

SUJKA. An Indian name for *Moringa pterygosperma*.

SUKHIANG. A Chinese name for *Alocxylon Agallochum*.

SUKON. The Malayan name for the Bread-fruit.

SULCATE. Furrowed.

SULCATO-RIMOSE. Furrowed and cracked like the cotyledons of a Spanish chestnut.

SULOI. The lamellæ of certain fungi.

SULEEKHE. An Indian name for the aromatic bark of *Cinnamomum Cullacau*.

SULIA. (Fr.) *Hedysarum coronarium*.

SULION. (Fr.) *Sambucus nigra*.

SULLIVANTIA. A genus of *Saxifraga-cee*, containing a single species from Ohio, a low spreading perennial with rounded and cut toothed or slightly lobed leaves, and small white flowers, in a branched loosely cymose panicle on a nearly leafless scape. The calyx is bell-shaped, cohering below only, with the base of the ovary five-cleft; petals five, entire, acute; stamens five; capsule two-celled, two-beaked, with numerous wing-margined seeds. [J.T.S.]

SULPHUREUS. Sulphur-colour; a pale bright-yellow, with a mixture of white.

SULPHUR-WEED or SULPHURWORT. *Peucedanum*.

SULTAN, SWEET. *Amberboa moschata*. —, **YELLOW.** *Amberboa odorata*.

SULTAN DOUX. (Fr.) *Amberboa moschata*.

SUMAC. (Fr.) *Rhus*. —, **LA GALE or LA PUC.** *Rhus radicans*. —, **AMARANTE or DE VIRGINIE.** *Rhus typhina*. —, **FEUILLES DE MYRTE.** *Coriaria myrtifolia*. —, **DE OBYLAN.** *Comarus*. —, **FUSTET.** *Rhus Cotinus*.

SUMACH, SHUMAC. The dried and chopped leaves and shoots of *Rhus Coriaria*. —, **AMERICAN.** *Rhus typhina*. —, **JAMAICA.** *Rhus Matatum*. —, **STAGS-HORN.** *Rhus typhina*. —, **SWAMP.** *Rhus venenata*. —, **TANNER'S.** *Coriaria myrtifolia*. —, **VENICE.** *Rhus Cotinus*. —, **VIRGINIAN.** *Rhus typhina*. —, **WEST INDIAN.** *Brunellia comocladifolia*.

SUMBUL. The root of an umbelliferous plant named *Eryngium Fambul*. Also an Eastern name for the root of *Nardostachys Jatamansi*.

SUN. *Oreolaria juncea*.

SUNBURN. See **HELIOSES**.

SUNDEW. *Drosera*.

SUNDOPE. An American name for *Oenothera fruticosa* and *O. riparia*.

SUNFLOWER. *Helianthus*; also *Helianthemum* and *Calendula officinalis*. —,

COMMON. *Helianthus annuus*. —, FALSE. *Helentum*. —, TICKSEED. *Corocopsis tri-chosperma*.

SUNIPIA. An epiphytal genus of orchids belonging to the tribe *Malaxidæ*. The leaves are solitary, leathery; the spike radical or from beneath the base of the pseudobulb; and the flowers small white, stained with pink, nearly hidden by the large spathaceous bracts. It differs from all other genera in the anther opening vertically with two pairs of equal pollen-masses, adhering to as many tough round elastic legs or caudicles meeting at the rostellum, which has no gland. In habit it approaches *Bolbophyllum*. The name is derived from the Indian word Sunpiang. The only species, *S. scariosa*, is found in the Khasya Hills, the Sikkim Himalaya, &c., at an elevation of 5,000 to 6,000 feet above the sea-level. [W. B. H.]

SUNN. *Orotalaria juncea*.

SUNSTROKE. See *HELIOSIS*.

SUPERBE DU MALABAR. (Fr.) *Methonica superba*.

SUPERFICIAL, SUPERFICIARIUS. Found at the surface.

SUPERIOR. Growing above anything. A calyx is *half-superior* when it appears to grow from above the base of an ovary; and absolutely superior when it appears to grow from the top of the ovary. On the contrary, the ovary is superior when it grows above the origin of the calyx.

SUPERPOSED, SUPERPOSITUS. Stationed above anything; placed one above another, as ovules in an ovary.

SUPERVOLUTE. When one edge is rolled inwards and is enveloped by the opposite edge, also rolled inwards, as the leaves of an apricot-tree.

SUPERVOLUTIVE. An aestivation in which leaves are supervolute.

SUPPLE-JACK. *Paullinia curassavica*, *polyphylla*, and *barbadensis*; also *Cardiospermum grandiflorum*. Also a Virginian name for *Berchemia volubilis*.

SUPRA. Above or upon anything.

SUPRA-AXILLARY. Growing above an axil.

SUPRADECOMPOUND. Divided into a multitude of pieces; so much divided that the number and mode of division cannot be precisely ascertained; as the leaves of the carrot, fennel, &c.

SUPRAFOLIACEOUS. Growing above a leaf.

SUPRAFOLIAR. Growing upon a leaf.

SURCULUS. The same as Sucker; also the young prostrate stem of a moss.

SURCURRENT. The opposite of decurrent; when a leafy expansion runs up the stem.

SUREAU. (Fr.) *Sambucus nigra*. — **D'EAU.** *Viburnum Opulus*.

SURELLE. (Fr.) *Oxalis acetosella*.

SURETTE. (Fr.) *Byssonima spicata*.

SURIANACEÆ. *Suriana*, a branching pubescent maritime shrub, found on most tropical coasts, with narrow entire rather thick leaves, and terminal yellow flowers, has so many peculiarities of structure that, after having been successively added on to various orders, it has been proposed to consider it as forming an order by itself under the above name, or at most to associate with it *Rigiotachys*, a Mexican shrub of a very dissimilar aspect. *Suriana* has now, however, been referred with very little hesitation to *Simarubaceæ*, being certainly nearly allied to the genera *Oncorhiza* and *Castela* of that order.

SURINAM-POISON. *Tephrosia toxicaria*.

SURINGEE. An Indian name for the flower-buds of *Olysiaccon longifolium*.

SURISHA. An Indian name of *Sinapis nigra* and *S. dichotoma*.

SURON. (Fr.) *Buntium Bulbocastanum*.

SURRE. (Fr.) The acorns of *Quercus Suber*.

SURRIER. (Fr.) *Quercus Suber*.

SURSAH, SURSEE, SURSON. Indian names of *Sinapis nigra* and *S. dichotoma*.

SURSUM. Upwards; as *sursum hamulosus* = bordered with hooks directed upwards, i.e. towards the point of the leaf.

SUSPENDED. Hanging up by the side; as many seeds.

SUSPENSOR. A cellular cord by which the embryo of some seeds is suspended from the foramen.

SUSUM. A tall reed-like herb from Java, with lanceolate radical leaves, and numerous flowers in a large terminal panicle, forming a genus of *Juncaceæ*, closely allied to the Australian *Xerodes*, but differing in the three connate thick and undivided stigmas which crown the ovary.

SUTHERLANDIA. Several species of this genus of *Lupininosæ* (*Papilionaceæ*) have been described, but it is probable they all belong to one variable species, *S. frutescens*, a showy shrub of moderate size, with unequally pinnate leaves, and large scarlet flowers succeeded by dry bladderly thin-shelled pods containing numerous seeds. The flowers have a hoary nearly equally five-toothed calyx; a pea-like corolla, with the sides of the upper petal folded back, very short wing or side petals, and rather longer boat-shaped lower petals; one free and nine combined stamens; a slender style, bearded lengthways along the back, and the apex in front; and a terminal It is a native of the Cape of Good Hope, and in English gardens is called the Cape

Bladder Senna, from the resemblance of its pods to those of *Colutea*, with which in fact it was formerly combined. According to Thunberg, the dried and pulverised roots and leaves are useful in diseases of the eye. [A. S.]

SUTTONIA. *Myrsina*.

SUTURAL. Of or belonging to the suture; thus *sutural dehiscence* is the act of splitting along the line of junction of two valves.

SUTURE. The line of junction of two different parts.

SUZELLE. (Fr.) *Rumex acetosa*.

SWAINSONA. This genus of *Leguminosae* differs from *Colutea* in the stigma being terminal not lateral; and also in the legume, which is not so much inflated as in *Colutea*, and more pointed from the persistence of the style. The flowers have nearly equal calyx-teeth; the standard is almost orbicular, the wings oblong falcate or twisted, and the keel broad obtuse or produced into a twisted beak; the upper stamen free; and the pod inflated or turgid, with the upper suture compressed, or the pod divided by a longitudinal partition. The species are Australian herbs or undershrubs, with unequally pinnate leaves, and flowers in axillary racemes, either purple blue red or white. Some of the species, as *S. Greyana*, *S. procumbens* also known as *S. violacea*, and *S. galatifolia*, are very handsome plants. [M. T. M.]

SWALLOWWORT. *Asclepias*; also *Oxalidion majus* and *Thapsia Asclepium*.

SWAMMERDAMIA. A genus of *Compositae*, represented by a Tasmanian undershrub, whose leaves are wedge-shaped entire leathery, whitish on the under-surface; and which bears pale flowers, arranged in panicle heads, each head surrounded by an involucre of overlapping linear scales. The receptacle is naked, the outer florets three-toothed female, the central florets hermaphrodite five-cleft; the achenes cylindrical, surmounted by a pappus of one row of hairs, each with a little knob at the extremity. [M. T. M.]

SWAN-NECK, or SWANWORT. *Cyanoches*.

SWARTZIA. This genus was formerly regarded as the type of a distinct suborder of *Leguminosae*; but it now forms, in combination with a few allied genera, a tribe of the suborder *Casapiniæ*. Its flowers are thus characterised:—The calyx is at first globular or egg-shaped and firmly closed, but ultimately splits irregularly into valves or sepals, which curve backwards; the corolla is frequently altogether wanting, and when present consists of only one petal, or rarely of two or three; the stamens are indefinite in number, and rise from beneath the ovary, some of them being longer than the rest, and barren; and the ovary is usually stalked, and tapers gradually at the top into a style of greater

or less length. There are about sixty species, all, with the exception of the Tropical African *S. madagascariensis*, natives of Tropical America. They are mostly large forest-trees, and yield hard durable timber. They have simple or more frequently unequally pinnate leaves, and axillary racemes of flowers, succeeded usually by small splitting pods containing several seeds.

S. tomentosa, a native of French Guiana, is one of the American trees named Palo Santo by the Portuguese. It is of very large size, with a trunk sixty or more feet high, and upwards of three feet in diameter, supported at the base by six or eight narrow buttresses. The heartwood is of a reddish colour, or blackish in old trees, very hard and close-grained, and extremely durable. A red juice exudes from cracks in the bark, and becomes hardened into a blackish resin. [A. S.]

SWEDE. A kind of Turnip, so called from having been introduced from Sweden. It is the *Brassica campestris rubraba*.

SWEET-GALE. *Myrica Gale*.

SWEET-JOHN. The narrow-leaved varieties of *Dianthus barbatus*.

SWEETLEAF. *Symplocos tinctoria*.

SWEETSOP. The fruit of *Anona squamosa* and *A. sericea*.

SWEETWATER. A variety of white grape.

SWERT-WILLIAM. *Dianthus barbatus*; also *Silene Armeria*. —, BARBADOS. *Ipomoea Quamoclit*.

SWEETWOOD. A timber obtained in Jamaica from *Oreodaphne exaltata*. —, BLACK. *Strychnodaphne floribunda*. —, LOBLOLLY. *Oreodaphne Leucozydon*. —, LOWLAND. *Nectandra sanguinea*. —, MOUNTAIN. *Acrodichidium jamaicense*. —, PEPPER. *Nectandra sanguinea*. —, RIO GRANDE. *Oreodaphne Leucozydon*. —, SHRUBBY. *Amyris*. —, TIMBER. *Acrodichidium jamaicense*, *Nectandra exaltata*, and *N. leucantha*. —, WHITE. *Nectandra sanguinea* and *N. leucantha*. —, YELLOW. *Nectandra sanguinea*.

SWERTIA. A genus of perennial herbs of the order *Gentianaceae*. The species are distributed through Central Europe and Asia, and occur also in Northern India. The flowers have a five-parted calyx; a rotate five-cleft corolla, whose segments have at the base two little glandular pits surrounded by fine hairs; stamens inserted on to the throat of the corolla; anthers unchanged; fruit one-celled two-valved; seeds membranous, winged. *S. perennis* was erroneously stated to have been found formerly in Wales. The Russians drink the infusion of the leaves as a medicine, and the Tartars apply the leaves to wounds. [M. T. M.]

SWETH. *Althum Schanoprasum*.

SWIETENIA Mahogoni is the sole representative of a genus of *Cedrelaceae*, peculiar to the warmer parts of America, and yielding the timber known as the Ma-

hogany of commerce. It is a stately tree, principally met with in Central America and Mexico, growing upon rocky soil. The leaves are imparipinnate, and the flowers axillary. The calyx is five-cleft, short; the corolla has five petals, and the stamens are united into a tube bearing ten anthers; the fruit is a five-celled woody capsule, each cell containing numerous winged seeds. The bark is considered a febrifuge, and the seeds prepared with oil were used by the ancient Aztecs as they are by the modern Mexicans as a cosmetic, under the names of *Pepitos del Sopilote*, *Zopiloti*, or *Tzontecomatl*. The timber is largely employed in making household furniture in this country. [B. S.]

SWINE'S BANE. *Chenopodium rubrum*.

SWINE'S SNOUT. *Taraxacum dens leonis*.

SWORD-SHAPED. The same as Ensl-form.

SYAGRUS. A genus of palms resembling the cocoa-nut tree in appearance, and indeed closely allied to it in botanical characters, most of them having, in fact, been formerly referred to *Cocos*. The principal points of difference between them consist in the flower-spike being enveloped in a single spathe in *Cocos* and a double one in *Syagrus*; and in the hard bony shell of the fruit of the latter having a broad smooth band or channel running from each of the three pores, and meeting at the top. Like the cocoa-nuts, the fruits of the different species of *Syagrus* contain a single oily sometimes hollow seed enclosed in a hard bony shell surrounded by a fibrous rind, the shell also having three pores or holes near the base, as in the well-known cocoa-nut. Of the five or six known species, one, *S. amara*, is a native of the West Indian island of Martinique, and the rest are indigenous to Brazil. [A. S.]

SYCAMINE. The Sycamore.

SYCAMORE. *Acer Pseudo-Platanus*. — AMERICAN. *Platanus occidentalis*. — NEW SOUTH WALES. *Brachychiton luidum*.

SYCHNOCARPOUS. Having the power of producing fruit many times without perishing, as is the case with all trees and herbaceous perennials.

SYCIOS. *Sicyos*.

SYCOMORE. (Fr.) *Acer Pseudo-Platanus*; also *Ficus Sycomorus* alias *Sycomorus antiquorum*. — FAUX. *Melia Asedarach*.

SYCOMORPHE of Miquel, the same as *Coccolia* of Gasparriani, is the name of a genus proposed for some species of *Ficus* from Tropical Asia.

SYCOMORUS. A name under which Gasparriani proposed to separate from *Ficus* as a distinct genus the *F. Sycomorus* (*S. antiquorum*), and some other African species.

SYCONIUM. SYCONUS. Such fruits as

that of the fig, consisting of a fleshy receptacle loaded with flowers, each producing its own proper seed-vessel.

SYCOPSIS. An East Indian tree or shrub, with alternate undivided leaves, and small dioecious flowers in their axils, which forms a distinct genus of *Hamamelidaceae*.

SYGWAM. An Indian name for Teak-wood.

SYLVAN, SYLVATICUS, SYLVESTRIS. Growing in woods.

SYLVIE. (Fr.) *Anemone nemorosa*. —

JAUNE. *Anemone ranunculoides*.

SYLVULA. A plantation.

SYMBOLANTHUS. A shrubby plant native of the mountains of Peru, and constituting a genus of *Gentianaceae*. It may be known by the following characters: — Calyx five-parted, pentangular; corolla rose-coloured, salver-shaped, the tube three inches in length, the limb divided into five segments; stamens within the tube of the corolla, united at the base by a circular membrane. The one-celled ovary is girt by a glandular disk, and surmounted by a stigma divided into two linear plates. So showy a plant should not long remain absent from our greenhouses. [M. T. M.]

SYMMETRY (adj. SYMMETRICAL). That kind of arrangement in which the number of parts of one series corresponds with that of the other series; as, for example, when a flower with five sepals has five petals, and five ten or fifteen stamens.

SYMPETALICUS. A growing of the stamens to the petals, so as to produce the appearance of a monopetalous corolla; as in the mallow.

SYMPHORIA. *Symphoricarpos*.

SYMPHORICARPUS. The generic name of plants belonging to the order of caprifolia. The ovary is four-celled, two of the cells being abortive, while the other two produce each one hard seed. The species are shrubs, natives of North America and Mexico. One of them, *S. racemosus*, is the well-known Snowberry, cultivated in gardens, producing large white berries. The name is from the Greek *symphoros* 'to bear together' and *carpos* 'fruit,' in allusion to the clusters of berries. [G. D.]

SYMPHYANDRA. A genus of *Campulaceae*, known by the five stamens having the filaments dilated at the base, fringed with hairs and free, and the anthers adhering so as to form a long cylindrical tube. The species are perennial herbs, natives of Crete and the Caucasus, with alternate cordate and crenate-dentate leaves, the lowest of which are largest. The name is from the Greek, and indicates the union of the anthers. [G. D.]

SYMPHYANTHEROUS. The same as Syngenesius.

SYMPHYOGLOSSUM. A genus of *Aclepiadaceae*, comprising two herbaceous twining from Northern China, closely allied

to *Cynanchum*, but differing in the arrangement of the scales of the staminal corona, which are scarcely connected into a ring at the base, but the outer ones are closely united with the corresponding inner ones.

SYMPHYOGYNA. One of the finest genera of the frondose *Jungernmanniacea*, distinguished by the want of a perianth, and a calyptra springing from the back of the frond, which is mostly erect and stipitate. It belongs to the division *Haplolenaceae*. The species have the habit of *Hymenophylla*, for which they may be mistaken



Symphyogyna.

a. subsimplex.

b. hymenophylla.

when out of fruit. They would probably not be difficult of cultivation, and would undoubtedly be acceptable objects amongst the more minute inmates of the fern-house. The species are almost confined to the Southern Hemisphere. Five are found in New Zealand, and about half that number in New Holland and Tasmania, whereas a single doubtful species only occurs in North America. [M. J. B.]

SYMPHYOMYKTIUS. An Australian genus of *Myrtaceae* of very curious structure has received this name. It constitutes a shrub, bearing heads of flowers at the base of the previous year's branches; these heads consisting of twelve or fourteen flowers, closely packed, and being fused together upon a fleshy receptacle. The calyx, before the expansion of the flower, is closed by a little circular lid, which subsequently separates and falls off; there is no corolla; the stamens are numerous, attached to the inner margin of the receptacle; and the fruit is a woody globular mass, from the upper part of which project the true fruits or capsules, which are three-celled, and burst partially by three valves. The name of the genus is indicative of the very singular fusion of the flowers above described, and is derived from the Greek *symphyo* 'to unite or grow together.' [M. T. M.]

SYMPHYONEMA. A small proteaceous genus, having a deeply four-parted calyx; stamens inserted on the middle of the

segments, cohering towards the upper part of the filament, but with free anthers; a filiform style with a bluntish stigma; and a single-seeded nut. They are herbaceous plants or small shrubs, having much-divided leaves, with linear segments, and yellow flowers in terminal or axillary spikes; and are all natives of New South Wales. [R. H.]

SYMPHYOPETALUM. A low shrub with small leaves, silvery underneath, and red flowers on short axillary peduncles. It is a native of Western Australia, and was described by Drummond as a genus of *Rutaceae* of the tribe *Boroniaceae*. It proves, however, to be the same as the one previously published by Turczaninow under the name of *Nematolepis*.

SYMPHYOSTEMON. The union of stamens by their filaments. The same as Monadelphous.

SYMPHYSIS. A growing together.

SYMPHYTUM. A genus of *Boraginaceae*, inhabiting Europe and Central Asia. It consists of roughish perennials, with sessile often decurrent or stalked leaves, and terminal solitary or twin scorpioid racemes of rather large pale-yellow purple or blue flowers. The calyx is five-parted; the corolla cylindricotubular, enlarged above the middle, where it is closed by five narrow scales, and shortly five-toothed at the apex; the stamens are included; and the nuts ovate rugose, perforated at the base, and adhering to the receptacle by their base.

Two species occur in Britain, the most common of which, *S. officinale*, is a coarse branched plant with a thick rootstock, a stem strongly winged by the decurrent bases of the leaves, and pale-yellow or reddish-purple flowers. *S. tuberosum* is smaller, with nearly simple stems, a tuberos rootstock somewhat resembling the tuber of a Jerusalem artichoke, leaves more or less stalked except the uppermost, and the flowers pale-yellow. [J. T. S.]

Of this genus our native species, *S. officinale*, the Comfrey, is a well-known plant of watercourses, having much the taste and properties of borage, for which it was not unfrequently substituted in the old English cool tankard, and amongst herbalists it was highly extolled as a 'cooler of the blood.'

In 1811 *S. asperium* was introduced from the Caucasus; its graceful pendent light-blue flowers and bold foliage recommended it as an ornamental plant in spacious flower-gardens or the front of the shrubbery, in which it has to a greater or less extent kept a place in old gardens. Some few years ago it was recommended as a green 'soiling' plant, and our trials of it certainly show that it is capable of producing large crops, two in the season, perhaps amounting to from forty to fifty tons of green food per acre. The following is the result of an analysis of *S. asperium* by Professor Voelcker:—

	In Natural State	Calculated Dry	In Natural State	Calculated Dry
Water	88.400			
Flesh-forming substances : . .	2.712			
Non-nitrogenised substances :—				
Heat and fat-producing matters	6.898	59.49	8.81	72.49
Inorganic matters (ash) . . .	1.990	17.14	.76	14.45

On comparison the above figures will show this plant to be almost equal to some of our more important green-food crops; and certainly, if we take into consideration the quantity of its produce, there are few plants capable of yielding so much of green food as the Oomfrey. Dr. Voelcker says that 'the amount of flesh-forming substances is considerable. The juice of this plant contains much gum and mucilage, and but little sugar.'

The cultivation of Oomfrey is easy; even a moist clay soil will not be unsuitable. Divisions of its suckers may be planted in rows two feet apart, and fully a foot between each of the plants in the rows. It may be cut twice and will yield largely, especially if some rotten dung be dug in between the rows when the plantation is dressed up for winter. [J. B.]

SYMPLOCACEÆ, or SYMPLOCINEÆ. See SYRRACACEÆ.

SYMPLOCARPUS. A genus of *Orontiaceæ*, comprising a few herbaceous species found growing in wet places in North America and Northern Asia. The leaves are large, stalked; the spathe nearly sessile hooded, and tapering to a point; the spadix globular, covered with perfect flowers; perianth four-parted, ultimately becoming fleshy; stamens four, the filaments linear, flattened; ovary one-celled, the style four-cornered, the stigma minute; fruits confluent, one-celled, one-seeded.

S. fatidicus, so called from its disgusting garlic-like odour, is employed medicinally in North America—the roots in cases of asthma, the leaves as an application to ulcers. The seeds are also considered to be antispasmodic, and useful in coughs. The plant may be occasionally met with in cultivation. [M. T. M.]

SYMPLOCIUM. The spore-case of a fern.

SYMPLOCOS. A very large genus, regarded by some botanists as typical of a distinct natural order, *Symplocosææ*, while others refer it to *Syrracæææ*. It is confined to the tropical and subtropical countries of Asia and America, and consists of trees and shrubs, with simple, usually toothed leaves, and small flowers disposed in axillary clusters or racemes; the flowers having a five-lobed calyx, a five to ten-lobed corolla, an indefinite number of and a two to five-celled ovary.

The fruits, which vary from globular to ellipoid, are fleshy and crowned by the calyx lobes, and usually contain only one or two seeds.

S. Aletonia, alias *Aletonia theiformis*, is a branching shrub growing ten or twelve feet high, with shining evergreen leaves resembling those of the tea—so much so, indeed, that when first discovered in New Grenada it was erroneously supposed to be that shrub. According to Humboldt, the infusion of the leaves of this plant, though not so palatable as tea, owing to its astringency, possesses valuable medicinal properties. Gardner, however, states that the Brazilians drink an infusion of one of the species, previously scorched the leaves. The leaves of nearly all the species of *Symplocos* turn yellow in drying. Those of *S. tinctoria*, which is called Sweetleaf in Georgia and Carolina, are used for dyeing yellow; and the leaves of other species are employed for the same purpose in Nepal. In India the bark of *S. racemosa*, called Lodhi, is used both as a dyeing material and as a mordant for other dyes; when employed alone it gives various shades of brown and chocolate-colour. [A. B.]

SYN. In Greek compounds = union, adhesion, or growing together.

SYNALYSSA. A genus of gelatinous lichens, nearly allied to *Lichina*, with fastigate fronds, and remarkable for the peculiar mode of growth of its gonidia, resembling the structure of some *Palmetto*, and in this agreeing with *Paulia*. The species are few in number; two occur in this country. [M. J. B.]

SYNAMMIA. *Goniophlebium*.

SYNANDRA. A genus of *Labiata*, distinguished by the following characters:—Calyx thin, bell-shaped, with four nearly equal teeth; corolla with a long tube, the upper lip entire, the lower three-cleft, the middle lobe broadest and notched at the end; stamens four, approaching in pairs, the two upper with one barren and one fertile cell, the barren cells of each pair coherent to each other. The only species is *S. grandiflora*, an herbaceous plant resembling a *Lamium*, native of some of the Southern States of America. Its leaves are ovate heart-shaped; and the flowers yellowish white, in pairs. The name is derived from the Greek words *syn* 'together' and

aner 'stamen,' in allusion to the union of the anthers. [G. D.]

SYNANTHERA. Another name for the *Compositae*.

SYNANTHEROUS. Having the anthers growing together.

SYNAPHEA. A proteaceous genus of a remarkably rigid character, distinguished by having a four-cleft gaping tubular calyx; four stamens, one of which is sterile, shorter than the tube, inserted on the lower part of each of the segments of the calyx; a style, which is curved, thickened at the upper part, with an oblique dilated stigma united to the sterile stamen; and an obovate downy nut. It consists of South-west Australian stemless shrubs, with lobed coarse leathery leaves, and yellow flowers in axillary or terminal spikes. [R. H.]

SYNAPISMA. A genus of *Euphorbiaceae*, represented by a shrub, native of New Caledonia. The leaves are entire and acuminate; the male flowers in axillary and terminal catkins, the females in loose pendulous racemes. The calyx has five convolute leaves, surrounding a column consisting of ten to fifteen stamens united together, and having at the base five glands. In the female flowers the calyx is small, the ovary three-lobed, surmounted by a short three-cleft style; and the fruit is divided when ripe into three carpels, each two-valved and one-seeded. [N. T. M.]

SYNGARPIUM. A fruit consisting of many carpels consolidated and adhering to a central receptacle or growing point, as in *Magnolia*.

SYNGARPOUS. Having a fruit whose carpels are consolidated.

SYNCLADEI. A section of mosses containing only the natural order *Sphagnet*, in which the branches are fasciculate; and the female flower, like that of pleurocarpous mosses, occupies the place of a branch, or is inserted in the axis of two or more branches. As the fructification advances—to use the words of Dr. Hooker, who has admirably illustrated the genus in his *Antarctic Flora*—the receptacle elongates, and the perichæstial leaves becoming separated from one another, it presents the appearance of a lateral branch. The antheridia are found at the clavate and usually discoloured extremities of short deflexed ramuli inserted singly amongst the leaves. The bunches of branches, which consist of three five or seven, are spirally inserted, five fascicles constituting a spiral. [M. J. B.]

SYNDAW. *Alchemilla vulgaris*.

SYDEMIS. A small shrub now united with *Olus* in *Anacardiaceae*. The leaves are entire; and the flowers in terminal corymbs, with the calyx coloured, the petals four to five, linear-lanceolate, and four to five stamens, inserted with the petals in the stalk-like thalamus supporting

the ovary, their anthers cleft below. The ovary is stalked, somewhat globose, with one erect ovule; the style is lateral thread-like, and the stigma simple. [M. T. M.]

SYNEDRELLA. A small genus of *Compositae*, native of Tropical America; *S. nodiflora*, which is a common weed of cultivation, being also found sparingly in India, though not indigenous there. It is an annual, with opposite nettle-like trinerved leaves, rough above and having notched margins; and sessile flower-heads, in clusters of four to five together in the axils of the leaves, each head with an involucre of chaff-like scales enclosing a number of yellow florets—those of the ray strap-shaped, with lacerate-winged achenes, and a pappus of two awns; those of the disk tubular, with triangular wingless achenes, and a like pappus. [A. A. B.]

SYNEDROUS. Growing on the angle of a stem.

SYNEMA. That part of the column of an orchid which represents the filament of the stamens.

SYNGENESIOUS. Having the anthers united at their edges, so as to form a tube.

SYNGONIUM. A genus of tropical American herbs, of the family *Araceae*. The rootstock is scandent, and sends up pedately-divided leaves, and short flower-stalks terminated by a greenish-yellow spathe encircling the spadix, which is wholly covered with flowers. Above are four or five two-celled anthers opening by pores; and below them several ovaries fused together, each having a single cavity with a single seed. *S. auratum* is in cultivation. [M. T. M.]

SYNGRAMMA. A genus of hemionitoid ferns, distinguished in the group with netted naked sori, by having the primary veins parallel forked, and the venules sparingly reticulated towards the margin. The species have simple or pinnate fronds, and are entirely Eastern and tropical. [T. M.]

SYNHEMA. A genus of *Scrophulariaceae*, containing a single species, a lowly-branched pilose herb from Burmah. It has opposite sessile lanceolate leaves, semipinnatifid below, but becoming more simple upwards. The calyx is five parted; the galea of the corolla falcate; the didynamous stamens placed under the galea, the filaments having dilated membranaceous bases; and the anthers sagittate, with two nearly equal cells; the entire style with a minute stigmatic surface; and the seeds numerous. [W. C.]

SYNOTIA. A group of Iridaceous plants now usually referred to *Gladiolus*. The perianth is six-parted and somewhat two-lipped, gaping; the spathe two-valved membranaceous torn; the stigmas three, dilated at the apex, imbricate spreading and recurved; the seeds globose and shining. [T. M.]

SYNOCHLAMYS. *Chellanthes*.

SYNOCHORION. The same kind of fruit as the *Carcerulus*.

SYNOBOLA. A genus proposed by Miquel for the *Picus macrocarpa* and *P. diversifolia*, two Javanese species, in which the usually minute perianth is entirely abortive.

SYNONYMS. Names which have the same meaning; a synonym is what lawyers call an alias.

SYNORHIZOUS. Having a radicle whose point is united to the albumen.

SYNOÛM. A genus of *Meliaceæ* peculiar to New Holland, with alternate imparipinnate leaves, and quite entire leaflets, barbate in the axils of the veins on the underside, and axillary racemes of flowers. The calyx is five-cleft, the corolla has four ovate petals; there are eight anthers, and a three-celled capsule, with two seeds in each cell. [B.S.]

SYMPHLEBIUM. *Echizoloma*.

SYNTHLIPSIS. A genus of *Cruciferae* from New Mexico, consisting of a branched diffuse canescent herb, with sinuato-pinnatifid leaves, and lax racemes of rose-coloured flowers. The fruit is a pouch, of an oblong elliptical shape, slightly notched at the tip, and compressed contrary to the partition; the valves boat-shaped, strongly keeled but wingless at the back, though slightly produced at the apex. [J.T.S.]

SYNZYGANTHERA. A small genus of *Laciniaceæ* confined to South America, and consisting of a couple of shrubby species, with alternate oblong-lanceolate leaves, catkin-like flowers (by abortion monocious), four bracts surrounding each perigone, without a glandular disk around the ovary, and a three-celled berry-like capsule. [B.S.]

SYNZYGIA. The point of junction of opposite cotyledons.

SYLENIA. A genus of *Cruciferae* from Eastern Europe and Central Asia, consisting of biennials, with the habit of *Erysimum*, having rather large pale-yellow flowers, and elongated four-sided compressed pods, with keeled one-nerved valves; the seeds in two rows with incumbent cotyledons contrary to the partition of the pod, not parallel with it as in *Erysimum*, which also has but one row of seeds in each cell. [J.T.S.]

SYRINGA. The Lilacs of our gardens are familiar representatives of this genus of *Oleaceæ*, of which about six species and a number of varieties are known. The native country of some of these plants is not well ascertained, although the genus appears to be confined to South-eastern Europe and Central and Eastern Asia, but some of the so-called species are supposed to have originated in gardens. They are shrubs of from four to fifteen feet or more in height, with entire leaves, and terminal

more or less pyramidal panicles of usually sweet-smelling flowers, characterised by having a short four-toothed persistent calyx, a salver-shaped corolla with a long tube and four-parted limb, two enclosed stamens, and a short two-pronged enclosed style. Their fruit is an egg-shaped or lance-shaped somewhat flattened two-celled capsule, splitting when ripe into two boat-shaped pieces, with a partition in the middle, each piece containing two narrow-winged seeds.

The Common Lilac, *S. vulgaris*, is generally supposed to be a native of Persia, from whence it is said to have been introduced into Europe; but it does not appear to be certainly known in a wild state, and some botanists have therefore supposed it to be merely a luxuriant cultivated variety of the Persian Lilac, *S. persica*. It is, however, said to occur wild in Transylvania, Wallachia, and Bulgaria. It is the largest species of the genus, and also one of the commonest and most beautiful of our spring-flowering ornamental shrubs. The several varieties differ principally in the size and colour of their flowers.

The Persian Lilac, *S. persica*, is also supposed to have originally come from Persia, but nothing is known with certainty as to its native country. It is a smaller species than the last, seldom growing more than six or eight feet high, and has smallish lance-shaped leaves, sometimes cut in a pinnatifid manner. There are both a white and a purple-flowered variety.

S. Josikera is so named in honour of the Countess von Josika, who, about thirty years ago, first discovered this species at Clausenburg in Transylvania. It is a tall shrub, with pointed elliptic lance-shaped wrinkled leaves, and has bluish-purple flowers, which, unlike those of the other species, are scentless.

In addition to the above there is a plant known as the Rouen Lilac, *S. rothamagensis*, the Lilac Varin of the French, said to have been raised by M. Varin in the Botanic Garden at Rouen from seeds of the Persian Lilac; but it agrees with the species called *S. dubia* or *S. chinensis*, said to be from China, though known there only in a cultivated state. The Rouen Lilac is intermediate between the common and Persian sorts, and strengthens the supposition of those two being varieties of one species. [A.S.]

SYRINGA DES JARDINS. *Philadelphus coronarius*.

SYRINGODEA. *Erica*.

SYZYGITES. A most curious genus of vesicular moulds, consisting of a single species, which is not uncommon in woods on decaying agarics. The threads are much-branched above, and on some of the branches little swellings occur which unite with each other two together, like the threads of *Conyogata*. A sporangium is ultimately formed at the point of junction, which is filled with a mass of elliptic spores.

This mode of fructification is without any parallel amongst *Fungi*. [M. J. B.]

SYZYGIUM. A genus of *Myrtaceae*, consisting of trees or shrubs, natives of Asia and Tropical Africa. The flowers are in cymes or corymbs, the limb of the calyx undivided; the petals four or five, inserted on to the throat of the calyx, united together into a hood and soon falling off; the stamens numerous, inserted with the petals; the style simple; and the fruit baccate, one-celled by abortion, and containing only one or two seeds. *S. gumeas* is an object of worship to the natives of the Gambia district, and they also eat the ripe fruits; in Senegal the plant is used in rheumatism. *S. Jambolanum*, a native of India, has an edible fruit; its bark, which is astringent, is used medicinally, and also in dyeing; the timber is hard and durable. Two or three of the Indian species are in cultivation in this country. [M. T. M.]

SZYVITSIA. A genus of *Umbelliferae*, the fruit of which is oblong-elliptical, each half with five primary ribs, which are narrow and hairy, and four secondary thick ribs having transverse folds. The only species is a smooth annual plant, with repeatedly divided leaves, the divisions long and narrow; the flowers are white. [G. D.]

TAG. The Bengal or Sunn Hemp, *Orotalaria juncea*.

TABAC. (Fr.) *Nicotiana Tabacum*. —
DES PAYSANS. *Nicotiana rustica*. —
DES VOSGES. *Arctia montana*.

TABACHIR, or TABASHEER. A substance secreted in the joints of bamboos, in huteah-white masses with a pearly lustre. It is mainly composed of siliceous matter which the plant is unable to incorporate in its tissues, and is reputed to possess tonic properties.

TABACINUS. Tobacco-coloured; a pale brown, like common kanaster.

TABEUIA. *Tecoma*.

TABERNÆMONTANA. An extensive and wide-spread tropical genus of *Apocynaceae*, characterised by its flowers having a five-parted (in *T. coronaria* five-cleft) calyx, furnished with from four to seven narrow glands near the bottom of each lobe on the inside; a salver-shaped corolla, usually with the tube inflated at the insertion of the stamens; the latter having very short filaments or none, and generally long taper-pointed anthers shaped like arrow-heads; and a double ovary, with a long style bearing a two-lobed stigma supported by a broad ring. The numerous species are either shrubs or trees, sometimes attaining a great height. They have opposite entire mostly smooth leaves, on short stalks dilated at the base and forming false stipules; and cymes of fragrant yellow or white flowers, generally in pairs at the points of the branches, each flower producing a double or, by abortion, single more or less fleshy fruit, containing few

or many seeds marked with a longitudinal groove, and angular by mutual pressure.

Like most other dogbanes, the *Tabernæmontanas* possess a milky juice; but the milk, instead of being exceedingly acrid and drastic like that of many allied genera, is, in some species at least, perfectly bland and wholesome. This is particularly the case with the *Hya-Hya* or Cow-tree of British Guiana, *T. affinis*, which when tapped yields a copious supply of thick sweet milk, resembling that of the cow in appearance, but rather sticky from the presence of caoutchouc. The tree yields a soft white wood; and its bark is used medicinally by the Indians. French: *Taberne*. [A. S.]

TABES. A wasting: a disease which consists in a gradual decay of the power of growth.

TABLA. A Peruvian name for *Cinchona*-bark peeled from the trunk of the tree, which is of a higher value than that taken from the branches.

TABOURET. (Fr.) *Thlaspi*.

TABULA. The pileus of certain fungi.

TACAMAHAC, or TACAMAHAGA. A balsamic bitter resin attributed to *Ilex Tacamahaca*, to *Calophyllum Inophyllum*, and to *Elaeagnus tomentosa*; also an American name for the resin obtained from the buds of the *Tacamahac Poplar*, *Populus balsamifera*. —, **EAST INDIAN.** The resin of *Calophyllum Calaba*.

TACAMAQUE. (Fr.) *Populus balsamifera*. —, **DE BOURBON.** *Calophyllum Inophyllum*.

TACAZZEA. A genus of *Asclepiadaceae*, chiefly differing from *Periploca* in the corolla and stamens being smooth, not hairy; in the anthers not cohering together at the apex; and in the stigma having a little notched point at the summit. *T. venosa*, the only species, is an erect twiggily-branched shrub, native of Abyssinia, where it is found growing on the banks of the River Tacasse, and hence the generic name. It has narrow oblong taper-pointed leaves, marked on both sides with netted veins, smooth on the upper surface and hoary underneath; flowers disposed in loose somewhat forking panicles; and smooth woody thin fruits, in pairs spreading widely apart, containing smooth brown-skinned seeds furnished with hair-tuft. [A. S.]

TACCA, TACCACEÆ. The tropical genus *Tacca*, belonging to the regular-flowered monocotyledons with an inferior ovary, has been considered sufficiently distinct in organisation to form an order of itself, under the name of *Taccaceae*. It would appear, however, that it might very well be included in *Burmanniaceae*, of which it has the one-celled ovary with three parietal placentas, and the stamens inserted on the six-cleft perianth; while the differences in the structure of the seed are not so great as had been supposed. It consists

of perennial herbs, sometimes large, with a tuberous root. The leaves are all radical, entire or divided; the flowers are greenish or brown, in an umbel on the top of a simple leafless scape, surrounded by an involucre of simple bracts. There are six or seven species known, two from Tropical America, the remainder African or more especially Asiatic, extending over the Indian Archipelago and the Pacific Islands.

The various species grow in the open country. *T. pinnatifida* is generally found in sandy places near the sea. The leaf-stalks of this species are plaited into bunnets by the Society Islanders, but the principal use made of all the species is that of their tubers, which, resembling new potatoes, contain a great deal of starch known as South-sea Arrowroot, and far preferable to any other arrowroot in cases of dysentery. The tubers are dug up after the leaves have died away, and are rasped and macerated four or five days in water, when the fecula separates in the same manner as sago does. It is largely employed as an article of diet throughout the Tropics, and is a favourite ingredient for puddings and cakes in the South Seas. *Tuca* chiefly differs from its ally *Atacca* in having a one-celled instead of a three-celled fruit. The perigone is six-cleft, the stamens six in number, and the fruit a berry. All the leaves are radical, and palmate or bipinnatifid. The flowers are arranged in umbels at the end of a scape, green tinged with purple—the umbels being surrounded by large bracts. [B. S.]

TACHIADENUS. A genus of *Gentianaceae*, comprising some herbaceous or somewhat shrubby species, natives of Madagascar. The flowers are white, with a five-parted calyx, the segments of which are frequently dilated towards the top; the corolla has a slender elongated tube, terminating in a bell-shaped five-lobed limb; the anthers are erect; the ovary is one-celled, surrounded by a disk; and the fruit is capsular two-valved. [M. T. M.]

TACHIBOTA. A genus of doubtful affinity, referred by some to *Bizacæ*, from which, however, it differs chiefly in its three-celled ovary. The genus is peculiar to Guiana, and only represented by one species, a shrub with alternate simple leaves, small axillary racemose flowers of a white colour, and a black capsular fruit. The calyx is five-cleft, and the corolla composed of five petals; the stamens are six in number, and the stigmas three, while the capsule is three-cornered three-celled and three-valved, and includes numerous minute seeds. [B. S.]

TACSONIA. A genus of ascendent *Passifloraceæ*, having the general appearance of *Passiflora*, and the same structure of stamens pistil and fruit, but differing in the usually long cylindrical tube of the calyx, which is furnished with two crowns, one at the throat and the other near its base. In *T. manicata*, however, a very handsome species, the tube scarcely exceeds in length

that of a passion-flower. The species are natives of Central America and the West Indies. The fruits of several of them, as *T. mollissima*, *tripartita*, and *speciosa*, are eaten. They are all climbers of a very ornamental character. [W. C.]

TACUARI. The South American name of certain species of *Mabea*, whose hollow shoots are used as tobacco-pipes.

TENIOPSIS. A genus of polypodiaceous ferns of the tribe *Tenitiden*, and consisting of species having a strong resemblance to *Vittaria*, from which they differ in not having the sori placed in an extrorse-marginal furrow, but in a furrow at the back of the frond. The fronds are simple or lobate, coriaceous, with the veins simple or forked and obscure, and the sori linear continuous submarginal, and either superficial or immersed. They are found plentifully in the tropical parts both of the Old and New World. [T. M.]

TENIOPTERIS. *Teniotopsis*.

TENIOSTEMA. The name of a Mexican herb, constituting a genus of *Onagraceæ*. The leaves are entire, covered with somewhat woolly star-shaped pubescence; the flowers are very small, borne on tufted flower-stalks, and have a three-parted calyx, no corolla, and three stamens standing opposite the sepals, the filaments flattened, somewhat spoon-shaped, and bearing very small roundish anthers. The ovary is one-celled, with three parietal placentas, each with two ascending straight ovules near the base. Fruit capsular. (It is supposed by Bentham and Hooker to be merely an apetalous condition of *Helianthemum plumarium*, which in its normal state has similarly flattened filaments.) [M. T. M.]

TENITIS. A net-veined genus of *Tenitidæ*, one of the tribes of polypodiaceous ferns, and consisting of a few tropical Asiatic and American species, having simple or pinnate fronds, from a creeping caudex, uniformly reticulated veins forming long oblique or longitudinal areoles without free included veinlets, and non-indusiate linear submarginal or medial sori, which are superficial or somewhat immersed. *T. dieckhoides* is the type. [T. M.]

TAFÉ. A fermented liquor prepared from rice in Java.

TAFFIA. A spirit distilled from the fermented juice of the sugar-cane.

TAFGA. The fragrant North African *Rhaponticum acule*, which has the odour of *Acacia Farnesiana*.

TAGETES. Showy annuals much cultivated under the names of African and French Marigolds. The characters of the genus are:—Flowers compound; involucre simple, composed of five bracts, which are united into a tube; florets of the ray five (in *T. lucida* three to four), persistent; pappus of five erect bristles. The species are natives of Mexico Peru and Chili, but are also grown in China and India, and in some parts of the latter country are considered

sacred flowers. *T. patula*, the French Marigold, is in France known by the name of *Petit Œillet d'Inde*. Of this many varieties are cultivated, some with double flowers variegated with gold and orange-brown. *T. erecta*, the African Marigold, (Fr. *Grand Œillet d'Inde* or *Rose d'Inde*) is a larger plant, with double yellow flowers. The scent of both these plants is strong and offensive, but the more finely-cut continuous-flowering *T. tenuifolia* has a more agreeable smell. *T. lucida*, a much smaller plant, is a perennial, with simple lanceolate finely-serrated leaves, and corymbs of small yellow fragrant flowers. German: *Scammbium*. [C. A. J.]

TAIL-POINTED. Excessively acuminate, so that the point is long and weak. The same as Caudate.

TAILWORTS. A name formerly given by Lindley to the order *Tritidaceae*.

TAL, or TALA. An Indian name for the Palmyra Palm, *Borassus flabelliformis*.

TALARA. The wings of a papilionaceous corolla.

TALAUMA. One of the genera of *Magnoliaceae*, so called from the native name applied to some of the South American kinds. The species are trees or shrubs, of tropical and subtropical regions of the Old and New World; and are remarkable for their fine fragrant flowers. The floral structure is much like that of *Magnolia*, but the fruit differs in the fusion of its constituent carpels, and in the irregular circular mode of splitting. The seeds adhere to the axis after the separation of the carpels by means of a long elastic cord, as in *Magnolia* and *Michelia*. [M. T. M.]

TALIA. A cutting; a small branch employed to propagate a plant.

TALESFUR. An Indian name for the highly fragrant leaves of *Rhododendron Anthopogon*, used as a medicinal snuff in India.

TALIOTRON. (Fr.) *Seymerium Sophia*.

TALINOPSIS. A genus of *Portulacaceae* from New Mexico, allied to the South African *Anacampsesos*, and the Chilean *Grahamia*. It has much the habit of the latter, from which it is distinguished by the bractless flowers, leathery epicarp of the three-valved capsule separating from the papery three-valved endocarp, and wingless seeds. From *Anacampsesos* it differs in habit, in the persistent equal sepals, the short style, and the coriaceous valves of the capsule, which do not separate at the base and fall away. It is an undershrub, with five purple petals, and about twenty anthers in five bundles. [J. T. S.]

TALINUM. A genus of *Portulacaceae*, inhabiting the warmer parts of both hemispheres, but most abundant in Tropical and Subtropical America. The genus is distinguished by its deciduous sepals, ten or twenty stamens, and three-valved capsule with numerous wingless seeds. It

consists of smooth fleshy herbs or undershrubs, with alternate or subopposite entire exstipulate leaves, and cymose racemes or solitary flowers on axillary peduncles, bearing white purple or yellow very fugacious petals. *T. patens*, a native of Brazil, is there used in the same way as the common purslane. [J. T. S.]

TALIPAT, TALIPOT. Indian names for *Corypha umbraculifera* and *C. Taliera*.

TALISPATREE, TALISPUTRIE. Indian names for *Flacourtia cataphracta*, a plant used as a gentle astringent.

TALLEH. An Arabic name for the Abyssinian Myrrh, produced by *Acacia Sassa* and *A. gummifera*.

TALLICOONAH. A medicinal oil made in Sierra Leone from the seeds of *Casapa Touloucouma* or *C. guineensis*.

TALLOW-SHRUB. *Myrica cerifera*.

TALLOW-TREE. *Shillingia sebifera*, the seeds of which are covered with a waxy substance, used in China for making candles.

TAMALT. A Mexican name for *Lycopersicum esculentum*.

TAMANU. A green heavy resin from the Society Islands, obtained from *Calophyllum Inophyllum*.

TAMARA. A Hindoo name for *Nelumbium speciosum*.

TAMARACK. The American Larch, *Abies pendula* (*Larix americana*).

TAMARA-TONGA. A Malabar name for *Averrhoa Carambola*.

TAMARICACEÆ. An order of Polypetalous Dicotyledons, belonging to Lindley's Violal alliance, consisting of shrubs or undershrubs, rarely trees or hard prostrate herbs, found chiefly in maritime sands, or in sandy or gravelly places along torrents in mountainous districts. Their leaves are usually small entire and alternate, often fleshy or reduced to scales; the flowers white or pink, sometimes solitary, but more frequently in terminal spikes racemes or panicles. Allied in many respects to *Portulacaceae*, *Elatinaceae*, and *Hypericaceae*, they are at once known by the structure of the ovary, which is not completely divided into cells, but contains three placentas erect from the base of the cavity, these being either quite free or cohering variously with each other or with the walls of the cavity, so as to form three imperfect cells; and by the erect seeds bearing long hairs, either in a terminal tuft or all over the testa, or slightly united in a marginal wing. The two principal Asiatic and European genera, *Tamarix* and *Reaumuria*, are regarded by some botanists as types of distinct orders; and the splendid Mexican genus *Fouquieria*, differing chiefly in the large petals united into a tubular corolla, has only recently been associated with the *Tamaricaceae* as a third tribe.

TAMARIND. The pleasant acid fruit of *Tamarindus indica*. —, **BASTARD.** *Acacia Julibrissata*. —, —, of Jamaica. *Acacia trichophyllodes*. —, **BLACK.** *Codarium acutifolium*. —, **BROWN.** *Codarium*. —, **MANILLA.** The fruit of *Pithecolobium dulce*. —, **NATIVE**, of New South Wales. *Cupania australis*. —, **VELVET.** The African name for the fruits of *Codarium acutifolium*. —, **WILD.** *Codarium*; also *Pithecolobium filicifolium*. —, —, of Jamaica. *Acacia arborea*. —, —, of Trinidad. *Pentaclethra flamentosa*. —, **YELLOW.** *Acacia villosa*.

TAMARINDUS. This name is supposed to be derived from the Arabic *Tamar* signifying 'dates,' and *Indus* in allusion to the country whence the tree was originally derived. Botanically it is applied to a genus of *Leguminosae*, characterised by a calyx which is tubular at the lower part, but above has a two-lipped limb—the upper lip of three reflexed segments, the lower of two segments; petals three, the central one hood-like; stamens nine to ten, of which seven are short and sterile; pod many-seeded, filled with pulp.

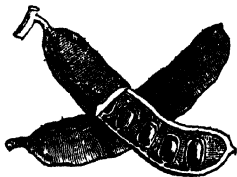
The Tamarind-tree, *T. indica*, is the only species, but it has two varieties, charac-



Indian variety has long pods, with twelve seeds, whereas the variety cultivated in the West Indies has much shorter pods, containing one to four seeds. The tree has an elegant appearance, from its graceful pinnated foliage and its racemes of sweet-smelling flowers, the calyx of which is yellow, the petals yellow streaked with red, the filaments purple, and the anthers brown. The tamarind-pods imported from the East Indies vary in length from three to six inches, and are slightly curved. They consist of a brittle brown shell, within which is a soft acid brown pulp, traversed by strong woody fibres; the seeds are again immediately invested by a thin membranous covering. West Indian tamarinds are usually im-

ported preserved in syrup, the outer shell having been removed.

Tamarinds owe their grateful acidity to the presence of citric tartaric and other vegetable acids. In addition to their cooling qualities they act as gentle laxatives, and are useful in some forms of sore-throat. The pulp mixed with salt is used as a liniment in rheumatism by the



Tamarindus indica (fruit).

Creoles of the Mauritius. The seeds are employed medicinally by the natives of Bengal in dysentery, and they are also used by the Cingalese as food in times of scarcity, the dark outer skin being removed by maceration. Powdered, the seeds are employed as a poultice to boils; this powder also is mixed with thin glue to form a very strong cement for wood. The flowers of the tree are used in Ceylon in cases of liver-disease. Medicinal virtues are also ascribed to the leaves, which are used internally in jaundice, and externally as an application to sore eyes or ulcers. An infusion of the leaves is employed to furnish a yellow dye. In the Mauritius a decoction of the bark is used in asthma, and as a tonic and astringent in dysentery. The timber is valuable for building purposes, and furnishes excellent charcoal for the manufacture of gunpowder. Tamarinds form an important ingredient in Indian cookery, especially in curries; and they are also used in Western India in preserving or pickling fish, which under the name of tamarind-fish is considered a delicacy.

It is also said that the acid mo they exhale, does really affect the ol tents, if they are allowed to remain the trees for any length of time. The Tamarind-tree has long been cultivated in English stoves, but rarely perfects its flowers and fruit in this country. (M. T. M.)

TAMARINIER. (Fr.) *Tamarindus*. — **DES HAUTES.** *Acacia heterophylla*.

TAMARISK. *Tamarix*. —, **GERMAN.** *Myricaria germanica*.

TAMARIX. Shrubs or small trees giving name to the order *Tamaricaceae*, well marked by their twiggy branches, minute scale-like leaves, and small spiked flowers.

T. anglica or *T. gallica* is a native of most of the countries of Southern Europe, Asia Minor, Tartary, Japan, Barbary, and Arabia, especially in a saline soil. It was known to the Greeks and Romans under the name of *Myrica*, and frequent mention of it occurs in the writings of the ancients. It is to be found, apparently wild, on various parts of the sea-coast of England, but is not believed to be indigenous. The Tamarisk grows freely from cuttings, and will bear exposure to any degree of wind. The stems and leaves abound in sulphate of soda, and a species either closely allied to or identical with the common Tamarisk produces in Arabia a substance considered by the Bedouins a great dainty, and called by them *mazz* or *manna*, from its outward resemblance to the 'manna' of Scripture. In the month of June it drops from the branches upon the fallen twigs and leaves, which always cover the ground beneath the tree, and being collected and cleaned is eaten with bread. Some travellers suppose this substance to be not an exudation from the tree, but the produce of an insect which infests the Tamarisk. It is said to be most abundant in rainy seasons. French: *Tamaris*; German: *Tamarisken*.

TAMARIX DE NARBONNE. (Fr.) *Tamarix gallica*.

TAMATTE. A Malayan name for *Lycopersicon esculentum*.

TAMBOOKIE-WOOD. A hard handsome wood, which when powdered is used by the South African Zulus as an emetic.

TAMBULI. An Indian name for the leaf of the Betel-pepper.

TAMIER. (Fr.) *Tamus*.

TAMKAI. An Indian name for *Terminalia Bellerica*, the kernels of whose seeds are eaten.

TAMPUL. The edible fruit of *Hedycaepus malayanus*.

TAMUS. The only European representative of the order *Dioscoreaceae*, and distinguished from other genera by its fruit being a roundish three-celled berry crowned with the remains of the flower, and containing one or two seeds in each cell, the cell-partitions becoming obsolete in the ripe fruits. There are two well-known species, *T. communis*, the Black Bryony of our hedges, and *T. cretica*, a native of Greece and the Greek Archipelago. They are both climbing plants, and have thick tuberous roots, sending up annual twining stems, which grow to a great length, and climb over bushes and hedges. The former has entire heart-shaped taper-pointed leaves; and the latter trilobed leaves, heart-shaped at the base, with the side-lobes large and rounded, and the middle one lance-shaped. Their flowers are of separate sexes, borne on different plants, and are produced in the leaf-axils—the males in slender branched racemes, the females in shorter racemes.

The large fleshy roots of the Black Bryony contain an abundance of acrid clammy juice, and were formerly used in the preparation of stimulating plasters. Rustic practitioners employ them for removing the discoloration of the skin from bruises. The fruits steeped in gin are a popular remedy for chilblains; while the Greeks use the young suckers of both species like *Asparagus*, which they much resemble. [A. S.]

TAN. The bark of oak and other trees used for tanning leather. Half-sept tan is used by gardeners for making hotbeds.

TANACETUM. A genus of perennials belonging to the tribe *Corymbiferae* of compound flowers, and allied both in characters and properties to *Artemisia*. *T. vulgare*, the Common Tansy, is an erect herbaceous plant one to two feet high, with repeatedly-divided deeply-cut leaves, and terminal corymbs of button-like flower-heads, of which all the florets are yellow. All parts of the plant have a strong aromatic scent, and an exceedingly bitter taste. Tansy was formerly much employed in medicine, and still retains its place in some cookery-books as an ingredient in puddings cakes and omelets, viands which now rarely appear at table. Tansy-wine also still enjoys some reputation among rustic practitioners as a stomachic. A variety with curled leaves is cultivated as an ornamental plant for garnishing dishes. None of the foreign species are worthy of particular notice. French: *Tanaise*; German: *Rheinfarn*. [C. A. J.]

TANÆCIUM (including *Schlegelia*). A genus of climbing shrubs belonging to the *Crescentiaceae*, and confined to the West Indies and the tropical parts of South America. Their branches are often rooting, their leaves either simple or trifoliate; their flowers white pink scarlet or violet in colour, arranged in axillary or terminal racemes or panicles; and their fruit is an indehiscent oblong berry, either black or grey, in some species scarcely larger than a coffee-berry, and in others assuming the dimensions of a large shaddock. The calyx is cup-shaped five-ribbed persistent, and obscurely five-toothed; the corolla tubular, and towards the top becoming funnel-shaped; the stamens are four in number, with the rudiment of a fifth; and the fruit is two-celled. *T. parviticum* of Jamaica is an inmate of our hot-houses, and climbs over walls or trees like ivy. *T. hactinum* (or *Schlegelia hactina*) has an edible berry called in Guluana *Emossé* berry, and used by the natives for dyeing their cotton cloth and straw furniture. The fruit of *T. adisforum* of Jamaica is employed for poultices. [B. S.]

TANDONIA. A genus of *Basellaceae* from Peru and New Grenada. The stem is often twining, with alternate entire leaves, and fleshy blossoms in long slender many-flowered simple or branched spikes. The outer calyx is two-cleft, the inner five-parted; the stamens five, united at the base; the

style elongated, with a capitate somewhat trilobed stigma; and the fruit ovate-compressed, enclosed within the unchanged calyx. [J. T. S.]

TANG, or TANGLE. The common name of *Laminaria digitata*. The Orkney kelpmen give this name exclusively to the narrow-fronded variety, while the ordinary form is called Cuvy. —, **BLACK.** *Fucus vesiculosus*. [M. J. B.]

TANGHADI. *Cassia auriculata*, the bark of which is used for tanning in India.

TANGHIN. *Tanghinia*.

TANGHINIA. The custom of trial by ordeal, in the unerring efficacy of which our own ancestors were strong believers, is now confined to a few of the most savage nations of the world, though even among them it is gradually dying away before the



Tanghinia venenifera.

advancing steps of civilisation. In Madagascar the natives formerly placed the most unlimited confidence in the poisonous seed of the Tanghin as an infallible detector of guilt, its use having descended to them from the remotest antiquity. This Tanghin or Tanquen is the only plant belonging to a genus which botanists have named *Tanghinia*, one of the *Apocynaceae*, and confined to Madagascar. The species, *T. venenifera*, is a tree, with smooth alternate lance-shaped thickish leaves, about six inches in length, clustered towards the points of the branches and directed upwards; it bears large terminal cymes of flowers, each supported by a couple of bracts, and having a spreading five-parted calyx without glands, a salver-shaped corolla with rose-coloured lobes, and a green funnel-shaped tube hairy inside and closed at the mouth by five greenish scales; the stamens being inserted into the upper or wide part of the tube, with a roundish tubercle under each; and a double ovary with a long style and thick stigma bearing two tubercles at the top. In general only one of the ovaries comes to perfection,

forming an ellipsoid fruit between two and three inches long, somewhat pointed at the ends, and having a smooth purplish skin tinged with green, containing a hard stone surrounded by a thick fibrous flesh. The portion used as an ordeal is the seed, which is pounded, and a small piece is swallowed by each person to be tried; those in whom it causes vomiting escape, but to those whose stomachs retain it is quickly fatal, and their guilt is then held to be proven. [A. S.]

TANGLE. *Laminaria digitata* and *L. saccharina*. —, **BLUE.** An American name for *Gaylussacia frondosa*.

TANIERS. The Blue Eddos or Nut Eddos, *Caladium acutifolium*.

TANNIN. The astringent tanning principle or impure tannic acid of the bark or galls of the oak and other trees, and of other vegetable substances.

TANQUEN. *Tanghinia*.

TANROUGE. (Fr.) *Weinmannia*.

TANSY. *Tanacetum vulgare*. —, **GOOSE.** *Potentilla Anserina*. —, **WILD.** *Potentilla Anserina*; also *Ambrosia artemisiifolia*.

TAPEINANTHUS humilis constitutes a small paniculiform genus of *Amaryllidaceae*. It was formerly known as *Panacraetium humile*, and is a native of Spain. It has a short scape rising in autumn before the leaves, and bearing two yellow flowers with ovate-oblong segments, a short cup, long diverging filaments, an erect style, and an obtuse stigma. [T. M.]

TAPEINOSTEMON (sometimes but erroneously spelt *Tapeinostemon*) is the name given to a genus of Brazilian herbs of the family *Gentianaceae*. The species are branched annuals, with many-flowered cymes; calyx small, five-parted; corolla somewhat funnel-shaped; stamens five, inserted into the base of the tube of the corolla, the anthers unchanging, concealed within the corolla; ovary partly two-celled; stigma short, divided into two plates. The fruit is a capsule much longer than the calyx, and partially four-celled. [M. T. M.]

TAPEINOTES. The few species of Brazilian *Gesneraceae* which form this genus are little soft fleshy herbaceous plants, with simple or branched stems rising from small underground tubers; their leaves are on stalks opposite each other; and their small whitish flowers are borne singly, or sometimes two together, on solitary or twin flower-stalks springing from the leaf-axils. The genus is closely allied to *Nema-tanthus*, the principal distinction between the two genera residing in the shape of the corolla; that of the present having the tube narrow at the base, but suddenly enlarged, particularly on the lower side, into a nearly globose shape, and again drawn in towards the orifice, the limb being erect and two-lipped. The calyx is free and unequally five-parted, with egg-shaped seg-

ments. *T. pusilla* scarcely attains an inch in height. [A. S.]

TAPENIER. (Fr.) *Capparis spinosa*.

TAPER. The opposite of angular; usually employed in contradistinction to that term, when speaking of long bodies. The same as Terete.

TAPERING. Gradually diminishing in diameter.

TAPER-POINTED. Terminating very gradually in a point, as the leaf of *Salix alba*. The same as Acuminate.

TAPIA. The Garlic Pear, *Cratava Tapia*.

TAPIER. (Fr.) *Cratava*.

TAPINA. The name originally given by Dr. Von Martius to a Brazilian genus of *Gesneraceae*, but which was afterwards altered by M. Decandolle to *Tapetes*, in order to prevent its being confounded with two other genera possessing names of nearly the same orthography—viz., *Tapinia* among fungi, and *Tapetia* among irids. It is derived from the Greek word *tapetnos* 'humble,' the plants belonging to it being of very dwarf habit. [A. S.]

TAPINANTHUS. Professor Oliver, the most recent writer on *Loranthaceae*, considers this to be a mere section of *Loranthus*, and not worth constituting a distinct genus. The species so named are natives of Africa, and have pentamerous flowers arranged in axillary clusters, each flower provided with a bract. [M. T. M.]

TAPINOCARPUS. A genus of *Araceae*, founded on an herbaceous species, growing in damp grassy places in the Concan districts of Western India. The rootstock is fleshy and perennial, and sends up heart-shaped entire leaves. Generically it approaches *Arum* and *Dracunculus*, but differs especially in the position of the ovules, of which there are six in each ovary, two or three erect, attached to the base of the ovary, the remainder pendulous from the top. The generic name is derived from the Greek *tapetnos* 'lowly' and *karpus* 'fruit,' in allusion to the position of the fruit. [M. T. M.]

TAPIOCA. An agglomerated kind of starch prepared from the root of *Manihot utilisima*, and generally employed as diet for invalids. —, **PEARL.** A fictitious kind of Tapioca, formed of prepared grain.

TAPIRIA. A genus of *Anacardiaceae*, containing eight or ten erect or subscandent shrubs or trees, with pinnate alternate leaves, and small, green, often fragrant flowers, in terminal and axillary panicles. They are natives chiefly of Brazil and Guiana, with a few representatives in Asia. The flowers are polygamous, with imbricate aestivation; there are ten stamens, and, in the male flowers, four or five styles; in the female there is but one short style. The fruit is a fleshy oblong drupe. [J. Br.]

TAP-ROOTED. Having a large simple conical root, which forms a centre round which the divisions are arranged.

TAPURA. The name of a genus of *Chastellaceae*. The flowers are small, and have an irregularly five-lobed calyx; a somewhat two-lipped corolla, to the base of which the five stamens are attached; of these the two lateral ones are much shorter than the rest; ovary sessile three-celled, with two pendulous ovules in each compartment. The wood of *T. guianensis* is employed by the Crooles of Guiana for constructive purposes. [They are tropical American shrubs, with the exception of the tropical African *T. africana*.] [M. T. M.]

TAQUARUSSA. A Brazilian reed.

TAR. A thick viscid oleo-resin obtained by heat from the wood of the pine-tree, and chiefly employed as a preservative of timber, especially among shipping.

TARA. An Indian name for *Corypha Tallera*, the Talipot Palm. Also a Tahiti name for *Colocasia macrorrhiza*; and a Sandwich Island name for *Caladium esculentum* and others.

TARACHIA. *Asplenium*.

TARASPIO. (Fr.) *Iberis*.

TARATOUF. (Fr.) *Helianthus tuberosus*.

TARAXACUM. The technical name of the genus of *Compositae* to which the familiar Dandelion belongs. The species are herbs, with a perennial rootstock, terminated by a tuft of leaves, from the centre of which emerge smooth hollow leafless unbranched stalks, surmounted by a single head of bright-yellow flowers. The involucre consists of an outer row of bracts, which are spreading or reflexed, and an inner row which are erect. The receptacle on which the flowers are placed is flat and smooth; the corollas all strap-shaped and yellow; and the pappus of many simple hairs. The fruit is surmounted by a long beak, like a little column, on the top of which the pappus is placed. If the flowers be examined previous to maturity, this beak is seen to be very short, but it rapidly lengthens as the fruit ripens. The genus is known from *Leontodon* by the simple not feathery pappus; and from *Crepis* by the unbranched flower-stalks.

By many botanists it is considered that there is only one species, *T. dens leonis*, which admits of many varieties. The plant is universally found in Europe, Central Asia, North America, and the Arctic regions. The most common variety in this country has broad runcinate leaves, and the outer bracts of its involucre are bent downwards. This well-known plant varies much in stature and appearance according to the locality in which it grows. Another found in boggy places, sometimes considered to constitute a distinct species under the name of *T. palustre*, has nearly entire leaves, and the outer scales of the involucre are ovate and pressed upwards.

The rootstock of the Dandelion (*dens du lion*) is extensively used in medicine as an aperient and tonic, especially in liver-complaints; it has also diuretic properties. When blanched the leaves may be used as a salad, but are too bitter to be agreeable.

They are eaten by cattle with advantage, also by rabbits. Schoolboys collect the leaves as a food for silkworms, when mulberry-leaves cannot be obtained; both contain a milky juice. The rhizomes may be used in the same manner as chicory.

The bright-yellow flowers of this plant open in the morning between five and six o'clock, and close in the evening between eight and nine—hence this was one of the plants selected by Linnaeus to form his floral clock. Is there any connection between this fact and the childish trick of guessing the hour by the number of tufts left on the receptacle after a vigorous attempt to remove them by blowing them off? The generic name is possibly derived from the Greek *tavazo*, 'I have excited' or 'caused,' and *achos* 'pain,' in allusion to the medicinal effects of the plant.

The genus is included among the cichoreaceous group of the composite family, on account of its strap-shaped flowers, and of the milky juice by which the whole plant is permeated. [M. T. M.]

TARCHONANTHUS. The name of a genus of *Compositae*, consisting of Cape shrubs, with the flower-heads disposed in terminal panicles, or solitary in the axils of the leaves. The flowers are unisexual and dioecious, surrounded by an involucre of five scales, arranged in one row. The corollas are tubular, somewhat bell-shaped five-toothed, hairy outside and smooth within. In the male flowers the anthers are provided with two hairs at the base, while in the centre of the flower is a glandular nectary stimulating the ovary; the females are surrounded by an involucre having a double row of bracts, many in number, and not combined together in any degree, as is the case with the bracts of the male flowers; there is no nectary; the fruit is very hairy and destitute of pappus. One or two species with purple flowers are grown in this country. [M. T. M.]

TARE. The Common Vetch, *Vicia sativa*; also *Erucum*. —, **TINE.** *Lathyrus tuberosus*.

TARFA. An Arab name 'or *Tamarix orientalis*.

TARGIONIACEÆ. One of the suborders of *Marchantiaceæ*.

TARGIONIA. A genus of liverworts belonging to the suborder *Targioniaceæ*, of the natural order *Marchantiaceæ*, in which the capsule is solitary and sessile. The frond resembles that of *Marchantia*, is porous above, and has a central rib, and is clothed below, where it is generally of a dark-purple, with scales and rootlets. There is a bivalve general involucre, without any proper perianth, containing about four archegonia, of which one only is impregnated, the membrane of the archegonium adhering closely to the capsule. The species belong chiefly to warm countries. One only occurs in Great Britain, and this principally in the eastern counties on mossy banks; it is very abundant in the South of Europe, where it is generally accompanied by *Lunularia*. [M. J. B.]

TARGOLA. An Indian name for the fruit of the Palmyra Palm, *Borassus Alabeliformis*.

TARI. The sap of *Phænix sylvestris*, which is drunk in India either fresh or fermented.

TARO. The tuberous roots of *Colodium esculentum*.

TARRA. The name in Lima for the pods of *Coultaria tinctoria*.

TARRAGON. *Artemisia Dracunculus*.

TARTAR-BREAD. *Crambe tatarica*.

TARTAREOUS. Having a rough crumbling surface, like the thallus of some lichens.

TARTARIAN LAMB. *Ulothium Barometz*.

TARTON-RAIRE. (Fr.) *Daphne Tartonraira*.

TARUMA. A South Brazilian name for the bark of *Vitex Taruma*.

TASCO. A Spanish name for the refuse of flax; the toppings of hemp.

TASMANNIA. A genus of *Magnoliaceæ*, consisting of one Tasmanian and two Australian species, named in honour of the Dutch navigator Tasman, the discoverer of the island now called Tasmania, or Van Diemen's Land, an important British colony. The genus is closely allied to *Drymys*, but distinguished from it by a portion of its flowers being unisexual, the two sexes being borne on different plants, and by the ovary consisting of a single carpel. All three are shrubs, and have simple entire smooth and leathery evergreen dotted leaves, scattered on the branches; and inconspicuous flowers crowded together in the axils of the upper leaves, or terminal, producing little unopening



Tasmanian aromatica.

fruits containing several shining black seeds. The flowers have two sepals and two to five petals, all deciduous; numerous stamens, with their anthers directed out-

wards; and a free ovary, containing numerous ovules in two rows, and ending in a stigma which runs down its inner angle.

T. aromatica, the Tasmanian species, possesses, as its specific name implies, aromatic qualities, particularly its bark, which so closely resembles the Winter's Bark of Magalhães Straits (*Drimys Winteri*), that it is substituted for it by colonial doctors. The colonists call it the Pepper-plant, and use its little black pungent fruits as a substitute for pepper. It grows in large masses, and in favourable situations attains a height of twelve feet, with a trunk sometimes as much as nine inches in diameter; the branches being somewhat whorled, and when young clothed with red bark. Under the microscope the wood exhibits a structure resembling that of many coniferous plants, the fibres being marked with similar circular disks. [A. S.]

TAT. An Indian name for cloth made from the fibre of *Corchorus olitorius*.

TATABA. A large tree of Guiana, yielding a hard tough wood, adapted for ship-building, gun-carriages, &c.

TATTIE. An Indian name for window or door-screens made from split bamboo.

TAUSCHERIA. A genus of *Cruciferae* from Siberia, comprising smooth erect annuals, with small whitish flowers on racemes opposite the leaves, and oval almost boat-shaped indehiscent pouches beaked at the apex, surrounded by a leathery inflexed wing, and containing a single seed. [J. T. &.]

TAUSCHIA. A genus of *Umbelliferae*, containing two Andean and Mexican species. It is a perennial herb with much-divided leaves, and a very short stem which lengthens in fruiting. The calyx-limb is obsolete; the petals are entire, with a long inflexed apex; the fruit is contracted at the side; the carpels have five filiform obtuse ridges, the interstices furnished with a single vitta. The carpophore is undivided, and is indicated by a furrow in the middle of the deep furrow of the commissure. [W. O.]

TAUZIN. (Fr.) *Quercus Tosa*.

TAVOLA. *Terminalia Catappa*.

TAWNY. The same as Fulvous.

TAXACEÆ. A suborder of *Coniferae*, often considered as a distinct order, distinguished chiefly by their fruits not being collected in cones, each ovule singly, unprotected by
See *CONIFERÆ*.

TAXANTHEMA. *Statis*.

TAXODIUM. A genus of *Coniferae*, of the tribe *Cupressinae*, consisting of lofty trees, inhabiting for the most part the rich swampy soil of Florida and other southern states of North America. The branches are slender straight or drooping, and clothed with fine linear deciduous leaves arranged in two rows. The male

catkins are in loose panicles; the females are roundish, and are composed of peltate two-seeded scales, the seeds being destitute of wings.

T. distichum, the Deciduous Cypress, is commonly seen in this country as an ornamental tree on lawns and in similar situations, where its feathery foliage renders it an attractive object. In its native country its bark and wood are much used for covering houses, for thin planks, ribs of ships, water-conduits, and other purposes. The roots sometimes bear large hollow excrescences, which are made use of by the negroes for beehives. The root is also applied to suppurating wounds. [M. T. M.]

TAXOLOGY, TAXONOMY. That part of Botany which relates to the laws of classification.

TAXUS. A well-known evergreen tree, placed by some authors among the conifers, from which, however, it is separated by others, in consequence of the fruit not being collected in cones, each ovule growing singly, unprotected by hardened scales; so that this is a degree of organisation yet lower than that of conifers themselves.

T. baccata, the Common Yew, is characterised by a trunk peculiarly suggestive of massiveness and solidity, not being covered, like the trunks of most other trees, with a splitting bark, but seemingly composed of a number of smooth stems fused together. The bark itself is of a reddish-brown hue, and scales off in thin plates. At the height of a few feet from the ground it sends out numerous horizontal branches, which spread in all directions, and are densely clothed with tough twigs, leafy throughout their whole extent or nearly so. The leaves are thickly set on two opposite sides of the stem, narrow, slightly recurved, dark-green and shining above, but paler below. The flowers, which are of two kinds and grow on separate trees, appear among the leaves, and on the underside of the twigs. The barren flowers are the most numerous, appearing in the form of membranous scaly buds, from the centre of each of which protrudes a slender column, terminating in a tuft of stamens. The fertile flower resembles a minute acorn, the cup of which swells, and when ripe has the appearance of red corallines, enclosing an oval brown nut, the summit of which is uncovered. These berries, if berries they may be called, drop when ripe, and contain a sweet glutinous juice. They are of a mawkish disagreeable taste, but are eaten with impunity by children, and greedily devoured by wasps, caterpillars, and several kinds of birds. The nut contains a kernel, which has an agreeable flavour like that of the stone-pine. The leaves are poisonous, though to what extent is a disputed question; but of this there can be no doubt, that their effects on the human frame are deadly, and that to give them to cattle is a perilous experiment. It appears from all accounts that the poison is more virulent in the young shoots than in any other part of the tree,

but that it exists, in greater or less quantities, both in the leaves and in the green bark. The leaves are more dangerous in a half-dry state than when fresh.

The wood is hard, compact, of a fine and close grain, flexible, elastic, splitting readily, and incorruptible. It is of a fine orange-red or deep-brown; and the sapwood, which does not extend to a very great depth, is white and also very hard. The fineness of its grain is owing to the thinness of its annual layers (for the yew is a tree of exceedingly slow growth)—280 of these being sometimes found in a piece not more than twenty inches in diameter. The yew is a native of most of the temperate parts of Europe and Asia, growing in its wild state in situations little exposed to the direct rays of the sun, and generally in a clayey loamy or calcareous soil.

Yew-trees of great antiquity and large size are often to be met with growing in churchyards, but from what motive they were planted in such situations is not positively known. The reason assigned by some is, that the poisonous foliage of the yew typified death,—others that its durability and slowly-altering features symbolised the Resurrection—others, in order that it might afford a supply of twigs to be worn on Palm Sunday—and others again, taking a still more utilitarian view, that there might be always at hand a supply of wood for making bows. Yews are in existence which are supposed to be above a thousand years old. The dimensions of the largest range from thirty to fifty feet in circumference. The yew is the badge of the Frasers. French: *Y*. [C. A. J.]

The succulent fruit of the yew has a sweet sickly taste, and is not unwholesome, though it is stated that the contained seed is noxious. The leaves are poisonous to some animals, especially to cows and horses. On the human subject yew-leaves have an effect similar to that of *Digitalis*, but do not produce the remarkable and dangerous cumulative effects, which are to be dreaded from the incautious use of that plant. Medicinally, yew-leaves might be used as a sedative. In poisonous doses the following effects have been remarked—giddiness, irregular and depressed action of the heart, convulsions, and insensibility. Yew-leaves or preparations therefrom have been used in calculous complaints, in epilepsy and convulsions, and also in gouty disorders. 'Yew-tree tea,' an infusion of the leaves, is, according to Dr. Taylor, sometimes used by the poor and ignorant for the same purposes as savin, but with equal danger. [M. T. M.]

TAYA. *Xanthosoma peregrinum*.

TAYLORIA. A remarkable genus of splanchnoid mosses, with acute leaves, a mitriform veil, a capsule with a long neck, and sixteen or thirty-two entire or bifid teeth, disposed in pairs, springing far below its mouth and highly hygroscopic, especially in *T. splanchnoides*. There are but three European species, of which *T. serrata* occurs in this country. *T. splanchnoides*, one of the most beautiful of mosses, figured in Hooker's *Musci Boreali*, occurs in North America. The species are perennial, and grow on decayed animal or vegetable substances in alpine situations. The genus was named after Dr. Taylor, Sir W. J. Hooker's associate in the preparation of the *Muscologia Britannica*. [W. J. B.]

TAYOVE. (Fr.) *Calceasia macrorrhiza* and *Caladium esculentum*.

TCHOUMA. A Chinese name for the fibre of *Bolmeria nivea*.

TE. A Panama name for an infusion of the leaves of *Corchorus sitiguensis*.

TEA. *Thea*. Also a name applied to the dried leaves of various plants, and to the infusions prepared from them and used either as beverages or medicinally. **ABYSSINIAN.** *Catha edulis*. — **APFALLACHIAN.** *Viburnum cassinoides*, and *Prinos glaber*. — **ARABIAN.** *Catha edulis*. — **ASSAM.** *Thea assamica*; in commerce the cultivated tea-plant grown in Assam. — **AUSTRALIAN.** The name of several species of *Leptospermum* and *Melaleuca*. — **BENCŒOLEN.** *Glaphyria nitida*. — **BLACK.** *Thea Bohea*; also commercially applied to the leaves of the Tea-plant when prepared by fermentation. — **BOTANY BAY.** *Smilax glycyphylla*. — **BOURBON.** *Angræcum fragrans*. — **BRAZILIAN.** *Stachytarpha jamaicensis*. — **BUSH, of Africa.** *Cyclopia genistoides*. — **CANARY.** *Sida canariensis*. — **CAROLINA.** *Ilex vomitoria*. — **COFFEE.** An infusion of the leaves of *Coffea arabica*, drunk by the natives of Sumatra. — **FAHAM.** *Angræcum fragrans*, an infusion of which is drunk to promote digestion; its odour is owing to the presence of cammarin. — **GREEN.** *Thea viridis*; also commercially applied to tea-leaves prepared in a particular manner, and often imitated by artificial colouring. — **HIMALAYA.** The tea cultivated in the mountainous districts of Northern India is imported under this name. — **JESUITS.** *Psoralea glandulosa*. — **LABRADOR.** *Ledum latifolium*. — **LEMON-GRASS.** An infusion of the leaves of *Andropogon Schenanthus*, substituted for tea in many of the interior districts of India. — **MALAY.** *Glaphyria nitida*; also *Eugenia variabilis*. — **MEXICAN.** *Ambrosia ambrosioides*; also *Psoralea glandulosa*. — **MOUNTAIN.** *Gaultheria procumbens*. — **NEW JERSEY.** *Ceanothus americanus*. — **NEW ZEALAND.** *Leptospermum scoparium*. — **OF HEAVEN.** A Japanese name for the leaves of *Hydrangea Thunbergii*. — **OSWEGO.** *Monarda didyma*. — **PAGLE.** An infusion of the dried blossoms of the Cowslip, which is drunk in some counties of England. — **PARAGUAY.** *Ilex paraguayensis*. — **SASSAFRAS.** Saloop. — **SOUTH-SEA.** *Ilex vomitoria*. — **SWEET.** An Australian name for *Smilax glycyphylla*. — **THEE.** *Sageretia theana*. — **WEST INDIAN.** *Cephraria biflora*. — **WILD.** *Amorpha canescens*.

TEA-BERRY. *witheria* ?

TEAK, or TEAKWOOD. A hard heavy durable timber obtained from *Tectona grandis*, and extensively employed for ship-building purposes. —, **AFRICAN.** The timber of *Olufieldia africana*. —, **BEN.** The wood of *Lagerstrœmia microcarpa*; also applied to inferior Teak. —, **NEW SOUTH WALES.** *Endiandra glauca*.

TEARS OF ST. PETER. *Anthacanthus microphyllus*.

TEAR-THUMB. An American name for *Polygonum arifolium* and *sagittatum*.

TEASEL, or TEAZEL. *Dipsacus*. —, **FULLER'S.** *Dipsacus Fullonum*. —, **WILD.** *Dipsacus sylvestris*.

TEA-TREE, OBYLON. *Elæodendron glabrum*. —, **DUKE OF ARGYLL'S.** *Lycium barbarum*. —, **NEW JERSEY.** *Ceanothus americanus*. —, **NEW SOUTH WALES.** *Melaleuca undulata*; also *Callistemon pallidum* and *C. salignum*. —, **NEW ZEALAND.** *Leptospermum scoparium*. —, **SWAMP, of Australia.** *Melaleuca squarrosa*. —, **WHITE.** *Melaleuca gemistifolia*.

TEAZELWORTS. The *Dipsacaceæ*.

TECLEA. An Abyssinian tree, now included in *Toddalia* (*Xanthoxylum*). The leaves have three lance-shaped smooth leaflets; the flowers are placed on spikes or panicles—the males having a four to five-toothed calyx, four or five concave erect petals, and as many stamens inserted at the base of a fleshy coloured three-cornered rudimentary ovary; and the females having a cup-shaped four-toothed calyx, four yellowish-green petals, four abortive stamens, a one-celled ovary surrounded by a disk, and containing a single ovule; the stigma is peltate. [M. T. M.]

TECOMA (including *Sparattosperma* and *Tabebuia*). A genus of *Bignoniaceæ*, composed of about fifty species, tall trees inhabiting the tropical parts of America, and valued chiefly on account of their hard almost indestructible timber, which has procured for several species the name of Roble = Oak. The White Wood of the West Indies (*T. leucocylon* or *Bignonia pallida*), the Guayacan of Panama (*T. Guayacan*), the Porrier de la Martinique of the Caribbean Islands (*T. pentaphylla*), and several Brazilian species might be particularly pointed out as yielding firstrate timber for house and ship-building, or wood for making bows for savages. Several species are of importance in medicine. *T. impetiginosa* abounds in tannin; its bark is bitter and mucilaginous, and it is used in lotions baths &c., in inflammation of the joints and in cases of debility. *T. Ipe* has similar qualities, and is prescribed by the Brazilians as a gargle in ulcers of the mouth; the leaves are milder, and are sometimes used in ophthalmic affections. The leaves of *T. suberectosa* (*Sparattosperma Wiltoni*.....) are bitter acrid and diuretic, and have in Brazil a reputation in cases of calculus.

When young the *Tecomæ* often have simple or unifoliate leaves, but as they grow up the leaflets increase in number, so that they become digitate. The flowers are arranged in terminal bunches, and in many species appear after the leaves have fallen off. They are large, very numerous, and of bright tint—golden-yellow purple pink or pure white. The calyx is cup-shaped, and splits into irregular segments, rendering it either bilabiate or five or three-lobed; the corolla is funnel-shaped; the stamens didynamous, with a fifth sterile one, the anthers glabrous and divergent. The fruit is a linear flat capsule, the valves of which are placed contrary to the direction of the partition, dividing the fruit into two cells, whilst the winged seeds are numerous, and arranged in single rows.

The name *Tecoma* is derived from the Mexican *Tecomaxochitl* (i.e. *Tecomati* = an earthen war-vessel of peculiar shape, and *xochitl* = a flower), which Jussieu, the founder of the genus, believed to be the native name of a Mexican species of *Tecoma*; but the *Tecomaxochitl* of the Aztec language is in fact *Solanandra guttata*. For other species formerly classed with *Tecoma*, see CAMPEIS, TECOMARIA, STENOLOBUM, and PANDORA. [B. S.]

TECOMARIA. A genus of *Bignoniaceæ*, consisting of about half a dozen species indigenous to South America. But one species, *T. capensis* (*Bignonia* or *Tecoma capensis*), though originally confined to Brazil, has become widely spread over various parts of the Old World, including the East Indies, the Mediterranean region, and various parts of Africa. It was first brought to Europe from the Cape of Good Hope—hence its specific name; and it has for more than a century been an inmate of our greenhouses. More recently two other species (*T. pubescens* and *T. rosea*) have also found their way thither. The calyx of *Tecomaria* is regular five-ribbed and five-toothed; the corolla tubular; and the stamens five in number, one of which is sterile. The fruit is a linear flat capsule, smooth on the surface, and divided by a partition, running contrary to the direction of the valves, into two cells, on each side of which is a single row of numerous winged seeds. All the species are erect shrubs, with pinnate leaves the leaflets of which are acutely serrated, and terminal orange or yellow-coloured flowers arranged in panicles. They recommend themselves by their beauty, but seem to have no known uses. [B. S.]

TECOMATE. The Mexican name of *Oreocenta alata*.

TECOMAXOCHITL. The Aztec name of *Solanandra guttata*.

TECTARIA. *Polystichum*.

TEGONA. The genus of the Teak-tree, belonging to the order *Verbenaceæ*. Its

tube hairy in the throat; five or six nearly equal stamens rising from the corolla-tube and protruding from it; and a two-pronged stigma. Its fruits contain a hard four-celled stone, with a fleshy oily seed in each cell. There are two species, both enormous timber-trees, with large entire egg-shaped or elliptical deciduous leaves, hoary with star-shaped hairs underneath, and covered with rough points on the upper surface, which renders them useful for polishing wood.

The Common Teak, *T. grandis*, is a native of Southern and Central India, extending



Tectona grandis.

as far north as the province of Bundelcund, and also of Burmah, Pegu, and some of the islands of the Indian Archipelago. It has quadrangular young branches, opposite leaves, terminal panicles of white flowers, and round fruits about the size of cherries, covered with spongy wool, and enclosed in a kind of bladder formed of the enlarged calyx. *T. Hamiltoniana* is found on the banks of the Irrawaddy River in Pegu and Ava, and also in the Philippine Islands. It differs from the last by its young branches being six or eight-angled, with leaves in whorls of three or four, by its blue flowers, and by its hard nut-like fruits being destitute of woolly covering, and having the enlarged calyx adhering to it, not inflated.

Teakwood is an invaluable wood to ship-builders, and is very largely employed in the construction of both merchant vessels and ships of war; its great strength and durability, added to the facility with which it can be worked, and its non-liability to be injured by the attacks of *Fungus*, ren-

TEESDALIA. A genus of humble annuals belonging to the tribe *Thlaspidaceae* of cruciferous plants, and distinguished by the following characters:—Pouch notched; cells two-seeded; filaments having a little scale at the base within. There are only two species. *T. nudicaulis* is an unimportant weed two to three inches high, with a few spreading radical lyrate leaves, and several generally leafless stalks, bearing at the summit close corymbs of white flowers, in which two of the petals are much larger than the others; it grows on dry banks, but is not a common plant. *T. regularis*, a native of Southern Europe, a plant of similar habit, has the petals equal. [C. A. J.]

TEESOO. A yellow dye obtained in India from the flowers of *Butea frondosa*.

TEETA. The roots of *Picrorhiza kurroo*.

TEETH. Any kind of small marginal divisions.

TEFF. An African corn-plant, *Eragrostis abyssinica*.

TEGMEN. The inner skin which covers the seed; the glumes of grasses.

TEGMENTA. The scales of a leaf-bud. they are *tegmenta foliacea* when modifications of leaves, *t. fulcracea* when of stipules and petioles, *t. petiolacea* when of petioles only, and *t. stipulacea* when of stipules only.

TEGULARIA. *Didymochlora*.

TEIL-TREE, or TIL-TREE. *Tilia europæa*.

TEINIER. (Fr.) *Pinus Cembra*.

TEJ-BUL. A North Indian name for the warm spicy capsules and seeds of *Xanthoxylon hastata*.

TEJ-PAT. The leaves of *Cinnamomum Tamala* or *C. malabathrum*.

TELA. The elementary tissue.

TELAKAL. A vernacular name in India for *Culilawan-bark*.

TELEKIA. A genus of *Compositæ*, comprising a tall herbaceous plant, having the habit of *Inula Helentum*. The ray-florets are ligulate, the ligules long and narrow; the disk-florets are tubular; the anthers are provided at the base with elongated appendages; and the fruits are linear-elongated many-ribbed triangular, and surmounted by a crown-like toothed somewhat cartilaginous pappus. *T. speciosa*, a native of Hungary, is sometimes met with in gardens in this country; its flower-heads are yellow. [M. T. M.]

TELEPHIUM. A genus of *Alceaceæ*, inhabiting the Mediterranean region, and also found at the Cape of Good Hope. This genus has the leaves usually alternate, a remarkable exception in the natural order to which it belongs. It is distinguished by having five persistent petals, five stamens, three spreading recurved styles,

TECUM, or TUCUM. A Brazilian name for *Astrocaryum vulgare*.

TEEL, TIL. Indian names for *Sesamum orientale*.

and an incompletely three or four-celled capsule containing numerous seeds. They are smooth glaucous herbs or undershrubs, with many nearly simple procumbent stems, clothed with oblong or oval leaves, furnished with small stipules, and terminated by cymose clusters of small white or greenish flowers, disposed in a racemose manner. [J. T. S.]

TELFAIRIA. A genus of *Cucurbitaceæ*, containing two species, *T. pedata* and *T. occidentalis*, the former a tall climbing plant, native of the coast of Zanzibar. This has slender woody stems, fifty to a hundred feet long, climbing to the tops of the highest trees, and supporting themselves by means of very long two-parted tendrils. The leaves are large long-stalked pedate, of a shining green, paler and spotted with white underneath; and the flowers are of separate sexes, borne on different plants—the males growing six or eight together upon stalks produced from the leaf-axils, and the females singly. They have a deeply five-cut calyx with sharply-serrated segments, and a corolla of five purple petals spotted with white, marked with a broad bright-green band towards the base inside, and beautifully fringed at the top; the males containing five stamens, with wedge-shaped filaments, and distinct straight anthers; and the females a ten or more furrowed ovary ending in a short style, and a three to five-lobed stigma. [*T. occidentalis* is a native of the W. Coast of Africa, and is cultivated for the sake of its seeds, which the negroes boil and eat. The fruit of both species are very similar in form; that of *T. pedata* is frequently two or three feet in length, and eight or ten inches thick. In both species there are several deep longitudinal furrows outside, the inside being divided into from three to six cells, each of which contains a large number of flat almost circular seeds, about an inch and a half across, a single fruit frequently containing upwards of 250. By pressure the seeds of *T. pedata* yield an excellent bland oil, and they are said to be, when fresh, as palatable as almonds.] [A. S.]

TELIPOGON. A genus of orchids from South America, belonging to the tribe *Vandeæ*. Eleven species have been described. Perianth spreading; sepals narrow, acute; petals broadly ovate; lip of the same form as the petals, but larger; column hairy. They are epiphytal herbs, with leafy few-flowered stems, and terminal yellow or yellow-and-purple flowers of no great beauty. [W. B. H.]

TELLIMA. A genus of *Saxifragaceæ* from North-western America, comprising a few perennial or annual herbs, with few usually alternate stem-leaves, and numerous root-leaves; the flowers racemose, with greenish or rose-coloured petals; the calyx bell-shaped, usually adhering to the ovary at its base; the petals five; stamens ten; styles two or three, distinct; capsule one-celled. This genus is restricted to *T. grandiflora* by Professor A. Gray, the others being placed in *Lithophragma* on account of having the top of the calyx-

tube not enlarged, and the styles three in number instead of two. [J. T. S.]

TELMISSA sedoides. A small *Crasulaceæ* plant, found near Aleppo, with small white pentamerous flowers, and carpels more or less connate at the base, was proposed as a genus under this name, but is now included in *Sedum*. It is a low smooth subaquatic herb, much branched from the base. [J. Br.]

TELOPEA. Few if any genera of *Proteaceæ* excel the plants of this genus in the splendour of their flowers. The species are large shrubs, natives of New South Wales and Tasmania, with entire or slightly-toothed leaves, and scarlet flowers in terminal clusters, surrounded by a deciduous involucre. The flowers are somewhat irregular and four-toothed, and conceal within them four stamens, a semi-circular gland at the base, and a many-seeded ovary. Each seed has a delicate wing surrounding it. *T. speciosissima*, the Warrah, is grown in this country as a greenhouse shrub. [M. T. M.]

TELOXYS. A genus of *Chenopodiaceæ*, founded upon the Siberian and North American *Chenopodium aristatum*, which has a distinct annular disk round the base of the ovary. It is a branched annual, with lanceolate or linear entire leaves, and small flowers in axillary dichotomous cymes; the uppermost branches sterile, awn-like. [J. T. S.]

TEMBOUL. (Fr.) *Chavica Betel*.

TEMPLETONIA. Robert Brown applied this name to a genus of New Holland shrubs of the family *Leguminosæ*, in honour of an Irish botanist. The leaves are wedge-shaped mucronate, and the flowers large solitary axillary crimson. The calyx is five-toothed, the lowest tooth being longer than the rest; the corolla is papilionaceous, with a spreading standard, straight wings shorter than the keel; the stamens are partially diadelphous; the style awl-shaped; and the pod stalked compressed many-seeded. Two or three species are grown in greenhouses for the sake of their flowers. [M. T. M.]

TENCHWEED. *Potamogeton*.

TENDRIL. A twisting thread-like process by which one plant clings to another.

TENGA. An Indian name for the Coconut.

TENNEY. The Tamil name for *Setaria italica*.

TENORIA. A name given by Sprengel to some species of *Eupatorium*.

TENTWORT. *Aplentum Ruta-muraria*.

TENUIS. Thin.

TEORA. An Indian name for *Lathyrus sativus*.

TEPAL. Another name for petal. Also the pieces of a perianth, being of an ambiguous nature, between calyx and corolla.

TEPEJILOTE. A Central American name for the flowers of a species of *Ohamadorea*, which while still enclosed in the spathe, are highly esteemed as a culinary vegetable.

TEPESIA. A genus of comprising a shrub, native of Chih, which little is yet known. The calyx a four-toothed limb, two segments of which are larger than the other two. The fruit is a four-celled berry, surmounted by the limb of the calyx. [M. T. M.]

TEPHRO. In Greek compounds = ash-grey.

TEPHROSIA. A widely distributed genus of *Leguminosæ*, containing many species, some trees, some shrubs, some even herbaceous, growing for the most part in the tropical or sub-tropical regions of both hemispheres. The leaves are unequally pinnate, covered with a grey silky down. The flowers are usually in terminal clusters, but occasionally stalked in the axils of the leaves; they are either white flesh-coloured or purple; the calyx is somewhat bell-shaped, five-cleft, the two upper segments longer than the rest; the vexillum or standard of the corolla is somewhat circular in outline, bent backward, hairy externally, scarcely exceeding in size the side-petals or wings, which latter are adherent to the keel formed by the two lower petals; stamens monadelphous or diadelphous. The legume or pod

camela. The leaves and seed-vessels of this plant are occasionally found mixed with Alexandrian senna. The leaves may be recognised by their silky hairs, and by the lamina on two sides of the midrib being very nearly equal in size and shape, not larger on one side at the base as is the case with all samples of senna-leaves. The linear pods of the present plant are very different from any description of true senna-pod. See *CASSIA*.

T. cinerea is employed in the West Indies to stupefy fish. The leaves and stems of *T. toxicaria* are used for the same purpose in the West Indies, the Feejee Islands, and elsewhere. The stems and leaves are pounded and thrown into the river or pond, when the fish speedily become stupefied; the larger fish are stated to recover if placed in fresh water, but the smaller ones perish. The roots of this plant are employed as an application in certain skin-diseases in the Mauritius and Surinam.

T. purpurea is used medicinally in various ways by the natives of India. Thus the roots, pounded and mixed with arrack, are used as a wash for the mouth. In the form of ointment they are applied in cases of elephantiasis; they are also given, in the state of infusion or decoction, in certain cases of indigestion and to check vomiting. The juice of the plant mixed with honey is used as an application to pustular eruptions on the face. Several species are in cultivation. The generic name is derived from the Greek *tephros* 'ash-coloured,' in allusion to the colour of the leaves. [M. T. M.]

TERAMNUS. *Glycine*.

TERASPIC. (Fr.) *Iberis umbellata*.

TERATOLOGY. The study of malformations in plants or animals. [M. T. M.]

TERCINE. A supposed third integument of an ovule, but in reality a layer of the primine or secundine, or the secundine itself.

TÉRÉBENTHINE DE BOSTON. (Fr.) *Pinus palustris*.

TEREBINTHACEÆ. An order of Poly-petalous Dicotyledons established by Jussieu, and adopted by all botanists who unite *Anacardiaceæ* with *Burseraceæ*; but as these are now definitely separated, Jussieu's common name has been abandoned. It belongs to Lindley's Rutal alliance.

TÉRÉBINTHE. (Fr.) *Pinacia Terebinthus*.

TEREDO. Any disease in plants produced by the boring of insects.

TERES, TERETE. Tapering; free from angles; cylindrical or nearly so.

TERGEMINATE. When each of two secondary petioles bears towards its summit one pair of leaflets, and the common petiole bears a third pair at the origin of the two secondary petioles; as in *Mimosa tergemina*.



Tephrosia acutifolia.

is linear compressed, straight or curved, sessile or on a short stalk, sometimes transversely jointed; seeds numerous.

Some of the species require notice, as they possess medicinal and other useful properties. Thus *T. apollinea*, a native of Egypt and Nubia, furnishes a kind of indigo. The seeds moreover are made into an ointment, used to heal the wounds of

TERMINAL. Proceeding from the end.

TERMINALIACEÆ. *Combretaceæ.*

TERMINALIA. The typical genus of the division of *Combretaceæ* characterised by the flowers having no petals, and the rotundons being rolled round each other. It contains a considerable number of species, large trees or shrubs, dispersed over the tropics of both hemispheres. Most of the species have the leaves, which are alternate and entire, clustered towards the points of the branches, the slender flower-spikes growing from their axils and bearing perfect flowers at the bottom and males above, the former producing one-seeded hard-stoned fruits called drupes, which are either flattened and have the two edges attenuated or winged, or are egg-shaped without wings or obscurely angled, not surrounded by five or more longitudinal wings like those of the very closely allied genus *Pentaptera*. Their flowers have a five-cut bell-shaped calyx-limb, no petals, ten stamens in a double row, and a slender style ending in a sharpish stigma.

The astringent fruits of several species of this genus have long been employed for tanning and dyeing purposes by the natives of India; and are now brought to this country in considerable quantities, under the name of Myrobalans, and used chiefly by calico-printers for the production of a permanent black. The principal kinds of Myrobalan are the Chebulic, the produce of *T. Chebula*, which are smooth and oval; and the Belleric, *T. Bellerica*, obscurely five-angled, and covered with greyish silky down. The seeds of *T. Catappa* are like almonds in shape and whiteness, but though palatable they have none of their peculiar flavour. [A. S.]

TERMINOLOGY. That part of Botany which teaches the meaning of technical terms.

TERNARY, TERNATE. When three things are in opposition round a common axis; a whorl of three.

TERNATO-PINNATE. When the secondary petioles, on the sides of which the leaflets are attached, proceed in threes from the summit of a common petiole.

TERNIOLA. A genus of *Podostemaceæ*, consisting of small plants resembling the species of *Jungmannia*. They are natives of India and Ceylon, and have a leaf-like rootstock, whence proceed a number of linear entire sessile leaves—those on the flower-stalk united together into a tube around the flower, which has three stamens, and as many carpels. [M. T. M.]

TERNSTRÖMIACEÆ. An order of poly-petalous dicotyledons, consisting of trees or shrubs, chiefly tropical, and many of them of great beauty, which, like the *Clusiaceæ* (*Guttiferæ*), have imbricated sepals and petals, indefinite hypogynous stamens, and a free ovary divided into cells with the placentas in the axis; but

differ from that order generally in their alternate leaves, hermaphrodite flowers, and usually curved embryo, much less fleshy, and often enveloped in albumen. These characters have, however, several exceptions, and the precise line between *Ternströmiaceæ* and *Clusiaceæ* is difficult to trace.

The order has been divided by Choisy into two sections, *Ternströmiaceæ* and *Camelliaceæ*, upon characters which have not proved sufficiently correct; and, on the other hand, it has been recently enlarged by the addition of *Rhizobolaceæ* and *Marograviaceæ*. It is now divided into the following six tribes:—1. *Rhizoboleæ*, with digitately compound leaves, and the embryo either folded lengthways or spirally twisted, comprising the two American genera *Caryocar* and *Anthodiscus*; see *RHIZOBOLACEÆ*. 2. *Marograviæ*; climbers or epiphytes, with the flowers in racemes, usually intermixed with hood-shaped or variously deformed bracts, and numerous small seeds without albumen. They consist of the three American genera, *Marogravia*, *Norantea*, and *Buyechia*; see *MAROGRAVIACEÆ*. 3. *Ternströmiæ*; erect trees or shrubs, with entire leaves, indehiscent fruit, and few albuminous seeds, with a curved embryo. They include eight genera from both the New and the Old World, of which *Ternströmia*, *Frieseria*, and *Eurya* are the most important. 4. *Sauraujæ*; differing from *Ternströmiæ* chiefly in their numerous small seeds, with a more abundant albumen. To these belong *Saurauja*, from the New and the Old World, and two small Asiatic genera. 5. *Gordontæ*; differing from *Ternströmiæ* in their anthers being versatile and not erect, and usually in their capsule opening loculicidally, their straighter embryo, and rarer albumen. They include *Stuartia*, *Camellia*, *Gordonia*, and six other genera. And 6. *Bonnatiæ*; distinguished by the septical dehiscence of their capsule, as well as by the petals being contorted in the bud, not imbricate as in the other tribes. They are all American, with the exception of one species, and comprise *Bonnatia*, *Kissmeyeria*, and five other genera.

TERNSTRÖMIA. The representative of the natural order *Ternströmiaceæ*, and a genus comprising about twenty-five species, inhabiting Tropical Asia and America, where they form evergreen ornamental shrubs or trees. Their leaves are coriaceous entire or serrato-crenate; their flowers are axillary nodding, generally solitary, and either white or more or less pink; the calyx consists of five sepals, highly imbricate; the corolla of five petals; the stamens are numerous; the stigma is sessile or on a short style, and either two to three-lobed or entire. The fruit is indehiscent, and contains largish seeds. Their uses are unknown. [B. S.]

TERPNOPHYLLUM. This name, signifying 'beautiful leaf,' is applied to a tree forming a genus of *Clusiaceæ*. The young leaves are of a beautiful red colour, while

the flowers are yellowish dimorphic, in axillary tufts. The calyx has four overlapping deciduous segments; there are four petals; numerous stamens united into a kind of disk, which adheres also to the petals, and is surmounted by a number of small tubercles, each of which bears three or four anthers. In the female flower there are eighteen scale-like triangular sterile stamens; and a free two-celled ovary, with a single ovule; the stigma almost sessile, peltate. The fruit is fleshy, containing a balsamic juice. [M. T. M.]

TERRA JAPONICA. A trade name for Gambir. — **MÉRITA.** The Turmeric, *Curcuma longa*.

TERRANEUS, TERRESTRIAL. Growing on land.

TERRE CRÉPIE. (Fr.) *Picridium vulgare*. — **NOIX.** *Carum Bulbocastanum*. — **NUE.** A kind of *Agrostis*.

TERRETTE. (Fr.) *Glechoma*.

TERSONIA. A Swan River shrub, with small alternate thick fleshy leaves, and axillary pedicellate flowers, forming a genus of *Phytolaccaceae* closely allied to *Gyrostelemon*, but distinguished by its seeds having no albumen.

TERTIANNAIRE. (Fr.) *Scutellaria galericulata*.

TESSELATED. When colour is arranged in small squares, so as to have some resemblance to a tessellated pavement.

TESSERANDRA. A genus of Brazilian shrubs of the *Oleaceae*, having sessile leaves, and axillary panicles of flowers. The calyx is small cup-shaped, with four blunt teeth; the petals four, linear; the stamens four, of equal length, with dilated filaments; and the ovary oblong, on a fleshy receptacle, two-celled, each compartment having two ovules. The fruit is a purplish-coloured drupe. [M. T. M.]

TESSULARIS. When the three dimensions of a body, thickness breadth and length, are equal.

TESTA. The skin of a seed.

TESTACEUS. Brownish-yellow, like unglazed earthenware.

TESTA DI QUAGLIA. The Italian name for *Martynia proboscidea*.

TESTICULAR, TESTICULATE. Having the figure of two oblong bodies, as the roots of *Orchis mascula*.

TESTUDINARIA. The distinction between this genus and *Dioscorea*, the type of the order of yams (*Dioscoreaceae*), depends more upon the general habit of the plants than upon characters derived from the flowers or fruit; for, with the exception of the seeds being winged at the top only, instead of all round, their technical peculiarities are almost identical. In habit, however, they differ widely. True yams produce large underground thin-skinned tubers; but in the two species of *Testudi-*

naria, the corresponding portion, called the rootstock or rhizome, is wholly above ground, and is coated with a bark-like corky or woody substance, which in time becomes deeply cracked and forms large angular protuberances; this has been compared to the shell of a tortoise; whence its generic name. These rootstocks are usually more or less globular, and frequently of a large size, some of them measuring four feet in diameter. Several slender climbing stems rise from their summit and grow to the length of thirty or forty feet, bearing small entire smooth more or less heart-shaped leaves, in the axils of which the short racemes of little inconspicuous greenish-yellow flowers are produced. Both species are natives of the Cape of Good Hope. The best-known, *T. elephantipes*, is occasionally seen in greenhouses in this country, where it is commonly called the Elephant's-foot, in reference to its unwieldy rootstock. At the Cape it is known as Hottentot's Bread: the fleshy inside of its rootstocks having at one time afforded part of the food of the Hottentots, though now it is only eaten by baboons and other animals. [A. S.]

TETA DE CAPRA. A Chilean name for *Tetilla hydrocotylifolia*.

TÊTE CORNUE. (Fr.) *Bidens tripartita*. — **DE COQ.** *Hydysarum caput puli*. — **DE DRAGON.** *Dracocephalum austriacum*. — **D'OR.** *Ranunculus auricomus*. — **DE MÉDUSE.** *Euphorbia Medusa*. — **DE MOINEAU.** *Centaurea Scabiosa*. — **DE MOÏT** or **DE NOÏE.** *Anthrimum Orontium*. — **DE SERPENT.** *Iris tuberosa*. — **DE SOURIS.** *Sedum scarrangulare*.

TETER. Having a very bad smell.

TETILLA. The natural order *Francoaceae* contains, as at present constituted, only two genera, *Francoa* and *Tetilla*; the latter comprising certain Chilean annuals, with stalked roundish palmately-nerved leaves, from among which rises a naked stalk supporting a raceme of flowers. Each flower is slightly irregular as to its calyx and corolla, which circumstance affords the main distinction between the genus and *Francoa*. The leaves are slightly asstringent, and are used for medicinal purposes in Chili. [M. T. M.]

TETRA. In Greek compounds = four; as *tetraphyllous*, four-leaved; *tetrapterous*, four-winged; *tetrapyrreous*, four-stoned, &c.

TETR (CARPÆA). A Tasmanian shrub which had been referred by Endlicher to *Dilleniaceae* on account of the hypogynous stamens and erect anthers; but the foliage and habit, the seeds, and several other characters, are entirely those of the *Cunoniaceae* or woody *Santifragae*, in other genera of which a gradual passage may be observed from hypogynous stamens, and a free apocarpous pistil, to epigynous stamens and an inferior ovary. [J. M.]

TETRACERA. The plants belonging to this genus of *Dilleniaceae* are mostly climbing shrubs, rarely erect small trees; and

have alternate, entire or toothed, thick evergreen leaves, and terminal or lateral panicles of flowers, which by abortion often become unisexual. They are widely spread over the tropics of Asia, Africa, and America. The flowers have four to six sepals, and as many petals; numerous stamens, with the filaments dilated at the top; and three to five ovaries cohering at the bottom, and each containing numerous ovules in two rows, ultimately ripening into one to five-seeded capsules or follicles, which split open along their inner edge.

Few of the species possess much interest beyond their botanical characters, nor are any of them remarkable for beauty. Like the rest of the order they contain some degree of astringency. *T. almylole* is called the Water-tree at Sierra Leone, on account of its climbing stems yielding a good supply of clear water when cut across; it is also found in Senegambia, Angola, and at Fernando Po. In Brazil a decoction of *T. bryoniana* and *T. oblongata* is applied to swellings of the legs, prevalent in that country; while in Guiana an infusion of the Tigara (*T. Tigara*, called Liane rouge by the French in Cayenne, from the red colour of its infusion) is employed in venereal complaints. [A. S.]

TETRACHENIUM. A fruit formed by the adhesion of four achenes.

TETRACME. A genus of *Cruciferae*, allied to *Bryistum*, but with the pod short, and furnished with four horns at the tip. It is a small annual from the Caspian desert, and is the *Notoceras quadricorne* of Decandolle. [J. T. S.]

TETRACOCOCCUS. Having four cells elastically dehiscing and separating.

TETRADENIA. A genus of *Labiatae*, founded on a small underbrush from Madagascar, with petiolate ovate crenate leaves. The campanulate calyx is five-toothed; the corolla is divided into five nearly equal lobes; the four equal stamens have naked filaments, the cells of the anthers being confluent; and the style is slightly bifid. [W. O.]

TETRADYMOUS. Having four cells or

TETRADYNAMOUS. Having six stamens, of which two are longer than the four others, which stand in pairs on opposite sides of an ovary; as in crucifers.

TETRAGLOCHIN. The name applied to a genus of *Sanguisorbaceae*, comprising a shrub, native of the Andes of Chili. Some of the leafstalks are destitute of blade, but are spiny and provided with sheathing stipules; the true leaves are tufted and linear. Flowers on solitary axillary stalks, dioecious: the males having a four-leaved calyx, no corolla, and two stamens; and the females an ovate calyx-tube, with four broad wings, surmounted by a four-parted limb, and a one-celled ovary, with a single pendulous ovule, and three or four short styles, with fringed

stigmas. The fruit is adherent to the winged calyx-tube. The generic name is derived from the Greek *tetra* 'fourfold' and *glochis* 'an angle.' [M. T. M.]

TETRAGONELLA. A genus belonging to the order *Tetragonaceae*, founded upon a single species, *T. ampliacoma*, the ice-plant of the Tasmanian colonists, so called from its being covered with watery pustules which give it a crystalline appearance. It is a decumbent or erect and climbing plant, common on the seashores of Tasmania and Southern Australia, having lance-shaped or oblong-rhomboid leaves, and small long-stalked yellow flowers. The character by which this genus is sought to be distinguished from *Tetragonia* consists in the ovary being free, not adhering to the calyx; but Dr. Hooker, who combines the two genera, states that he has never found any fruits upon his numerous specimens, and consequently thinks that it has no title to rank even as a distinct species, much less as a separate genus, and that it is in reality the male plant of the common New Zealand Spinach (*Tetragonia exposita*). Its flowers have twelve stamens, two opposite each of the four lobes of the calyx and one between each pair of lobes; while those of *T. exposita* have sixteen, in four bundles between the lobes. [A. S.]

TETRAGONIACEÆ. A small order of dicotyledons united by Fenzl with *Portulacaceae*, but differing from them essentially in their several-celled ovary. They are much more closely connected with *Ficoides* (or *Mesembryaceae*) and are often united with them as a suborder, only differing in the usual absence of petals. They are succulent-leaved herbaceous plants, chiefly maritime, and are found generally within the tropics, in the South Sea Islands, in Southern Africa, and in the Mediterranean region. The principal genera are *Tetragonia*, *Aizoon*, *Trianthema*, and *Sesuvium*.

TETRAGONIA. With the exception of the New Zealand Spinach, which is found in Japan as well as in New Zealand, this

Hope; but it is also found in the temperate regions of South America, and in Australia, Tasmania, and New Zealand. Most of the species are what are called littoral plants, being found growing upon seashores. They are usually of decumbent herbaceous habit, but are occasionally erect and somewhat shrubby. They have alternate stalked fleshy leaves, and flowers on stalks growing from the leaf-axils. The flowers, which are destitute of petals, have a four-lobed calyx, with the tube adherent to the ovary, four to twelve stamens, and from three to eight short styles. The fruits are usually four-cornered, with the corners frequently produced into tubercles or and contain a hard unopening three to stone covered

with a thin green flesh, each cell containing a single seed.

[A. S.]
The New Zealand Spinach, *T. expansa*, is found in Tasmania, Australia, Norfolk Island, and on both sides of South America, as well as in New Zealand and Japan. It is a half-hardy annual under cultivation, and was introduced to this country from New Zealand in 1772 by Sir Joseph Banks, on his return from accompanying Captain Cook in his first voyage round the world. It is of trailing habit, with many branches, which are furnished with numerous ovate or rhomboid alternate thick succulent deep-green leaves. As a substitute for summer spinach, this plant has been grown in private gardens for many years past; and it yields a large produce, which in the hands of a skilful cook may be made an excellent vegetable dish, although inferior to spinach. In dry warm seasons it has been found very useful for culinary purposes when there has been a scarcity of the true spinach. The chief objection to it as a cooked vegetable, is the abundance of mucilage, which gives it a somewhat slimy consistence.

[W. B. B.]

TETRAGONOLOBUS. A genus of leguminous plants allied to *Lotus*, from which they are well distinguished by their quadrangular winged pods. *T. edulis* or *purpurea*, the Winged Pea, a native of Sicily, is an herbaceous annual with diffuse hairy stems, ovate leafy stipules, trifoliate leaves, and axillary one to two-flowered peduncles, each furnished with a bract; the flowers are deep red, and the legume is smooth and broadly winged. The pods were formerly employed by the poor of Sicily and Spain as an esculent vegetable; and the plant is cultivated as a popular border annual on account of its curious pods. Two or three other species are grown, which have yellow flowers. Of these *T. maritimus* and *T. sinuosus* are perennials; *T. conjugatus* is an annual, distinguished by having its pods always in pairs. See *LOTUS*.

[C. A. J.]

TETRAGONOUS. Four-cornered or quadrangular.

TETRAMELES. A genus of the small order *Butaceae*, in which it is remarkable as being a large-growing tree. The branches are flexuose; the leaves acute or acuminate, sometimes lobed; and the flowers small and very numerous, dioecious, appearing before the leaves, spicate—those of the males panicled and erect, and those of the females nearly simple elongated and pendulous. They have a four-cleft calyx and no corolla; the males having also four stamens, and the females a one-celled ovary with numerous ovules, and four styles. This tree is the Jungle-bendy of India, and the Weenong of Java.

[T. M.]

TETRANEMA. A genus of *Scrophulariaceae*, containing a single species from Mexico, a small herb with the habit of a *Gloxinia*, having opposite thick leaves. The calyx is five-cleft; the tubular corolla bilabiate, with the upper lip bifid and the

lower trifid; and there are four fertile stamens, the fifth being altogether absent. The genus is separated from *Pentstemon* by this latter character alone.

[W. C.]

TETRANTHERA. An extensive genus of *Lauraceae*, chiefly found in the tropics and warm parts of the Eastern Hemisphere, one species, however, extending to as far north as Japan, and another as far south as New Zealand, but very few being American. The majority are trees, frequently of large size, having evergreen or rarely deciduous feather-veined leaves, and little heads or umbels consisting of numerous flowers, surrounded by an involucre formed of four to six broad concave overlapping bracts, the two sexes being usually produced by distinct trees.

T. laurifolia is widely dispersed over Tropical Asia and the Islands of the Eastern Archipelago to as far south as New Guinea. Its leaves and young branches abound in a viscid juice, and in Cochinchina the natives bruise and macerate them until this becomes glutinous, when it is used for mixing with plaster to thicken and render it more adhesive and durable. Its fruits yield a solid fat, commonly used in the same country for making candles, notwithstanding its disagreeable odour.

[A. S.]

TETRAPATHEA. A genus of New Zealand climbing plants belonging to the order *Passifloraceae*, and differing little from *Passiflora*, except in the tendency of the flowers to become dioecious, and in the parts of the flower being arranged in fours. The flower-stalks usually bear three flowers.

[M. T. M.]

TETRAPHIS. A genus of acrocarpous mosses belonging to the natural order *Tetraphidiales*, which is distinguished by the peristome having but four teeth. It consists of a single species only, which has somewhat the habit of a *Mnium*, and occurs in shady rocky places, at the decaying roots of trees, and on banks in a peaty soil. The stems grow from a common base as in *Schistostegia*, and some of them bear a little cup-shaped cluster of gems at the top. The veil is mitriform, and is irregularly plicate, resembling somewhat that of *Orthotrichum*. The genus *Tetradontium* (of which one species, *T. Brownianum*, is of rare occurrence in Great Britain) is separated from it on account of habit, the long linear but minute leaves at the base being very peculiar. A form, sometimes separated as a species, however occurs, in which the leaves are broader. *T. repandum* differs in having leaf-shaped branchlets, and the mouth of the capsule notched or wavy at the interstices of the peristome. Mr. Wilson believes that he has found this in a barren state in Cheshire.

[M. J. B.]

TETRAPHYLLOUS. Four-leaved.

TETRAPLASANDRA. Under this name is described a genus of *Araliaceae*, comprising a lofty tree, with pinnate leaves, and umbellate inflorescence, native of the Sandwich Isles. The flowers are polyga-

posed to have been the produce of one of them. Two species are herbaceous perennials, with the lower leaves once twice or thrice pinnated, or sometimes even more highly divided, and the upper ones reduced to the sheathing stalk only. Their flowers are disposed in large compound many-rayed umbels, with few or no involucrel leaves; and they have the rim of their calyx five-toothed, and the points of their elliptic yellow-coloured petals turned in. Their fruits are flattened from the back; each half having five primary and four secondary ribs, the two side ones of the latter being expanded into thin entire wings. About a dozen species have been described, but half of them are now referred to other genera.

The true species of *Thapsia* are all natives of the countries bordering on the Mediterranean. *T. garganica* is a native of Southern Europe from Spain to Greece, and also of Algeria, where it is called *Drias*, and is considered by the natives to be a specific



Thapsia garganica.

against pains of all kinds, every part of the plant being held to be of equal efficacy. To camels, however, it is a deadly poison. Its root is purgative. *T. Silphion*, often regarded as a variety of the foregoing, is found on the mountains in the neighbourhood of the site of the ancient Cyrene, and is supposed to have formerly produced the gum-resin known to the ancients as *Lasar Cyreniacum*, sometimes called *Asadulcis* to distinguish it from *Asa-foetida*, both of these being included by the Greeks under the name *Silphion*, as also were other umbellifers. Representations of it occur on the coins of Cyrene.

[A. S.]

THASPIUM. A genus of North American orthospermous *Umbelliferae*, consisting of perennial herbs, with ternately or bipinnately divided leaves, the radical ones sometimes undivided, and the umbels terminal or opposite the leaves, without an involucre, and with three-leaved and one-sided involucrels. The calyx-limb is minutely toothed; the elliptical petals are prolonged into a long inflexed point; the styles are slender, as long as the ovary, and

somewhat divergent; the elliptical fruit is not contracted at the sides, and the convex carpels have five equidistant winged ribs, while the intervals contain single vittae, and the commissure has two. The genus differs from *Zizia* only in the structure of the fruit. Its popular American name is Meadow Parsnip. [W. C.]

THATCH. *Calyptronoma Swartzii*, and *Copernicia tectorum*. — **PALMETTO.** *Thrinax parviflora*. — **SILVER.** *Thrinax argentea*.

THATCH-TREE. A name applied to palms generally in the West Indies.

THAULAY. See **THALAY.**

THÉ. (Fr.) The name given to various plants of which tea-like infusions are made. — **A. POULON.** *Psoralea glandulosa*. — **BOU.** *Thea Bohea*. — **D'AMÉRIQUE.** *Capraria biflora*. — **D'EUROPE.** *Veronica officinalis*. — **DE LA MARTINIQUE.** *Capraria biflora*. — **DE LA MER DU SUD.** *Leptospermum scoparium*. — **DE LA NOUVELLE HOLLANDE.** *Smilax glycyphylla*. — **DE LA NOUVELLE JERSEY.** *Ceanothus americanus*. — **D'OSWEGO.** *Monarda didyma*. — **DE SANTÉ.** *Capraria biflora*. — **DE SIMON PAULI.** *Myrica Gale*. — **DES ANTILLES.** *Capraria biflora*. — **DES APALACHES.** *Prinos glaber*; also *Viburnum cassinoides*. — **DES JÉSUITES.** *Psoralea americana*; also *Amburina ambrosioides*. — **DU LABRADOR.** *Ledum latifolium*. — **DU MEXIQUE.** *Amburina ambrosioides*. — **DU PARAGUAY.** *Ilex paraguayensis*.

THEACEÆ. Mirbel's name for the *Ternstroemiaceæ*.

THEA. A genus of *Ternstroemiaceæ*. A few modern botanists combine the two well-known genera, *Thea* and *Camellia*, adopting for the genus the name *Camellia*, which is the oldest of the two; but as they have from the time of Linnaeus downwards been regarded by the majority as distinct, we shall here consider them so, more especially too as improved and better-marked characters for their distinction have lately been pointed out. *Thea*, as now defined, is characterised by the calyx consisting of five persistent sepals with bracts at the base, by the inner or free series of stamens agreeing in number with the petals (viz., five seven or eight), and by having only three styles; while *Camellia* has numerous deciduous sepals, double as many free stamens as petals, and normally five styles, though these are sometimes reduced to four or even three. Another distinction consists in the flowers of *Thea* being turned downwards, whilst those of *Camellia* are erect. The fruit of *Thea* is three-celled, usually with only one seed in each cell, and splits at maturity through the cells into three valves, each of which has a partition down its middle. The genus is confined to Upper India, China, and Japan; and, in addition to the well-known Tea-plant cultivated in all these countries, it contains five other

species, none of which, however, are employed in the manufacture of tea. All are evergreens, and either shrubs or small trees, with shining leathery leaves and white or rose-coloured flowers, either solitary or in clusters in the leaf-axils.

The native country of the Tea-plant, like that of many others which have been long cultivated by man, is uncertain. Hitherto the only country in which it has been found in a really wild state is Upper Assam; but China, where it has for so many centuries been most extensively cultivated, has not yet received so thorough an exploration by botanical travellers as to warrant the assertion that it is not indigenous to any



Thea viridis.

part of that vast empire. A Japanese tradition, however, which ascribes its introduction to China to an Indian Buddhist priest who visited that country in the sixth century, favours the supposition of its Indian origin.

It was at one time commonly supposed that the two well-marked sorts of Tea, Black and Green, were the produce of distinct species; but Mr. Fortune has proved that the Chinese manufacture the different kinds indiscriminately from the same plant; and botanists are now pretty generally agreed that the two supposed Chinese species, called *T. Bohea* and *T. viridis*, are nothing more than varieties of one and the same species, for which Linnaeus' name, *T. chinensis*, is adopted, and of which the Assam Tea-plant (sometimes called *T. assamica*) is merely a third variety, or perhaps, indeed, the wild type.

Though the produce of the same variety of the Tea-plant, the Black and Green Teas prepared for exportation are mainly the growth of different districts of China, the Black Tea districts being situated in the provinces of Fokien and Kiangsi, and the Green in Chekiang and Nganwhui; but the two kinds may be produced in either district, the difference being caused solely by the diverse methods of preparation. For the manufacture of Black Tea the freshly-gathered leaves, freed from

extraneous moisture by a short exposure in the open air, are thrown in small quantities at a time into round flat iron pans, and exposed to gentle fire-heat for about five minutes, which renders them soft and pliant, and causes them to give off a large quantity of moisture. After this they are emptied out into bamboo sieves, and whilst still hot repeatedly squeezed and rolled in the hands to give them their twist or curl. They are next shaken out on large screens, and placed in the open air in the shade for two or three days; and finally exposed in iron pans to a slow and steady fire-heat until completely dried, care being taken to keep them in constant motion to prevent burning. The chief difference in the manufacture of genuine Green Tea consists in the leaves being so long exposed to the air after rolling that fermentation does not take place, and in not being subjected to such a high temperature in the final drying; but the greater part, if not the whole, of the Green Tea consumed in Europe and America is coloured artificially by the Chinese to suit foreign trade. The Chinese distinguish a great number of varieties of Tea, some of which sell for as much as 50s. per lb.; but these fine kinds will not bear a sea-voyage, and are used only by the wealthier classes in China and Russia, to which country they are carried overland. In ordinary commerce four kinds of Black and six of Green Tea are recognised, but the difference between them consists chiefly in size, the several kinds being obtained by sifting. The principal Black Teas are—*Bohea*, the coarsest kind, but now seldom if ever imported, *Congou*, which forms the bulk of our tea; *Souchong* and *Pekos*, both finer and dearer kinds, while the Green Teas are *Hyson Skin*, *Twankay*, *Hyson*, *Young Hyson*, *Imperial*, and *Gumpowder*—the latter being the smallest, closest curled, and generally the youngest leaves, and the *Hyson Skin* the largest, least curled, and oldest.

Tea was introduced into Europe by the Dutch East India Company some time in the first half of the seventeenth century, but it does not appear to have made its way into England before A.D. 1660; and although the English East India Company turned their attention to the tea-trade in 1678, when they imported 4,713 lbs., it was still a rarity at the close of the seventeenth century. The official trade accounts commence in 1723, in which year 370,333 lbs. were consumed in the United Kingdom. Half a century later the quantity had risen to 5,648,183 lbs. In the first year of the present century the quantity entered for home consumption was 23,730,150 lbs.; while in 1861 it was no less than 77,940,464 lbs., the revenue derived from this latter quantity amounting to £531,250*l.*, the duty being 1*l.* 3*d.* per pound. In 1863 upwards of 136,000,000 lbs. were imported, of which 85,306,779 lbs. were entered for home consumption. At present the duty is 6*d.* per lb.

Physiologists are not thoroughly agreed as to the effects of tea upon the human

system. Its most active principles are *theine* and a volatile oil, to which latter its flavour and odour are due, and which possesses narcotic and intoxicating properties; but it also contains fifteen per cent. of gluten or nutritious matter, and more than twenty-five per cent. of tannin. The late Professor Johnstone endeavoured to explain its action by stating that the *theine* lessened the waste of the body, and consequently lessened the necessity for and thus stood in the place of food, while the gluten actually nourished the body; but Dr. Edward Smith has recently shown these statements to be fallacious, only a trifling proportion of the gluten being taken up by boiling-water, and the *theine* promoting instead of retarding vital action, thereby increasing the bodily waste. He sums up its action thus:—'It increases the assimilation of food, both of the flesh and heat-forming kinds; and with abundance of food it must promote nutrition, whilst in the absence of sufficient food it increases the waste of the body.' [A. S.]

THEOE. A term sometimes used for the capsules of mosses, or for the asci of fungi and lichens, but now generally exploded as unnecessary. [M. J. B.]

THECAPHORE. The stalk of an ovary.

THEET-SEE, or THITSEE. *Melanorrhæa urukattissima*, which yields the varnish of Maraban.

THEINE. A crystalline principle found in tea and a few other vegetable substances. It is considered identical, or nearly so, with the *caffeine* of coffee, and the *guaranine* of guarana. See **THEA**.

THEKEL. A Chilian name for the purgative diuretic infusion of the leaves of *Charadodia chilensis*.

THELEOPHYTON. A genus of *Chenopodiaceæ*, from the sandy coast of Tasmania. They are smooth herbs covered with watery papillæ, the stems prostrate, bearing monœcious flowers—the females axillary, the males at the extremity of the branches. They differ from *Atriplex* in habit, in the five-lobed calyx of the male flowers, and in the urceolate two-lobed calyx (bracts of some authors) which encloses the fruit. [J. T. S.]

THELEPHORA. A genus of *Fungi*, which was formerly almost of the same extent as the natural order *Auriculariæ*, but is now confined to those species whose hymenium shows slight traces of papillæ or veins, and is confluent with the pileus, which has no cuticle and is of a fibrous texture. The veins and papillæ, it should be observed, are not distinct growths, as in the lower *Aporrhizæ* or *Hydnæ*, but depend entirely upon the structure of the pileus. The more highly developed species have a central stem, with a regular pileus. To these succeed others, in which the pileus is variously divided, still retaining a stem; and then, through a series of lateral-stemmed or stemless species, we arrive at those

which are totally resupinate. Amongst the latter we have one or two which are injurious to fabricated timber, especially *T. puteana*, which is extremely hygroscopic. They may, however, readily be destroyed by a strong solution of corrosive sublimate. The species occur in all parts of the world, and are especially abundant and prominent in the United States; but the finest, amongst which is *T. dendroica* (which without sufficient reason has been erected into a distinct genus, because it exhibits the typical characters of *Thelephora* more perfectly than others), are essentially tropical. We possess, however, some beautiful representatives, amongst which *T. caryophyllæa*, with its funnel-shaped or variously incised pileus, is the most interesting. *T. laciniata* is perhaps the most common, and is abundant everywhere in healthy pinewoods, attaining often a considerable size. Some of the species are unpleasantly distinguished by their disagreeable smell. The best-known is *T. palmata*, but this is far surpassed by *T. fastidiosa*: both are British species. [M. J. B.]

THELESPERMA. A genus of *Compositæ*, comprising a Brazilian perennial, with much-divided leaves and terminal flower-heads, surrounded by a double involucre, whose outer series of scales are shorter than the inner, which are somewhat united together. The receptacle is covered with membranous scales, white at their margins, and bears a number of yellow tubular five-toothed florets. The fruits are somewhat compressed, and surmounted by a two-awned pappus. [M. T. M.]

THELYGONUM. A genus of *Chenopodiaceæ*, which however is referred by some authors to *Urticaceæ*, on account of the presence of stipules. It consists of a smooth somewhat succulent herb, inhabiting the Mediterranean region, with stalked oval leaves, the lower ones opposite, the upper alternate. The flowers are sessile axillary and monœcious; the males two or three together, bractless, with a two-leaved perigone, and twelve to twenty stamens; and the females one to three, with numerous bracts. The capsule is leathery, indehiscent, with a single horse-shoe-shaped seed. *T. cynocrambe* is subarid and slightly purgative, but is sometimes used as a potherb. [J. T. S.]

THELYMITRA. A rather extensive genus of terrestrial orchids, belonging to the *Neottieæ*. The perianth is regular, spreading, and the labellum sessile, spurless. They are herbs, with fasciated or tuberous roots; while the stems have one sheathing leaf, and bear the blue white pink or yellow flowers in loose spikes. This genus may be recognised from all others by having the segments of the perianth and of the labellum nearly equal, and the hood-shaped column enclosing the suberect anther. All the described species, with the exception of one, *T. javanica*, which is found in the mountains of Java, are from Australia and New Zealand. The

name is derived from the Greek words *theos* 'a woman' and *mitra* 'a cap,' in allusion to the hood-shaped column. *Macdonaldia* is generally referred to this genus. [W. B. H.]

THELYPTERIS. *Lastrea*.

THEOBROMA. This genus is named from the Greek words *theos* 'god' and *broma* 'food,' in consequence of the well-known Cacao or Chocolate being the produce of its seeds. It is a group of tropical American *Sterculiaceae*, consisting of eight or ten species of small trees, with large entire leaves, and solitary or clustered flowers growing from the sides of the old branches and stems, and producing large five-celled more or less pentagonal fruits, with a thick tough almost woody rind, each cell containing numerous seeds embedded in pulp. The seeds are destitute of albumen, and have large thick crumpled oily cotyledons. The flowers have a deeply five-parted calyx; five hooded petals terminated by spatula-shaped or roundish appendages; ten stamens united together at the bottom, five being sterile and alternate with the petals, and five fertile and opposite or enclosed in them, each of the latter bearing two double-celled anthers; and a five-cleft style.

T. Cacao was the first-known species of the genus, and the Cacao or Cocoa of commerce is now usually said to be produced by it, though it is probable that several of the other species afford a considerable

these that the Cacao is prepared. When ripe the fruits turn yellow outside; and they are then gathered by hand, and afterwards split open and the seeds removed. These are then made to undergo a slight amount of fermentation or sweating, lasting from one to two days, for the purpose of developing their colour; and are afterwards exposed to the sun daily for about three weeks, or until they are thoroughly dry, when they are packed for exportation.

The cultivation of the Cacao-tree is spread over the greater part of Tropical America; but the bulk of the Cacao-seeds brought to England comes from our West Indian Colonies, principally from Trinidad and Grenada. In 1863 our imports amounted to 9,592,965 lbs., but only 4,106,468 lbs. were for home consumption, the remainder being re-exported. An import duty of one penny per pound is charged upon them. To prepare them for use the seeds are roasted in revolving metal cylinders, then bruised to loosen their skins (which are removed by fanning), and the cotyledons, commonly called 'cocoa-nibs,' afterwards crushed and ground between heated rollers, which softens the oily matter, and reduces them to a uniform pasty consistence. This is then mixed with variable amounts of sugar and starch to form the different kinds of cocoa, or sweetened and flavoured with vanilla or other substances for the formation of chocolate.

As an article of food cocoa is exceedingly valuable, from the large amount of nutritive matter it contains; but as a refreshing beverage it is much inferior to either tea or coffee, owing to the large amount (50 per cent) of fat which it contains, and also to the fact that the whole of the substance is taken into the stomach, while with tea or coffee only an infusion is drunk. It contains a peculiar principle, which is called *theobromine*. The European consumption of Cacao-seeds is estimated at nearly forty millions of pounds, the Spaniards being the largest consumers. [A. S.]

THEOBROMINE. The peculiar principle of cocoa.

THEO-METL. *Agave Theometl*.

THEOPHRASTACEÆ. A small order proposed by Alphonse Decandolle for *Theophrasta* and a few allied small genera, which differ from other *Myrsinaceae* chiefly in the presence of scales in the throat of the corolla, alternating with its lobes. It is more frequently reduced to a tribe of *Myrsinaceae*.

THEOPHRASTA. This genus of *Myrsinaceae* comprises a few noble-looking shrubs, with unbranched stems, bearing at the top tufts of long rigid spiny holly-like leaves, from the axils of some of which the racemes of flowers are produced. The calyx is deeply five-cleft; the corolla somewhat bell-shaped, five-lobed, with five fleshy scales in its throat, alternating with the lobes of the corolla and with the five stamens; the anthers converge into a cone, their connectives being



Theobroma Cacao.

portion. It is a small tree, seldom more than sixteen or eighteen feet high; and has large oblong taper-pointed leaves, and clusters of flowers with a rose-coloured calyx and yellowish petals. Its fruits vary from six to ten inches in length and three to five in breadth, and are oblong, blunt, and marked with ten elevated ribs running lengthways. Each fruit contains between fifty and a hundred seeds, and it is from

also prolonged in the form of a sharp point; the ovary is one-celled, with a central placenta; and the fruit is succulent. It is said that a kind of bread is made from the seeds of *T. Jussei* in San Domingo, where the plant is known as *Le petit Coco*. From their handsome foliage this and other species are very ornamental in hot-houses in this country. [M. T. M.]

THEOPYXIS. The name of a perennial herb, with leafy stem and umbellate flowers, belonging to the *Primulaceae*. The calyx is five to six-parted, its segments glandular; the corolla is not described; the style is undivided; the capsule five to six-valved; and the seeds furnished with three wings. The single species of this genus is a native of Chili. [M. T. M.]

THERESA. A genus of *Labiatae* containing a single species from Chili, a plant nearly related to *Scutellaria*, differing chiefly in having the limb of the corolla almost entire. [W. C.]

THERESIA. A genus of *Liliaceae* proposed by Koch to receive the *Fritillaria persica*, which has the scaly bulb and much of the habit of the true lilies. It differs from both *Fritillaria* and *Lilium* in the hypogynous insertion of the stamens, and the inconspicuous stigma. *T. persica* is a tallish glaucous plant, with the leaves obliquely twisted (somewhat as in those of *Aletrismeria*), and a terminal raceme of drooping green and purplish flowers. It is a native of Mount Ararat, and a second species, which has the fetid odour of the crown-imperial, has been lately added from the district between Beyrout and Damascus. [J. T. S.]

THERMOPSIS. A genus of papilionaceous *Leguminosae*, comprising a number of North Asiatic and American herbs, with palmate downy leaves, and yellow flowers in terminal clusters. The calyx is irregularly five-cleft; the standard is roundish, notched, reflected at the sides, as large as the wings; the stamens are ten in number, and distinct; the ovary many-ovuled; the stigma terminal. The fruit is a linear or curved compressed legume. *T. fabacea* from North America, *T. lanceolata* from Siberia, and other species are cultivated in gardens in this country. [M. T. M.]

THESIUM. A genus of unpretending herbaceous plants belonging to the *Sentelaceae*, among which they are distinguished by the following characters:—Perianth four to five-cleft, persistent; stamens with a small tuft of hair at the base; stigma simple; fruit crowned by the perianth. The genus is represented in Britain by *T. theophrasti*, the Bastard Toadflax, a humble spreading plant, with very narrow alternate leaves, and simple or branched leafy racemes of minute white flowers, which are stalked, and furnished each with three bracts. It is a plant of uncommon occurrence, growing in high chalky pastures. None of the foreign species possess attractive properties. [C. A. J.]

THESPESIA. A small genus of entire-leaved tropical trees belonging to the *Melastomaceae*, characterised by its flowers having an entire-rimmed calyx, surrounded by an outer calyx or involucre of three leaves, which soon falls off; by its simple style, furrowed towards the thickened top and bearing five distinct stigmas; and by its hard, almost woody, and generally unopening five-celled fruits, the cells of which contain several large obovoid seeds.

T. populnea, the best-known species, is an extremely common tree on the sea-shores of most eastern tropical countries, and also in Western Africa, the West Indies, South America, and the Pacific Islands. It forms a tree forty or fifty feet high, and has a dense head of foliage, on account of which it is called the Umbrellatree in some countries, and is planted in many tropical districts for the sake of its shade, and for forming avenues. Its leaves are large roundish heart-shaped and pointed; and its flowers, which like those of many mallow-woods are large and showy, are at first yellow with a purple central spot, but change altogether to purple before they die off in the evening. Several parts of the tree are applied to useful purposes. The inner bark of the young branches yields a tough fibre, fit for cordage, and used in Demerara for making coffee-bags, and the finer pieces of it for cigar envelopes. The wood is considered almost indestructible under water, and is therefore used for boatbuilding; besides which its hardness and durability render it valuable for cabinetmaking and building purposes, while in Ceylon it is employed for gunstocks. The flower-buds and unripe fruits yield a viscid yellow juice, useful as a dye, and a thick deep red-coloured oil is expressed from the seeds. [A. S.]

THESPIA. A genus of *Asteraceae* or *Compositae*, comprising certain Indian herbs, with toothed leaves, and axillary or terminal flower-stalks, bearing small flower-heads, surrounded by involucre of numerous oblong scales. The receptacle is flat, and bears a number of tubular florets, the outer of which are female, the central male. The fruits are surmounted by a short pappus of seven or eight whitish or reddish hairs. [M. T. M.]

THEVETIA. An American genus of *Apocynaceae*, formerly combined with the Asiatic genus *Cerbera*, from which its single two-celled ovary and winged seeds distinguish it. The half dozen species belonging to it are shrubs or small trees, inhabiting the West Indian Islands and Tropical America from Mexico to Brazil and Peru. Their leaves are alternate, and their flower-cymes terminal or lateral. The flowers have a five-parted calyx, with numerous glands at the base inside; a salver-shaped corolla, with the tube enlarging upwards, and closed in above them by five scales, and a two-celled ovary surrounded by a ring-like fleshy notched disk. The fruits are slightly fleshy, and contain a hard stone, divided into two cells, each

cell containing two slightly winged seeds. *T. nerifolia* has large saffron-coloured flowers three inches in length, and is commonly cultivated in Tropical America as an ornamental garden shrub, or for making hedges. Its bark is reputed to possess powerful febrifugal properties, while its milky juice is a dangerous poison, and its fruits are likewise regarded as noxious, though, according to Dr. Seemann, a gentleman in Panama ate four of them when a boy, without injury. [A. S.]

THEYA. An Indian name for *Shorea robusta*.

THIBAUDIA. A beautiful genus of vacciniaceous shrubs, chiefly found in Peru and New Grenada, though the species of one group, forming the genus *Agapeles* of some authors, are met with in India, Java, and Madagascar. They have leathery evergreen leaves, and axillary racemes (sometimes collected in great fascicles at the ends of the shoots) of very handsome tubular flowers, the colour of which is frequently scarlet, sometimes tipped with green or yellow. The calyx-tube is connate with the ovary, its limb four-toothed; the corolla is conically tubulose, with a five-toothed limb; the stamens are ten in number, the anthers two-horned at the apex; and the ovary is five-celled, with numerous ovules in each cell. The globose berry is crowned by the limb of the calyx. Some of the species are to be met with in the hot-houses of this country. [T. M.]

THINOGETON. A genus of *Atropaceae* (*Solanaceae*) comprising an herbaceous plant, native of the seashores of Columbia. The calyx is five-toothed; the corolla funnel or bell-shaped; the stamens five, of unequal length, the anthers opening longitudinally; and the ovary two-celled, surmounted by a style, which is dilated at the top. The fruit is berry-like, and enclosed in the enlarged calyx. The generic name is derived from the Greek words *thin* 'the seashore' and *geton* 'near to,' in reference to the habitat of the plant. [M. T. M.]

THISANTHA. [A few small South African Crassulaceous herbs, formerly referred to *Crasula*, but now more generally placed in *Tillaea*, which differs from *Crasula* more in habit than in any definite characters. They are small, annual succulent plants], with forked stems, opposite leaves, and small flowers—the lower ones solitary in the forks of the stems, and the upper clustered. They have a five-cut calyx, a five-parted corolla, five stamens alternate with and shorter than the corolla segments, and five free ovaries (without scales) ripening into as many follicles, each containing not more than two seeds. [A. S.]

THISMIA. A small leafless erect herb from the Tennasserim coast, the place of the leaves occupied by small scales; the flowers few, in a terminal raceme, rather large for the plant, of a yellow colour variegated with red. It forms a genus of *Burmanniaceae*, distinguished by its regu-

lar campanulate perianth, with six lobes, of which five are produced into long tails; by its six stamens; and by its one-celled ovary, with three parietal placentae.

THISTLE. *Carduus*. — **BLESSED.** *Cnicus benedictus*. — **CARLINE.** *Carlina*. — **COTTON.** *Onopordion Acanthium*. — **CREEPING.** *Cirsium arvense*. — **DISTAFF.** *Carthamus lanatus*. — **FISH-BONE.** *Chamaepeuce Casabona*. — **FULLER'S.** *Dipsacus Fullonum*. — **GLOBE.** *Echinops*. — **GOLDEN.** *Scotolymus*; also *Protea Scolymus*. — **HOLY.** *Carduus (Silybum) marianus*. — **HORSE.** *Cirsium*. — **JERSEY.** *Centaurea Isnardi*. — **MELON.** *Melocactus*. — **MEXICAN.** *Erythrolena conspicua*. — **MILK.** *Silybum (or Carduus) marianum*. — **MUSK.** *Carduus ndans*. — **OUR LADY'S.** *Silybum marianum*. — **PLUME.** *Cirsium*; also applied to *Carduus lanceolatus*, and some other species having a feathery pappus. — **SAFFRON.** *Carthamus tinctorius*. — **ST. BARNABY'S.** *Centaurea solstitialis*. — **SCOTTISH.** *Onopordion Acanthium*, one of the plants considered to be the emblem of Scotland. — **SOW.** *Sonchus*. — **SPEAR.** *Carduus lanceolatus*, generally regarded as the national emblem of Scotland. — **STAR.** *Centaurea Calcitrapa*. — **SYRIAN.** *Notobasis syriaca*. — **TORCH.** *Cereus*. — **YELLOW.** *Argemone mexicana*.

THITSEE. *Melanorrhæa ustulissima*, the Varnish-tree of Burmah.

THLADIANTHA dubia is the representative of a genus of *Cucurbitaceae* from China and India, forming a tall scrambling pale-green pubescent branched climber, with simple tendrils, broadly ovate-cordate irregularly toothed leaves, and bright-yellow axillary flowers, which are dioecious. The males are dimorphous, with a campanulate calyx-tube, and large complicate sepals—the larger flowers with the petals nearly free erect, forming a campanulate corolla longer than the sepals, and the smaller ones having the petals shorter than the sepals; the anthers are five, one-celled. The females have the calyx and corolla of the males, with their short style terminated by reniform capitate stigmas. The fruit is oblong, very succulent, with about twelve longitudinal ribs connected by network, between which the surface is hollowed. The fruit is eaten by the natives of the Himalayas. [T. M.]

THLASPI. A genus of unpretending herbaceous plants giving name to the tribe *Thlaspidæ* of cruciferous plants. The characters are:—Pouch laterally compressed, notched, valves winged at the back; cells two to eight-seeded. *T. arvense*, the Field Penny Cross or Mithridate Mustard, occurs as a weed in cornfields, in some places in great abundance. It grows to the height of from ten to twelve inches, with bright-green oblong leaves, which are toothed, and at the base arrow-shaped; the stems are slender, and bear numerous minute white flowers, which are succeeded by very large orbicular pouches, rendering

the plant conspicuous, when it often perhaps but for them would remain unnoticed among other weeds. *T. perfoliatum*, a rare species occasionally found in chalky pastures, is best distinguished by its pouches, which are inversely heart-shaped. French: *Bourse de Pasteur*; German: *Hirtentäschke*. [O. A. J.]

THELASPI BLANO VIVACE. (Fr.) *Iberis sempervirens*. — **DE LA PETITE ESPÈCE.** *Iberis amara*. — **DES JARDINIERS.** *Iberis umbellata*. — **JAUNE.** *Alyssum saxatile*. — **VIVACE.** *Iberis sempervirens*.

THLIPSOCARPUS. A genus of *Compositae*, whose species have a similar habit and form of leaf to those of *Taraxacum*. The involucre consists of two rows of organs—the inner of numerous erect scales, the outer of eight or nine spreading bracts; the corollas are all strap-shaped, yellow above, purplish below; the outer fruits are compressed, rough, marked on one side by two or three ridges, the inner more slender, cylindrical, tapering towards the top; the pappus is uniform, and consists of two rows—the inner row of five long scales, prolonged at the apex into a rough hair; the outer row of numerous rough hairs, shorter than the inner series. The plant is a native of Gibraltar and the adjacent parts of Spain. The generic name refers apparently to the roughness of the fruit: it is derived from *thlipsis* 'to rub against.' [M. T. M.]

THOMASIA. The name of a genus of shrubs, natives of the south-western districts of Australia, and belonging to the *Myrtaceae*. The leaves are covered with star-shaped hairs, and provided with permanent stipules; the flowers are borne in clusters, opposite the leaves, and have each a tripartite bract at the base of the petaloid bell-shaped five-parted calyx; a corolla with five small scale-like petals, or none; ten stamens, five of them sterile, the filaments awl-shaped, distinct or united; a three-celled ovary; and a capsular fruit, with few seeds, provided with a little strophiole or crest. Five or six of the species are valued in this country as elegant greenhouse plants. The flowers are white or purple, and the plants have very much the general appearance of some species of *Solanum*. [M. T. M.]

THOMASSINIA. A small genus established to include several perennial umbelliferous herbs, which differ from *Angelica* in the want of general or partial involucre; in the free calyx, with five ovate acuminate teeth; in the roundish fruit, with five equidistant ribs; and in the acutely carinated commissure of the carpels. The three species are natives of the Mediterranean region. [W. C.]

THOMPSONIA. A shrub, native of Madagascar, has been considered to form a separate genus of *Passifloraceae*, under the above name. It has unequally pinnate leaves, axillary tendrils, and flower-stalks

bearing five flowers. These latter have four sepals, four smaller petals, a corona of fine threads arranged in one row, and eight stamens. By these characters it may be distinguished. [M. T. M.]

THONNINGIA. A genus of *Balanophoraceae*, comprising a fleshy parasitical leafless plant growing on the roots of trees in Western Tropical Africa. The rootstock is brown, and sends up flower-stalks clothed with red scales; the stamens are united together into a solid column, which is furnished with a few scales towards its base. [M. T. M.]

THORA. *Ranunculus Thora*.

THORN. A common name for various thorn-bearing trees, especially applied in this country to the *Cratægus Oxyacantha*. — **BLACK.** *Prunus spinosa*. — **BUCK.** *Rhamnus*. — **BUFFALO.** *Acacia latrosum*. — **CAMEL'S.** *Alhagi Camelorum*. — **CHRISTS.** *Paliurus aculeatus*. — **EGYPTIAN.** *Acacia vera*. — **ELEPHANT.** *Acacia tomentosa*. — **EVERGREEN.** *Cratægus Pyracantha*. — **GLASTONBURY.** *Cratægus Oxyacantha præcox*. — **GOATS.** *Astragalus Tragacantha*. — **HAW.** *Cratægus Oxyacantha*. — **JERUSALEM.** *Parkinsonia aculeata*. — **LILY.** *Catesbea spinosa*. — **MOUSE.** *Centaurea myacantha*. — **ORANGE.** *Citriobatus*. — **SALLOW.** *Hippophaë rhamnoides*. — **THIRSTY.** *Acacia Seyal*. — **WASHINGTON.** *Cratægus cordata*. — **WHITE.** *Cratægus Oxyacantha*; also *Cratægus punctata*, the hardwood of which is used in Canada for engraving. — of West Indies. *Macromerium jamaicense*. — **WILLOW.** *Hippophaë rhamnoides*.

THORN-APPLE. *Datura Stramonium*.

THORN-BROOM. *Ulex europæus*.

THOROUGH-WAX, or THOROW-WAX. *Bupleurum rotundifolium*.

THOROUGHWORT. *Eupatorium perfoliatum*.

THOTTEA. A tropical Asiatic shrub, constituting a genus of *Aristolochiaceae*. The stem is wavy, jointed, swollen at the joints; the leaves entire; the flowers very large, in clusters opposite the leaves; the perianth has a four-sided tube, which expands above into a bell-shaped coloured and three-cleft limb, downy within, and somewhat prickly without; the stamens are from thirty to forty in number, adherent to a disk surmounting the ovary, and confluent with the style; stigma depressed, radiate; fruit rod-like, quadrangular, two-celled. [M. T. M.]

THOUINIA. Under this name was formerly included several genera belonging to different natural orders, but it is now exclusively applied to a genus of *Sapindaceae*, consisting of trees or shrubs, frequently of climbing habit, and natives exclusively of Tropical America. The leaves are sometimes simple, but usually pinnate; and the flowers grow in axillary racemes, occa-

asionally replaced by tendrils. The sepals and petals are four or five in number; stamens eight, inserted within a thick disk; ovary three-lobed, with a single ovule in each of its three compartments; fruit a three-winged samara. *T. pinnata* is cultivated as a stove-plant in this country. The genus is named in honour of M. Thoulin, Professor of Agriculture at Paris. [M. T. M.]

THREE-CLEFT, THREE-PARTED. Split into three parts or divisions, deeper than when three-lobed.

THREE-EDGED. Having three acute angles with concave faces, as the stems of many plants.

THREE-LOBED. Divided into three lobes or segments.

THREE-VALVED. Applied to capsules which open by three valves or divisions.

THREKELDIA. An Australian genus of *Chenopodiaceae*, comprising a smooth branched undershrub, with alternate semiterete leaves, and solitary sessile axillary flowers, which have an urceolate perigone with three membranous scales within the margin; three stamens, opposite the scales; and an urticel enclosed in the enlarged fleshy perigone, with a single vertical seed. [J. T. S.]

THRIFT. *Armeria vulgaris*. —, PRICKLY. *Acantholimon*.

THRINAX. A small and principally West Indian genus of Fan Palms (*Palmae*), distinguished from its congeners by its flowers having a deeply six-cut calyx; no corolla; six nine or twelve stamens joined together at the bottom; and a simple ovary containing a single erect ovule, and terminated by a hollow one-sided funnel-shaped stigma. Six or eight species are known, all comparatively low-growing palms, seldom exceeding twenty feet in height, and frequently not more than ten; having their trunks clothed with the persistent bases of old leaves or marked with circular scars, and bearing a crown of much-cut fan-shaped leaves. Their flower-spikes grow from the axils of the leaves, and have their stalks sheathed with numerous spathes; the flowers being of a greenish or greenish-yellow colour, and producing little round one-seeded fruits.

In Jamaica these palms are commonly known by the name of Thatch-palms, from their leaves being used for thatching, for which some of them are admirably adapted. One of them, *T. argentea*, the Silver Thatch-palm, is usually said to yield the young unexpanded palm-leaves imported from the West Indies under the name of Palmetto Thatch, and extensively employed for making palm-chip hats, baskets, and other fancy articles; but it is more than probable that the leaves are gathered from several species, while in the United States those of the allied genus *Sabal* are substituted. The tough leafstalks are also split into strips and woven into serviceable

baskets, and the undeveloped leaves or cabbage forms an excellent vegetable. *T. argentea* is likewise a native of Panama, where it is called Palma de escoba, or Broom-palm, its leaves being there made into brooms. [A. S.]

THRINICIA. A genus of stemless herbaceous plants, with rough leaves, and solitary yellow flowers, belonging to the tribe *Cichoraceae* of compound flowers. The characters are:—Involucre unequally imbricated; pappus of the outer florets short and scaly, of the inner plumose; receptacle naked. *T. hirta*, the only British species, is a common plant on gravelly pastures and commons, sending out from the crown of the root a few horizontal or ascending lanceolate often runcinate leaves, and slender scapes bearing each a solitary yellow flower. The fruit of the inner florets is beautifully striated and marked with raised dots. The foreign species possess no attractive properties which render them worthy of cultivation. [C. A. J.]

THROAT. The orifice of a monopetalous flower.

THROATWORT. *Trachelium*; also *Campanula Cervicaria* and *Digitalis purpurea*. —, GREAT. *Campanula Trachelium*.

THRUMWORT. *Actinocarpus*; also *Amaranthus caudatus*.

THRYALLIS. A genus of *Malygiaceae*, consisting of Brazilian climbing shrubs, whose young branches and inflorescence are covered with star-shaped hairs. The calyx is five-parted, without glands; the corolla yellow, of five stalked petals; stamens ten, all fertile, the filaments united at the base; ovary three-celled; styles three; fruit surrounded by the enlarged calyx, and consisting of three indehiscent carpels. One or two species are in cultivation as stove-climbing plants. [M. T. M.]

THRYPTOMENE. A genus of shrubs of the *Myrtaceae Chamalaucioea* confined to Australia, and comprising about seventeen species. They are divided into sections according to the number and the presence or absence of prominent ribs on the calyx; and according to the number of stamens, which are usually ten, but sometimes five. They are heath-like glabrous shrubs, with small entire opposite leaves, and small, nearly sessile or pedicellate, axillary flowers, solitary, or rarely two or three in the same axil. [J. Br.]

THUIA. (Fr.) *Thuja orientalis*. — **THËRIACAL.** *Thuja occidentalis*.

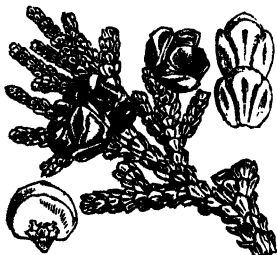
THUJA. The derivation of this name is said to be from *thyon* 'sacrifice,' the resin of some of these plants having been used instead of incense. The genus is included in the cupressineous division of *Coniferae*, and consists of evergreen trees natives of North America. One species is very common in English gardens under the name of Arbor Vitæ, the origin of which designation is uncertain. The branches are very numerous, the smaller ones arranged in two rows, and covered with small closely-

pressed losenge-shaped leaves arranged in four ranks. Students are apt to mistake the small branches and consider them as leaves, by overlooking the minute closely-pressed true leaves. The male flowers are borne in small ovoid lateral catkins; the stamens themselves are in four rows, the anther-scales having on their under-surface four pollen-sacs bursting lengthwise. The female cones, borne on the same plant as the male ones, are solitary and terminal; each consists of eight to twelve opposite woody scales, mucronate at the apex—the outer ones with two winged seeds, the inner ones sterile.

T. occidentalis is the American Arbor Vitæ, a hardy evergreen shrub, which thrives well in almost any situation. The plant is everywhere pervaded by a powerful aromatic odour, and the leaves have been used as a remedy for rheumatism, on account of their sudorific properties. In America the wood of the tree, which there attains a much greater height than with us, is used for posts and other similar purposes. *T. orientalis*, the Chinese Arbor Vitæ, is sometimes put into a distinct genus on account of its roundish cones, more numerous scales, and wingless seeds [see BOTA]. It is a native of Japan and China, and has long been cultivated in this country. It is of a closer habit, has its branches directed more vertically upwards, and its leaves are smaller and more densely packed than in the American species. This plant has a pungent aromatic odour; the young branches are said to be used for a yellow dye, and the wood is made use of where something is required to withstand humidity. [M. T. M.]

THUJÆCARPUS. *Juniperus*.

THUJOPSIS. A genus of cupressineous *Coniferae*, consisting of Japanese trees, with whorled pendent branches, the smaller twigs being very numerous and two-ranked. The leaves are opposite, overlapping, or sickle-shaped and sharply pointed. The



Thujaops dolabrata.

flowers are monocious. the males in solitary cylindrical catkins, with anther-scales having three to five pollen-sacs on their

under-surface; and the females succeeded by terminal cones, which are somewhat globular when ripe, the scales woody imbricated and five-seeded, the seeds being winged. *T. dolabrata*, a recently introduced shrub from Japan, is a noble-looking plant, and promises to bear our climate. *T. leucotrens* has foliage resembling that of a *Selaginella*. *T. pygmaea* and *T. prostrata* are remarkable for their peculiar dwarf depressed habit of growth. [M. T. M.]

THUNBERGIA. A considerable genus of *Acanthaceae*, containing a number of climbing herbaceous plants from Africa and Tropical Asia, with large coloured flowers. The calyx is very short, truncate or toothed, and concealed between two large bractlets, the five corolla-lobes are nearly equal and spreading; the four stamens have parallel-celled ciliate anthers; the stigma is shortly bilobed; the capsule is globose and seed-bearing at the base, and terminates in a flattened beak, two-celled with one or generally two seeds in each cell. The seeds are globular, hollowed out on the inner face, and inserted on a cupular expansion of the placenta. The members of this genus are extensively cultivated on account of the beauty of their flowers. [W. C.]

THUNDER-DIRT. The name in New Zealand for the gelatinous volva of *Leodictyon*, which is or was formerly eaten by the natives. [M. J. B.]

THUNDER-PLANT. *Sempervivum tectorum*.

THUNDER-STROKE. See BRONTESIS

THUNIA. A genus of orchids, consisting of one species from Tropical Asia formerly referred to *Phajus*. It is an herbaceous plant, with distant oblong strongly-veined leaves, whose sheathing bases clothe the stem; the flowers are six or eight together, in a pendulous raceme furnished with large deciduous bracts; sepals and petals nearly equal, white; lip shorter, the sides involute, the extremity spreading fringed, white with lines of purple hairs. [W. B. H.]

THURBERIA. A genus of *Malvaceae*, comprising a tall handsome smooth herbaceous plant, native of Texas. The leaves are tripartite; and the flowers white or red, with scattered black dots. The outer calyx has three persistent leaves; the inner or true calyx is cup-shaped; the stamens are united into a column, surrounding or enclosing the undivided style; the ovary is three-celled, each compartment being partially subdivided into two, and containing six to eight ovules; the stigma is club-shaped; the fruit capsular three-celled three-valved, the valves with hairy margins. [M. T. M.]

THUS. Frankincense, a resinous exudation from *Abies crecata*.

TYLACHIUM. [A *Capparidaceae* genus of five shrubs or small trees, four being confined to Madagascar, and the fifth to East tropical

Africa.] The calyx is in shape like a pod, and opens transversely by a lid [the corolla is absent; stamens numerous; ovary one-celled, stalked; stigma sessile; fruit one-celled, with numerous seeds. The name of the genus is derived from the Greek *thulaz* 'a pod,' in allusion to the peculiar calyx. [M. T. M.]

THYM. (Fr.) *Thymus*. — **DE CRÈTE**, *Thymus capitatus*.

THYMBRA. A genus of *Labiata*, containing a single species, a native of the eastern regions of the Mediterranean. It is a low rigid shrubby plant, with narrow linear-ciliate leaves, and many-flowered whorls, more or less approximated at the ends of the axillary branches. The oblong calyx is two-lipped, and the throat is villose; the upper lip of the corolla is erect and emarginate, and the lower is spreading and trifid, the four stamens have glabrous filaments; the style is bifid, with subulate lobes, and a minute terminal stigma. [W. C.]

THYME. *Thymus*. — **BASIL.** *Calamintha Acinos*. — **CAT.** *Teucrium Marum*. — **COMMON.** *Thymus vulgaris*. — **HORSE.** *Calamintha*; also *Clinopodium*. — **LEMON.** *Thymus citriodorus*. — **WATER.** *Anacharis Alatinastrum*. — **WILD.** *Thymus Serpyllum*.

THYMBLACEÆ. An order of apetalous dicotyledons, consisting chiefly of shrubs or small trees, or rarely undershrubs or herbs, remarkable for the great tenacity of their inner bark. The leaves are entire, without stipules; the flowers usually sessile, in heads or spikes, or solitary, often sweet-scented. The order is chiefly characterized by a tubular perianth, with four or five lobes, and bearing either as many or twice as many stamens in its tube, and often small scales at the mouth; and by a simple ovary within the perianth-tube, with a short simple style, and a single pendulous ovule. There are about forty genera, a few of them dispersed over the temperate regions of the Northern Hemisphere, rather more common within the tropics, but most abundant in South Africa and Australia. The most important are *Daphne* in the Northern Hemisphere, *Gnidium* and *Struthiola* in South Africa, and *Pimelea* in Australia.

THYMÉE DES ALPES. (Fr.) *Daphne Cneorum*.

THYMOPSIS. This name has been given to a much-branched shrub, native of Asia Minor, and often united with *Hypericum*. The flowering branches are erect, tufted; the leaves are linear revolute, dotted; and the flowers have a bell-shaped five-cleft persistent calyx, whose segments are unequal; five petals; withering stamens, united into three parcels; and an ovoid ovary with three furrows, three compartments, and three filiform styles. The fruit is capsular, three-valved. [M. T. M.]

THYMUS. The *Thymus* genus, of which the well-known Wild Thyme of our banks

and dry pastures is a familiar example, belongs to the *Labiata*; and is widely dispersed over Europe, Northern Africa, and Central Asia, but is most abundant in the Mediterranean region. Between forty and fifty species of it are described, all low much-branched spreading or decumbent shrubby herbs, frequently covered with hoary hairs, and having small entire leaves, often with their edges turned in, and dense terminal leafy heads or loose spikes of purple or rarely white flowers.

The Wild Thyme, *T. Serpyllum*, is common throughout Temperate Europe and Asia, and Northern Africa. It has procumbent stems, with numerous short ascending branches, ending in short loose leafy whorled flower-spikes; the leaves being egg-shaped and narrow, and more or less fringed towards the bottom, those of the flower-spikes being similar but smaller. There are two forms—*T. ex-Serpyllum*, with flowering branches ascending from shoots, which are barren at the tip, whorls in one head, and the upper lip of the corolla oblong; and *T. Chamaedry*, in which all the branches ascend from the crown of the rosette, with whorls in many axillary heads, and a short and broad upper lip to the corolla.

The Common or Garden Thyme, *T. vulgaris*, grows more erect than the Wild Thyme, is clothed with hoary down, and has the edges of its leaves turned in; its flower-whorls are in loose terminal heads, or some of the lower ones are remote from the others; the leaves of the whorls are blunt, while the ordinary ones are sharp-pointed. In the South of France an essential oil distilled from it is imported into this country and sold as marjoram-oil, for which it is substituted. [A. B.]

The Common Thyme, a native of Spain and Italy, is recorded as having been introduced into this country about A.D. 1548, or perhaps earlier. Its uses are well known. The leaves, both in a green or dried state, are employed for seasoning soups, stews, sauces, and stuffings, to which they give an agreeable and highly aromatic flavour. Before the introduction of the Eastern species this plant was in great repute. According to Evelyn, it was extensively cultivated in the neighbourhood of Sandwich and Deal for medicinal purposes. It yields a species of camphor by distillation with water, and in Spain they infuse it in the pickle with which they preserve their olives. The Romans were well acquainted with Thyme, which was one of the plants recommended to be grown for the sake of bees.

The Lemon-scented Thyme is a hardy very dwarf trailing evergreen, possessing the most agreeable perfume of any of its genus, and which has been long cultivated in this country. It is a variety of *T. Serpyllum*, known as *T. citriodorus*, and is very distinct in appearance from the wild form. The branches root at the joints as they trail on the ground. It is used for the same purposes as the other species, and is found to attain the greatest perfection when grown in a dry light sandy soil. [W. K. K.]

THYRSACANTHUS. A genus of *Scam-*

thrace, containing a number of species of shrubs or herbs, natives of Tropical America. They have large leaves, and red fascicled or cymose flowers in a long terminal raceme. The calyx is divided to the middle into five equal short lobes, the corolla is tubular and incurved, with a five-lobed or two-lipped spreading limb; and the two fertile stamens are usually included, and have parallel anther-cells blunt at the base. The upper portion of the capsule is without seeds, while the lower portion, being swollen, gives it a spatulate form; it contains only four (sometimes two) seeds. [W. C.]

THYRSANTHUS. A genus established for the reception of *Lysimachia thyrsiflora*, which differs from the other members of the genus by the corolla being divided to its base into narrow segments, each separated from the other by a minute tooth, and by the absence of the alternating sterile filaments. This name has also been applied to a genus of *Primulaceae* now called *Naumbergia*. [W. C.]

THYRSE (adj. **THYRSIFORM**). A panicle whose principal diameter is in the middle, between the base and apex.

THYRSEFLOWER. *Thysacanthus*.

THYRSODIUM. A genus of *Amyridaceae*, consisting of trees, natives of Brazil, Guiana, etc. The flowers are dioecious or polygamous. The male flowers have a bell-shaped calyx, with five sharply-pointed segments, five petals inserted into the tube of the calyx, and a rudimentary ovary with a two-lobed stigma. The female flowers and fruit are not known. [M. T. M.]

THYRSOID. *Thyrse*-like.

THYRSOPTERIS. A very handsome Juan Fernandez plant, belonging to the tribe *Cyatheines* of *Polypodiaceae*. It is a curious large-growing fern of herbaceous habit, with large supradecomposed fronds, elevated on stipes four to five feet long, and as thick as a walking-stick; the leafy portion being four to five feet long, and the lowest pinnae about two feet. They are remarkable for producing, on the same frond, distinct contracted fertile and leafy barren portions, the fertile parts being entirely reduced to rachiform segments, each terminating in a large globose spongy receptacle, surrounded by a globose involucre, and so placed that they form *thyrse*-form panicles. The velus are free. Among cyathaceous ferns it is at once known by the distinct character of the sterile and fertile portions of the frond. [T. M.]

THYRSULA. The little cyme which is borne by the greater part of labiates in the axils of their leaves.

THYSANELLA. A genus of *Polygonaceae* founded on *Polygonum fimbriatum*, a native of Georgia. It is a smooth branched herb, with erect rod-like stems, and narrowly linear elongate acute sessile leaves; the ocreæ truncate, with long hairs. The flowers are polygamo-dioecious, in spikes

arranged in a panicle, with densely imbricated ochreate bracts, which are obliquely truncate with an awn-like point. The perianth is five-leaved, with scarious and fringed margins, the two outer leaves between heart-shaped and arrow-shaped, enlarged after flowering; stamens eight; styles three, with simple stigmas. [J. T. S.]

THYSANOCARPUS. A genus of *Cruciferae* allied to *Tauscheria*, but the pouch is not concavo-convex, the margin is much more broadly winged, and in most of the species the extremity is not prolonged into a beak. The obovate or orbicular pouch, and the white or violet flowers distinguish it from *Isatis*. They are natives of North-western America, and consist of small annuals, with the pouch winged, plano-convex, or wingless and lenticular. [J. T. S.]

THYSANOSPERMUM. A genus of *Rubiaceae*, comprising a climbing shrub with opposite leaves. The calyx and corolla are both five-parted, the latter white with a slender tube, its lobes overlapping one another in the bud; fruit capsular; seeds numerous, winged. The species is a native of Hong-Kong. The generic name is derived from the Greek *thusanot* 'fringe,' in allusion to the winged seeds. [M. T. M.]

THYSANOTUS. A genus of Australian *Liliaceae*, with narrowly linear leaves, and terminal umbels of purple flowers, green on the exterior. The perianth consists of six divisions, of which the inner three are broader, and fringed at the margin; stamens six (rarely three), with glabrous filaments; ovary three-celled, with two ovules in each cell. [J. T. S.]

TIA. A Chinese name for *Sageetia theezans*.

TIACKLOU. An Indian name for *Berberis tinctoria*.

TIARELLA. A small genus of North American *Scrophulariaceae* allied to *Heuchera* and *Mitella*, but differing from the former in having ten stamens, and from the latter in the calyx being almost free from the slender ovary, as well as in the entire petals. They are perennial herbs, with simple or trifoliate incised and serrated leaves, and a leafless scape bearing a raceme, or a leafy stem with a panicle of white flowers. Calyx bell-shaped, nearly free from the ovary, five-parted; petals five, small; styles two; capsule one-celled, with two unequal valves; seeds few, subglobose. The most common species of this genus, *T. cordifolia*, is met with in the regions extending from Canada to Virginia. [J. T. S.]

TIARIDIMUM. A genus of *Ehretiaceae* found in Tropical America and Asia, and having the habit of *Heliotropium*, from which it differs in the angular tube of the corolla, with a contracted five-rayed orifice, and in the two-celled mitre-shaped nut. *T. indicum* is an astringent, and is used to allay inflammation; it is also said to be beneficial in cleansing ulcers. [J. T. S.]

TIDISIRI. A Guiana name for the fibre of the Ita Palm, *Mauritia flexuosa*.

TICKSEED. *Corispermum*; also *Coreopsis*.

TIGOREA. A genus of *Rutaceæ*, consisting of tropical and subtropical South American trees or shrubs, with white flowers speckled with glandular dots, and arranged in a branched inflorescence. The calyx is five-toothed; the corolla funnel-shaped, its limb five-parted; the stamens five to eight, some of them sterile; the ovaries five, surrounded by a disk, free, or united by their inner corners; and the fruit capsular, of five carpels. The bark of *T. folrifuga* is bitter, astringent, and used in Brazil in fevers. The leaves of *T. jasmiflora* are also used medicinally in Brazil. [M. T. M.]

TIBDMANNIA. A genus of North American orthospermous *Umbelliferae* established on a single glabrous herb, with a fistulose stem, and leaves reduced to terete nodose petioles. The involucre and involucrels are composed of from four to six subulate leaves; the calyx-limb is five-toothed; the petals broadly ovate, with a narrow inflexed point; the obovate fruit much compressed dorsally; and the carpels with five somewhat carinate equal ribs, the lateral ones being dilated into a membranaceous margin nearly as broad as the dorsal disk, and the furrows having a single large vitta in each, the commissure having two. [W. C.]

TIEUTÉ. *Strychnos Tieuté*.

TIGAREA. *Tetracera Tigarea*.

TIGELLATE. Having a short stalk, as the plumule of a bean.

TIGER-FLOWER. *Tigridia*.

TIGER-LILY. *Lilium tigrinum*.

TIGER-WOOD. The heartwood of *Macharium Schomburgkii*, valuable for cabinetmaking, obtained from British Guiana.

TIGRIDIA. A genus of Mexican bulbous herbs of the order *Iridaceæ*, having ensiform plaited leaves, and flowers of great beauty, but of a very evanescent character. The perianth has a short tube, and a six-parted spreading limb, the outer segments of which are larger, and the smaller inner ones subpanduriform; there are three stamens, continuous with the tube of the perianth, their filaments connate into a long tube; the ovary is three-celled, with a filiform style as long as the staminal tube, and three filiform bifid stigmas; and the capsule is membranaceous, with numerous seeds. The flowers are orange or yellow, richly spotted, whence the name Tiger-flower. [T. M.]

TIKOOR, TIKUL. Indian names for *Garcinia pedunculata*.

TIKOR. An Indian name for the tubers of *Curcuma leucorrhiza*; also for a kind of arrowroot prepared from the tubers.

TIL, or TEEL. *Sesamum orientale* and *S. indicum*, the seeds of which are commonly known as Til-seed. The black-seeded variety is called Kala-til in India, the white seeded Suffled-til. — **BLACK.** *Guizotia oleifera*.

TIL-TREE. *Tilia*. —, **CANARY ISLAND.** The stinking-wooded *Oreodaphne fatens*.

TILE-ROOT. *Geissorrhiza*.

TILIACEÆ (*Elæocarpæ*, *Lindenblooms*). An order of polypetalous dicotyledons, consisting of trees or shrubs or very rarely herbs, with alternate stipulate leaves, and usually cymose flowers. They are chiefly characterised by a valvate calyx, indefinite hypogynous stamens, and a free ovary divided into several cells, with the placentas in the axis. The calyx connects the order with *Malvaceæ* and *Ericaceæ*, from which it is chiefly distinguished by the stamens. The species are numerous, especially within the tropics; some are natives of the temperate regions, both of the Northern and Southern Hemispheres, but none extend into the Arctic Circle, or ascend to great mountain elevations. The genera, about forty in number, have been distributed into two suborders or independent orders, *Tiliceæ* and *Elæocarpæ*, upon characters which have failed in so many instances that they have been rearranged in seven tribes, viz. — *Brownlowiæ*, *Grewiæ*, *Tilicæ*, *Apelbæ*, *Prockicæ*, *Sloaneiæ*, and *Elæocarpæ*. The most important genera are — *Brownlowia*, *Grewia*, *Triumfetta*, *Corchorus*, *Lilien*, *Tilia*, *Apelba*, *Prockia*, *Sloanea*, and *Elæocarpus*.

TILIA. The typical genus of *Tilicææ*, well known through the Common Lime, so frequently planted as an ornamental tree. It consists of very few species, though a considerable number of supposed ones have been described; and is entirely confined to the temperate countries of the Northern Hemisphere, the Limes being the only European representatives of the order. All the species are large trees, with alternate more or less heart-shaped deciduous leaves, and small yellowish highly fragrant flowers borne in axillary cymes, which have a curious long leaf-like bract attached to their stalks. The flowers have five sepals, as many petals, numerous stamens, and a globular five-celled ovary, each cell containing two ovules; but four cells are abortive, so that the fruit is only one-celled, and two (frequently only one) seeded.

The Common Lime or Linden, *T. europæa*, attains a height of from sixty to a hundred and twenty feet. It is met with generally throughout Europe, except in the extreme North; one variety of it, the small-leaved Lime, is indigenous to Britain, but the large-leaved variety which is commonly planted, is a native of the South of Europe. Various parts are applied to useful purposes. The white soft but close-grained wood is used by carvers and turners, and by

musical instrument-makers for sounding-boards. The tough inner bark, called Bass or Bast, is the material of which the Russian mats used by gardeners and upholsterers are made; and the Russian peasants make shoes, ropes, nets, and other articles of it. The sap yields sugar, and the flowers an abundance of honey, of which bees are excessively fond. [A. S.]

TILIACORA. Drs. Hooker and Thomson write of this genus of *Menispermaceæ* as one easily distinguishable from the rest of the tribe *Cocculæ*, by the mottled albumen of the seeds, and the numerous ovaries. The species are climbing shrubs, with ovate-acuminate leaves, and yellow flowers in axillary clusters. They are indigenous throughout India and Java. [M. T. M.]

TILL. The Lentil, *Ervum Lens*.

TILLEA. A small genus of *Crassulacæ*, of wide distribution, comprising about twenty species. It is scarcely separable from *Crassula* except by habit, the species of *Tillea* being small, mostly annual herbs, while those of *Crassula* are usually succulent or fleshy perennials. The species of *Tillea* are aquatic or terrestrial herbs, with opposite cylindrical subulate or flat quite entire leaves, and minute white or red axillary flowers, solitary or cymose, often fascicled. They are usually pentamerous, the tetramerous species having been placed in a separate genus, *Bulbarda*, but not generally retained. *T. muscosa* occurs on sandy heaths in the south of England; also in Western Europe and N. Africa. [J. Br.]

TILLANDSIA. A genus of *Bromeliacæ*, consisting of tropical and extratropical American herbaceous plants, growing frequently on trees, and covered with scurfy scales. The sepals are spirally twisted; the petals rolled into a tube below, concealing the six hypogynous stamens; ovules attached in two rows to the inner angles of the three compartments of the ovary, which latter is free, or detached from the calyx. Fruit capsular, bursting by three valves; seeds surrounded by fine hairs, by means of which they are diffused.

Some of these plants serve as reservoirs for water, which flows down the channelled leaves; these are dilated at the base, so as to form a bottle-like cavity capable of containing a pint or more. Travellers tap these vegetable pitchers for the sake of the grateful fluid they contain. *T. utricularia*, a native of Jamaica, and many others have this desirable property of storing water. Dr. Gardner, in his *Travels in Brazil*, relates that a certain species of *Utricularia* grows only in the water collected in the bottom of the leaves of a large *Tillandsia*. The aquatic plant throws out runners, which direct themselves to the nearest *Tillandsia*, and there form new plants. In this way no less than six *Tillandsias* may sometimes be seen connected together.

T. usneoides, a native of the West Indies, the Southern States, and Central America, hangs down from the trees like a tuft of long grey hair, much in the same way as certain lichens (*Umea*) do in European pine-forests. The trees in some parts of Central America,

have a strange gaunt appearance, from the profusion of this plant growing from their branches. The plant is collected, and steeped in water in order to remove the outer cellular portion, the fibrous part being used in place of horsehair to stuff cushions, mattresses, &c. Powdered and mixed with lard, the plant is medicinally employed as an application to piles. *T. recurvata* is used in a similar manner in Peru. Several species are grown in stoves in this country, as air-plants. Their flowers are white blue purple or pink. [M. T. M.]

TILLEUL. (Fr.) *Tilia*.

TILLY. The seed of *Croton Pavana*.

TILL or TEEL SEED. The seeds of *Scammon indicum*.

TIL-TREE. *Tilia europæa*.

TIL-WOOD. The timber of *Oreodaphne fectens*, which has an atrocious smell.

TIMANDRA. A genus of Brazilian shrubs of the family *Euphorbiacæ*. The species are much-branched, and have small stipulate entire leaves, covered with star-shaped hairs, and marked with pellucid spots. The flowers are monoclous; the males in clusters, with a four-cleft bell-shaped calyx, four petals, and eight stamens; the females solitary, axillary, with a five-parted calyx, no corolla, and a three-lobed ovary with three divided stigmas. Fruit capsular; seeds three. [M. T. M.]

TIMMIA. A fine genus of mosses, consisting of two European species only, having somewhat the habit of *Polytrichum*, but more closely allied to *Mnium*. It differs from other nearly related genera in the inner peristome consisting of a transparent membrane, divided more than halfway into about sixty-four thread-shaped cilia, at first more or less united at the apex. *T. austriaca* occurs in this country, though rarely, and never with fruit. [M. J. B.]

TIN. The Arabic name for the Fig.

TINÆA intacta is the only known representative of a genus of terrestrial orchids spread over parts of Asia Africa and Europe, including Ireland. Two peculiarities characterise the genus. The plate seen between the anther-cells is not equivalent to the *processus rostellaris* of our common European *Ophrydæ*, but comes nearer to that of the *Habenariæ* of the other continents. It bears the caudicles conjointly in two channels; and the glandules are formed out of its own substance, so that there is either an impressed aperture, or an aperture with an outward slit. The second peculiarity is that the shanks of the stigma, which alone are developed, have the shape of two semicylindrical erect elevations; they are either united or quite distinct. The lower lip of the rostellum is undeveloped. The generic name has been changed into *NEOTINÆA* (which see), because there is already a genus *Tinea* in zoology. *T. intacta* (or *Neotinea intacta*) has many synonyms—among them

Aceras secundiflora, *Orchis intacta*, and *Peristylus maculatus*, the structure of the flowers having been for a long time misunderstood. The plant has a tuberous root, a stem from two to twelve inches high, three or four oblong leaves arranged in a rosette, and with brown spots on the upper surface. The flowers are whitish and spotted, very minute, and arranged in a dense cylindrical spike. [B. S.]

TINANTIA. The name of a Mexican herbaceous plant, of somewhat shrubby habit, which constitutes a genus of *Nyctaginaceae*. The flowers are spiked, and have a tubular or funnel-shaped perianth, the lower part of which is persistent, while the limb is plicated and deciduous; the three to five stamens project from the corolla; and the fruit is pendulous and distended. [M. T. M.]

TINDER, GERMAN. The soft Amadou, *Polyporus fomentarius*.

TINE-TARE. *Ervum hirsutum*; also *Lathyrus tuberosus*.

TINGUY. A Brazilian name for the leaves of *Magonia pubescens* and *M. glabrata*.

TINIER. (Fr.) *Pinus Cembra*.

TINKAR'S-ROOT. The roots of *Trios-tem perfoliatum*.

TINOSPORA. The species of this genus of *Mentispermaceae* were formerly included under *Mentispermum*. They are all climbing shrubs, natives of India, with thickened jointed leafstalks, and long axillary or terminal clusters of flowers. The more technical characters are the presence of six free stamens in the male flowers, the curved ovules, peltate albuminous seeds, and sprouting cotyledons. Dr. Thomson thus remarks on the extreme vitality of these plants: 'When the main trunk is cut across or broken, a rootlet is speedily sent down from above, which continues to grow till it reaches the ground, and restores the connection.' A bitter principle, *calumbine*, pervades the plants of this genus, many of which have tonic and emetic properties. An extract called *Galuncha* is prepared from *T. cordifolia* and *T. crispata*. It is considered to be a specific for the bites of poisonous insects and for ulcers. It is administered as a diuretic and tonic in cases of fever, and is also employed in snake-bites. The young shoots of *T. cordifolia* are used as emetics. [M. T. M.]

TINTEREE. An Indian name for the Tamarind-tree.

TIPILE. An Indian name for Long Pepper

TI-PLANT *Cordylone Ti*, which is doubtfully identified with *Dracena terminalis*.

TIPUANA. Three large Brazilian and Bolivian trees have recently been separated from *Machertium* and formed into a genus under this name, which is derived from Tipu, the vernacular name of the Bolivian species (*T. speciosa*): one of the valleys of

the province of Parana, where the best gold is found, being also called Tipuana, from the presence of these trees. It is distinguished from *Machertium* by its flowers having the calyx top-shaped or sharp towards the base instead of rounded, and the petals smooth, not downy; and also by its pods containing frequently two or three seeds in the lower swollen part, separated from each other by woody partitions, and terminating upwards in a thin wing traversed by arched parallel veins, and having the thickened style along one edge of it. The three species have unequally pinnate leaves, with alternate leaflets, and loose-branching terminal panicles of showy yellow or pale-purple flowers. *T. heteroptera* furnishes a wood known to the timber-dealers at Rio Janeiro by the name of Angelim. It is, however, very scarce, being seldom met with in the forests. The name Angelim is likewise given by the Brazilians to several species of *Andira*, a genus belonging to the same tribe, *Dalbergiaceae*. [A. S.]

TIPULARIA. A terrestrial genus of orchids belonging to the *Vandee*. They are herbs with tuberous roots, producing small green blossoms tinged with purple, in a many-flowered raceme; and a single ovate plaited leaf, on a slender petiole, after flowering. The sepals and petals are spreading; the lip prolonged below into a slender ascending spur, about twice the length of the flower, three-lobed; the middle lobe linear, as long as the petals, the lateral lobes short and triangular. Only one species is known, *T. discolor*, a native of North America. The genus is named from the supposed resemblance of the flowers to insects belonging to the genus *Tipula*. [W. B. H.]

TIRASSE. (Fr.) *Polygonum aviculare*.

TIRESIAS. A synonym of *Edogonium*, which is worthy of being mentioned here, because a species of *Tiresias* is one of the *Algae* in which a spiral structure in the cell-walls has been observed by Mr. Bowerbank, like that in the well-known *Conserva Melagonium*. [M. J. B.]

TIRITE. *Ischnostiphon Arotina*.

TISANE. A drink prepared in France from the dried flowers of *Malva sylvestris*.

TISI. An Indian name for Linseed.

TISSUE. The material out of which the elementary organs of plants are constructed.

TITHONIA. A genus of Mexican perennials belonging to the *Compositae*. The leaves are triplinerved and serrate; the flower-heads solitary at the ends of the branches, each surrounded by an involucre consisting of two or three rows of scales, furrowed within at the base, dilated and leafy at the apex; receptacle convex, with numerous scales sheathing round the fruits. The outer florets are strap-shaped and neuter, the inner ones tubular five-toothed and perfect. The stigmas are

longer than the tube, awl-shaped, hairy, revolute. The outer fruits are compressed, with a very short pappus; the central ones somewhat four-cornered, surmounted by a pappus of numerous small-toothed scales. *T. tagetiflora* is cultivated in this country for the sake of its orange-coloured flowers. [M. T. M.]

TITHYMALE. (Fr.) *Euphorbia Cyparissias*. —, **PETITE.** *Euphorbia caligua*.

TITHYMALUS. *Euphorbia*.

TITTMANNIA. A genus of *Scrophulariaceae*, generally however considered as a section of *Vandellia*, containing the species with very short appendages to the filaments of the anterior stamens, and globose fruit included in the calyx. [W. C.]

TIWAJ. An Indian name for *Wrightia antidysenterica*.

TJETTEK. A Javanese name for the virulent poison prepared from *Strychnos Tieutii*.

TMESIPTERIS. A genus of club-mosses, distinguished at once by its peculiar habit, consisting of a single species only, which is found in the Southern Hemisphere, and from thence extending from the Pacific Islands up to California. The plant is pendulous, and frequently grows on tree-ferns in New Zealand, Australia, and Taamanila. The stem is angular and branched; the leaves are alternate vertical and coriaceous, the fertile ones two-lobed or didymous, plane, ribbed but nerveless, obtuse or mucronate (often in the same specimen), and decurrent at the base; capsules large oblong two-lobed, the lobes divaricate and acute, opening with a vertical fissure, and containing a quantity of very minute curved spores. The germination has at present not been ascertained. Two species, depending upon the acute and truncate leaves, have been proposed, but the examination of a good series of specimens shows that they are untenable. [M. J. B.]

TOADFLAX. *Linaria*. —, **BASTARD.** *Thesium linophyllum*; also an American name for *Comandra*. —, **IVY-LEAVED.** *Linaria Cymbalaria*.

TOADSTOOLS. The common name of agarics and *Dileiti*, which, according to the notion of older herbalists, derived their origin from toads, as puffballs derived theirs from wolves, or deerballs (*Elaphomyces*) from deer. [M. J. B.]

TOBACCO. *Nicotiana*. —, **AMERICAN.** *Nicotiana Tabacum* and its varieties. —, **INDIAN.** *Lobelia inflata*; also *Cassia indica*. —, **MOUNTAIN.** *Arnica montana*. —, **PERSIAN,** or **SHIRAZ.** *Nicotiana persica*. —, **RIVERSIDE.** *Pluchea odorata*. —, **SYRIAN.** *Nicotiana rustica*.

TOBACCO-ROOT. The root of *Lewisia rediviva*.

TOBAGO-CANES. A name under which the slender trunks of *Dactris minor* are

sometimes imported into Europe, to be made into walking-sticks.

TOCOOA. A name used by the natives of Guiana, and applied botanically to a genus of *Melastomaceae*, consisting of Brazilian shrubs, whose leafstalks have very generally attached to them a kind of bladder, divided longitudinally into two compartments. The ants avail themselves of these cavities as nests. The flowers are solitary or in clusters; each has a five-toothed calyx, five white or pink petals, ten equal stamens, and a five or six-celled ovary ripening into a fleshy many-seeded fruit. The stigma is convex. *T. guianensis* is in cultivation in this country; in its native habitat its fruits are edible, and their juice is sometimes used as ink. [M. T. M.]

TOCOYENA. A vernacular name latinised, and applied to a genus of *Cinchonaceae*, consisting of tropical American shrubs having yellowish flowers in terminal corymba. The calyx is five-toothed; the corolla funnel-shaped, with a very long tube dilated at the throat, and a limb of five blunt lobes; anthers five, inserted at the throat of the corolla; style filiform, hairy at the top; fruit succulent two-celled, surmounted by the calyx. Seeds numerous. Some of the species are in cultivation as stove-plants. [M. T. M.]

TOCUSO. An Abyssinian corn-plant or millet, *Eleusine Tocuso*.

TODDALIA. A small genus of *Xanthoxylaceae*, confined to the tropics of Asia and Africa, and consisting of shrubs, with alternate trifoliate leaves marked with pellucid dots, and small unisexual flowers, borne in axillary or terminal panicles; they have four or five (rarely three) sepals and as many petals; the males containing a similar number of stamens, and a rudimentary quinqueangular pistil; and the females sterile stamens with a nearly globose five-celled ovary, bearing a broad peltate lobed stigma. Their fruits are globose fleshy berries marked with dots.

T. aculeata is very widely dispersed through Tropical Asia, and extends to as far south as Mauritius. It is a shrub of moderate size, with weak or flexuose smooth branches, usually armed with small prickles having their points bent backwards, and bearing trifoliate leaves composed of oblong or oval-oblong leaflets, the leafstalks and also the midribs of the leaflets being generally prickly. The native Indian physicians ascribe stimulating powers to all parts of this plant, and prescribe the fresh bark of its roots as a remedy for the kind of remittent fever known as 'hill-fever,' from its being contracted in the jungles of the Indian hills. On the Malabar Coast the plant is called Kaka Toddall, whence the generic name adopted by botanists. [A. B.]

TODDY. Palm-wine. The juice which flows from the incised apices of *Borassus flabelliformis*, *Baphia vimifera*, *Mauritia vinifera*, *Arenga saccharifera*, the cocon-nut,

date, and other palms. It forms a delicious beverage when fresh, and is employed in India by bakers, instead of yeast, in the preparation of bread; it is also extensively distilled into a spirituous liquor generally drunk by the natives, among whom it is known by the name of Bowra.

TODEA. A small genus of ferns related to *Osmunda*, and distinguished from it by their dorsal instead of paniced fructifications. They occur in South Africa, New Holland, and New Zealand, and form two groups: one with coriaceous fronds and dense lines of spore-cases; the other with pellucid fronds and sparse lines of spore cases. The latter some botanists separate under the name of *Leptopteris*. They have an erect sometimes elongated caudex, and bipinnate fronds, which in the true *Todeas*, represented by *T. barbata* alias *africana*, are thick and firm in texture, and bear oblong or linear forked sori, crowded with spore-cases; and in the group *Leptopteris* are pellucid-membranaceous, with oblong or linear oligocarpous sori. These latter are natives of New Zealand. The spore-cases, as in *Osmunda*, are pedicellate, with a rudimentary ring, represented by a few parallel striae near the apex, eventually bursting into two equal hemispherical valves. [T. M.]

TODS'-TAILS. A Scotch name for the common Highland Clubmosses.

TOFFS. The fragrant flowers of the North African *Rhaponticum acule*.

TOFIELDIA. A genus of *Melanthaceae*, consisting of a few perennial plants, natives of the colder parts of Europe, North America, and the regions of the Andes. The roots are somewhat tuberous, the leaves grass-like, and the flowers inconspicuous in terminal clusters, each one with a six-parted perianth, surrounded by a three-parted involucre. The anthers are introrse, and the fruit three-celled and dehiscent. *T. palustris* is found in boggy places in the North of England, and in Scotland. Its leaves are in tufts close to the ground, and the flower-stems bear a cluster of small greenish-yellow blossoms. [M. T. M.]

TOGGRY. *Cajania indica*.

TOKO-PAT. An Assam name for *Livistona Jenkinsiana*.

TOL. (Fr.) A common name for several kinds of *Aloe*.

TOLILOLO. (Fr.) *Mentha Pulegium*.

TOLMENER, or **TOLMEINER.** The Sweetwilliam, *Dianthus barbatus*.

TOLOSA-WOOD. *Pittosporum bicolor*.

TOLPIS. A genus of favourite garden annuals, natives of the South of Europe, belonging to the tribe *Cichoraceae* of compound flowers. They are marked by a number of long awl-shaped bracts clothing the flower-stalk and base of the involucre; and the pappus of the outer florets is toothed that of the inner florets armed

with two or four awns. *T. barbata* and *T. umbellata* have yellow flower-heads with a purple eye, and *T. altissima* has flower-heads entirely yellow. [C. A. J.]

TOMATE. (Fr.) *Lycopersicum esculentum*.

TOMATO. *Lycopersicum esculentum*. —, **CANNIBAL'S.** *Solanum anthropophagorum*.

TOM-BONTRIN'S-BUSH. *Picromnia Antidesma*.

TOMENTOSE. Covered with dense rather rigid short hairs, so as to be sensibly perceptible to the touch.

TOMENTUM. The down which produces the tomentose character.

TONALCHILE. (Fr.) Guinea-pepper.

TONCHAT. *Maranta Tonchat*.

TONGA-BEAN. *Dipteris odorata*; also called Tonka-bean or Tonquin-bean.

TONGA-BEAN WOOD. *Alyxia buxifolia*.

TONGO. A Pacific Island name for the Mangrove.

TONGUEA. *Pachypodium*.

TONGUE-SHAPED. Long, fleshy, plano-convex, obtuse; as the leaves of some *Aloes*.

TONTELEA. A genus of *Hippocrateae*, consisting of tropical American shrubs or small trees, with opposite short-stalked entire or serrated leaves, and panicles of greenish or yellowish flowers, the stamens of which, like those of *Hippocrateae*, have single-celled anthers bursting transversely—the genus being thus distinguished from *Salacia*, which has double-celled anthers bursting longitudinally. From *Hippocrateae* it differs in the character of the fruit: that of *Tontelea* being a fleshy two or three-celled roundish berry, containing a solitary wingless seed, covered with pulp, in each cell; while that of *Hippocrateae* consists of several separate pieces, each of which splits open when ripe, and contains usually several winged seeds.

The berries of *T. scabra*, the Guiana species, are edible, as also are those of several Brazilian species called *Saputa* by the inhabitants; they are sweet and mucilaginous. The West African plant with a large richly flavoured fruit, called *Tontelea pyrifera* by some authors, is a species of *Salacia*. [A. B.]

TOOLA-LODE. A Bengalee name for the bark of *Wendlandia tinctoria*.

TOOLSI, TULASI. Indian names for species of Basil.

TOOMA. A species of *Mimosa* used for tanning in India.

TOOMBKAI. An Indian name for the fruit of *Diospyros Embryopteris*.

TOON, TOONA. Indian names for the Toon-tree, *Cedrela Toona*.

TOOROO. *Uncarpus Batava*.

TOOTHACHE-TREE. *Xanthoxylon fraxinifolium*.

TOOTHED. Dentate; having any kind of small divisions.

TOOTHWORT. *Dentaria*; also *Lathræa*.

TOOT-PLANT. A poisonous New Zealand shrub, *Coriaria ruscifolia*.

TOPANA. A Greek name for the edible tubers of *Buntium ferulaceum*.

TOPINAMBOUR. (Fr.) *Helianthus tuberosus*.

TOP-SHAPED. Inversely conical, with a contraction towards the point; as the fruit of some roses.

TOQUE. (Fr.) *Scutellaria*.

TORCHE-PIN. (Fr.) *Pinus Pumillo*.

TORCHES. *Verbascum Thapsus*.

TORCHWOOD. *Cereus heptagonus*; also *Thiodia serrata*. —, MOUNTAIN. *Amirys balsamifera*.

TORDYLIOPSIS. A genus of herbaceous *Umbellifera*, founded on a single species from Nepal. It is a hairy plant, with much-divided leaves, and six to eight-rayed terminal umbels, with many-leaved general and partial involucre. The calyx-teeth are acute, the outer larger with a dilated base; and the petals on the outer margin are large obcordate bilobed, the others smaller cuspidate or rarely somewhat bilobed. The mature fruit is unknown, but in its young state it is hairy. The plant is now referred to *Horaceum*. [W. C.]

TORDYLIUM. A small genus of herbaceous *Umbellifera*, chiefly from the Mediterranean region, with pinnatisect leaves which have ovate segments, and compound umbels with general and partial involucre. The calyx consists of five subulate teeth; the petals are obcordate, with an inflexed lobe, the outer ones being often large and radiant; the flat fruit has a broad thick wrinkled margin; and the carpels have scarcely visible ribs the three dorsal equidistant, and the two distant lateral ones close to the thickened margin, while there are one or three vittæ in the interstices. The genus has been divided into two sections—*Eutordyrium*, with a single vittæ in the interstices and two in the commissure; and *Condyllocarpus*, with three vittæ in the interstices and many in the commissure.

The plants of this genus have the general appearance of *Cuscuta*, but they are readily distinguished by the flat fruit. One species, *T. maximum*, [formerly occurred in Middlesex and Oxfordshire, but has not been found of late years, and was probably introduced. It is a native of S. and Central Europe.] [W. C.]

TORENIA. A genus of *Scrophulariaceæ*, containing several species of herbs, with opposite leaves, and short few-flowered. They are scattered over the

tropical regions of the Old World, one species being found also in America. The tubular calyx is plicate or winged, and five-toothed or two-lipped; and the upper lip of the open-mouthed corolla is emarginate or bifid, and the lower trifid. The capsule is oblong, included within the calyx. [W. C.]

TORFACEOUS. Growing in bogs or mosses.

TORIA. An Eastern name for *Sinapis glauca*, extensively cultivated in India for the oil obtained from its seed.

TORILIS. A genus of *Umbellifera*, comprising herbaceous mostly annual plants, with much-divided leaves covered with short adpressed hairs. The general involucre is one to five-leaved, and the involucre many-leaved. The calyx has five triangular-lanceolate acute persistent teeth; and the petals are obcordate, with an inflexed point, the outer ones radiant and bifid. The fruit is laterally compressed, the carpels having five bristly primary ridges and four intermediate ones occupying the whole of the interstices, and covered with numerous prickles. The species are indigenous to Europe, Asia, and North Africa. [W. C.]

TORMENTIL, TORMENTILLA. The *Potentilla Tormentilla*, a species in which the petals are four instead of five in number.

TORONJA. A Spanish name for the Citron.

TORONJIL. A Spanish name for *Citrus decumana*.

TOROSE, TORULOSE. A cylindrical body, swollen out here and there.

TORREYA. A genus of *Taxaceæ*, to which the name of Stinking Yews has been given, on account of the leaves and wood emitting a disagreeable odour when bruised or burned. They are small evergreen trees of North America, China, or Japan, and grow from twenty to fifty feet high; the linear or lanceolate leaves are more or less distinctly two-ranked, and the flowers diœcious, the males solitary and the females erect, in twos or threes. The fruits are drupaceous, each with a single seed, which has a ruminated albumen covered by a hard bony shell. The timber of *T. taxifolia* and *T. myrtilacea* is heavy and close-grained, but has an unpleasant smell. The kernels of the seeds of *T. nucifera* yield an oil, which is used for culinary purposes, though the kernel is too astringent to be eaten. [T. M.]

TORRONTES. A kind of white grape grown in Spain.

TORROO. A Guiana palm.

TORSIVE. Twisted spirally. The same as Contorted, except that there is no obliquity in the form or insertion of the pieces as in the petals of *Oxalis*.



with thready
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e Carbera
Odolias

f. Agigmatic flow
in the instance

g. a slender layer
Pendantus

CORAL REEF IN THE CAROLINES
(After Kittlitz)

TORTELLE. (Fr.) *Asymbrium officinale*.

TORTILIS. Susceptible of twisting.

TORTILLARD. (Fr.) *Ulmus campestris*.

TORTOISE-PLANT. *Testudinaria elephantipes*.

TORTOISE-WOOD. A variety of Zebra-wood.

TORTOZON. A large Spanish grape.

TORTULA. A large genus of acrocarpous mosses, distinguished by the thirty-two thread-shaped teeth of the peristomes being twisted into a common fascicle. Several of the species are extremely common on mudwalls, exposed pastures, roofs of houses, &c. *T. ruralis* is one of our finest species, forming large tufts, which are peculiarly conspicuous and indeed obnoxious on slate roofs and thatch, from the broad hair-pointed leaves and abundant fruit. Most of the species are perennial. The genus belongs to the natural order *Trichostometes*. [M. J. B.]

TORTUOUS. Having an irregular bending and turning direction.

TORULACEI. A natural order of naked-spored *Fungi* belonging to the division *Coniomycetes*. The mycelium is very slightly developed if at all apparent, and the whole plant seems to consist of a mass of variously constituted simple or septate naked spores, generally united together in chains. In the typical plants the spores are almost always of a dark dingy hue. The coloured species must be carefully examined and compared with *Oidium* and other genera which bear spores in chains. In *Sporideum* the whole plant through various modifications is reduced to single spores. The higher forms of *Pucciniae*, as *Aegma* and *Xenodochus*, whose species are confined to the leaves of roseworts, are sometimes referred here, but they have little in common except the analogy presented, by their long many-celled spores. The most extraordinary genus perhaps is *Sporoschisma*, which consists of a central thread breaking up into jointed spores contained in a common tube, exactly after the fashion of many *Oscillatoria*. It is to be observed that in those cases in which there is apparently no mycelium, a microscopic examination of the tissues of the plant on which the fungus grows will always detect it. Indeed, it is obvious that no true fungus in its perfect state can be propagated without previous mycelium. [M. J. B.]

TORUS. The same as *Thalamus*.

TOUCH-ME-NOT. *Impatiens Noli-tangere*.

TOUCHWOOD. A name given to the soft white substance into which wood is converted by the action of *Fungi*, of which ash, especially under the influence of *Polyporus squamosus*, affords good examples.

Occasionally, when highly impregnated with mycelium, it has been observed to be luminous. It derives its name from its property of burning for many hours like tinder when once ignited. This is sometimes confounded with the powdery snuff-coloured mass into which wood is sometimes converted without the agency of *Fungi* by a process of chemical combustion distinguished by the name of *Breinausis*, and is not to be distinguished from wood affected by dry-rot except from the absence of fungous spawn. When wood is damp, or placed in an atmosphere charged with moisture, the oxygen of the air combines with the hydrogen, and carbonic acid is given off from the residue; and as his action constantly recurs, the texture of the wood is destroyed and the whole is reduced into a crumbling mass, which contains a proportionally larger amount of carbon than the original wood. Two particles of hydrogen and two of oxygen being abstracted for one of carbon, it is clear that more carbon will be left behind in proportion than either hydrogen or oxygen. It is this evolution of carbonic acid in a damp atmosphere when in contact with wood which makes such situations prejudicial to health. This kind of decay, which often takes place in trees where no fungus is present, and which spreads from within outwards like a putrefactive ferment, contaminates the sound tissues which surround it. There is reason, moreover, for believing that the brown condition so common to diseased vegetable cells has a similar origin. The name of Touchwood is also given to *Polyporus ignarius*. [M. J. B.]

TOULICIA. A genus of Sapindaceae trees, natives of Guiana, Brazil, and New Grenada. The leaves are pinnate; and the flowers in dense terminal clusters, each flower with a five-parted calyx, five petals provided internally with a cleft hairy scale, a five-lobed disk, eight stamens inserted on the disk, a three-celled ovary (each cell with a single ovule), and a short three-cleft style. — *Fr.* is a three-winged samara.

TOUMBEKI. A Turkish name for Persian or Shiraz Tobacco.

TOUPOLE. (Fr.) *Polygonatum officinale*.

TOURBETTE. (Fr.) *Sphagnum*.

TOURNEFORTIA. A genus of *Ehretiacae*, inhabiting the tropics of both hemispheres, extending as far north as the Canaries and Central Russia. They consist of erect or twining shrubs, with scabrous or downy leaves, and flowers arranged as in *Heliotropium*; but the fruit is composed of two carpels, and is in the form of a drupe enclosing two nuts, which are sometimes deeply divided so as to resemble four; each nut has two seeds. *T. heliotropoides*, from Buenos Ayres, with pale lilac flowers, is one of the prettiest species. Another is shown in Plate 7, figs. c and f. [J. T. B.]

TOURNESOL. (Fr.) *Heliotropium*.

ropaeum. — **EN DRAPEAUX.** A dye obtained from *Crotophora tinctoria*. —, **NAIN.** A species of *Rudbeckia*.

TOURETIA. A weedy creeper found in most parts of Tropical America, and belonging to the *Pedaliaceae* rather than the *Bignoniaceae*, with which it has sometimes been associated. We only know one species, *T. lappacea*, so called from its fruit somewhat resembling the flower-heads of *Lappa*. It has a quadrangular climbing stem, opposite ternate leaves (the petioles of which gradually merge into tendrils), and racemose flowers, resembling those of *Cestilga vulgaris*, having scarlet bracts. The calyx is two-parted, the corolla irregular and tubular, the stamens didynamous, and the capsule covered with spines, two-celled, opening with two valves, whilst the seeds are numerous and winged. [B. S.]

TOURETTE. (Fr.) The name of several species of *Arabis*.

TOUS-LES-MOIS. A kind of arrowroot obtained from the tubers of some species of South American *Canna*—*C. glauca*, *C. coccinea*, *C. achras*, and *C. edulis*; the latter, a native of Peru, is believed to furnish the chief portion of that sold in the shops.

TOUT-BLANC. (Fr.) *Narcissus polyanthus*.

TOUTE-BONNE. (Fr.) *Bitum Bonus-Henricus*; also *Salvia Sclarea*. — **DES PRES.** *Salvia pratensis*.

TOUTE-ÉPICE. (Fr.) The seeds of *Nigella arvensis*; also the berries of *Eugenia Pimenta*.

TOUTE-SAINE. (Fr.) *Hypericum Androsæmum*.

TOUT-VEU. (Fr.) *Senecio vulgaris*.

TOUZELLE. (Fr.) A *Triticum*.

TOVARIA. A Peruvian and West Indian herb, forming a genus of *Cappariaceae*. The leaves are ternate; the flowers grow in a terminal drooping cluster, having a calyx of eight overlapping sepals; eight petals, inserted on the margin of a convex receptacle, their stalks densely hairy; eight stamens; a sessile ovary with eight parietal placentae, and a radiate stigma. Fruit one-celled. [M. T. M.]

TOVOMITA. In a recent monograph of the order of *Clusiaceae*, twenty-one well-authenticated and three doubtful species are referred to this genus, all of them being natives of Tropical South America and the West Indian Islands, and varying in size from shrubs six or eight feet high to large trees. They have smooth feather-veined leaves, and cymes of partly unisexual and partly perfect flowers, producing four-celled fruits, which split in four valves, and contain a solitary seed in each cell; the seed being destitute of a true aril, but having its outer coat developed into a fleshy pellucid aril-like covering traversed by veins. The flowers have two

or four sepals, the outer two being largest and completely shutting in the other floral organs in the bud; four or eight petals; indefinite stamens, with thickened filaments; and a four-celled ovary containing four short styles crowned with concave or cushion-formed stigmas. All the species abound more or less in a resinous juice, which exudes from them when wounded, and hardens into resin. The bark of *T. fructipendula*, an arboreal species native of Chiclaya in the Peruvian Andes, is used by the inhabitants for dyeing a reddish-purple colour, and also for medicinal purposes. [A. S.]

TOW-COOK. *Doitchos sinensis*.

TOWERWORT. *Turritis*.

TOWNSENDIA. The name of a North American herbaceous plant, constituting a genus of *Compositae*. The leaves are tufted, linear, entire, and woolly. The head of flowers is sessile, surrounded by an involucre of overlapping linear scales; the receptacle is naked, pitted; the outer florets strap-shaped, involute at the margins, and the central ones tubular, five-toothed. The fruits are hairy, and the pappus is in one row, scaly in the outer, hairy in the inner fruits. [M. T. M.]

TOWRANEERO, TURANIRA. Names for the Bastard Bully-tree of Guiana.

TOXICODENDRON *Ehus Toxicodendron*.

TOXICOPHLEA. A genus of *Apocynaceae*, containing one or two species, trees from the Cape of Good Hope. It has opposite elliptic smooth leaves, and numerous crowded flowers in the axils of the leaves. The calyx is five-parted; the base of the corolla is tubular, gradually widening upwards, the throat and upper surfaces of the limb being villous, and the limb divided into five short ovate-acute lobes; the stamens are inserted below the mouth of the tube, and have very short filaments and ovate anthers; and the ovary is two-celled, with a single ovule in each cell. The bark is poisonous, and is used by the Hottentots as an ordeal. [W. C.]

TOYO. A fragrant plant of British Guiana, an infusion and syrup of the leaves and stems of which are employed as a remedy in chronic coughs.

TOYWORT. *Capsella Bursa-pastoris*.

TOZZIA. A genus of *Scrophulariaceae* containing a single species, a small branching glabrous herb from the mountains of Central Europe. The leaves are opposite and sessile, and the flowers are in short pedicels in the axils of the leaves, forming a lax raceme. The calyx is campanulate membranous and unequally four-toothed; the corolla-tube is exerted, the upper lip of the limb slightly concave and two-lobed; and the one-seeded globose capsule is sub-drupaceous. [W. C.]

TRABECULA (adj.) **TRABECULATE.** A cross-bar; as in the teeth of many mosses.

TRACHEE. Spiral vessels; air-tubes, containing a spiral thread of considerable toughness and elasticity.

TRACHELANTHUS. A genus of *Boraginaceae*, founded on *Solananthus cerinthoides* a native of Northern Persia. It has the corolla of *Cerinth*, being tubular, with a five-lobed limb about one-third the depth of the whole; the lobes have two bulges at the base; the scales in the throat are lanceolate from a triangular base; the colour is red, margined with yellow. The fruit is similar to that of *Cynoglossum*, a smooth glaucous plant, with the stem corymbose paniculately branched at the top, the leaves rigid and leathery, with small tubercles beneath. [J. T. S.]

TRACHELIUM. A genus of *Campanulaceae*, containing a few species of perennial plants, with alternate ovate-acute deeply serrated leaves, and violet blossoms in a many-flowered terminal corymb. The calyx has five subulate divisions; the corolla has a long slender tube, and a spreading five-lobed limb; the filaments of the stamens are filiform throughout their length, and free at their base; and the apex of the exerted style is thickened, and densely covered with hairs. The species are found in the Mediterranean region. [W. C.]

TRACHYDIUM. A genus of *Umbelliferae* founded on ten species from the mountains of Northern India. They are perennials or rarely annuals, sending out from the crown of the root, both leaves, and numerous caespitose simple stems. The leaves are petiolate and tripinnatisect, the opposite divisions being bipinnatisect, and the lobes lanceolate acute. The segments of the involucre are similar to but smaller than the ordinary leaves, and those of the involucre are more or less united and membranaceous. The calyx has five small teeth; the petals are lanceolate, with incurved acuminate apices; the fruit is compressed at the side; and the carpels have five mucated ribs, the furrows with a single vitta in each, while the commissure has two. The carpophore is divided. [W. C.]

TRACHYLOBIUM. A genus of leguminous plants very closely allied to and by some botanists combined with *Hymenaea*. The principal distinctions between the two genera consists in the petals of *Trachylobium* being only three in number, nearly equal and long-stalked, the ovary being elevated on a stalk and bearded with hairs, and the pods covered with wart-like excrescences; while *Hymenaea* has five stalkless unequal petals, a stalkless smooth ovary, and a pod without warts. The species are all large trees, bearing panicles of white flowers, and having leaves composed of a pair of leaflets. They are natives of Brazil and Madagascar.

T. Martianum is, according to Martius, one of the trees from which the resin known as Brazilian Copal is obtained; but it is doubtful whether any of this kind of Copal comes to this country, our principal

supply of that article being derived from E. and W. Africa. See COPAL, and GUM COPAL. [A. S.]

TRACHYMENE. A genus of orthospermous *Umbelliferae*, containing several species of herbs or undershrubs, with compound many-rayed umbels. The calyx-tube is compressed, and the limb five-toothed; the petals are elliptic and entire; the style is divergent; the tuberculated fruit is compressed and contracted at the sides, separating into two semi-ovate gibbous carpels; and the carpophore is entire. The genus has been divided by Decandolle into two sections—*Platymene*, including the herbaceous species, with compressed stem and small divided leaves; and *Dendromene*, comprising the shrubby species with entire leaves. [W. C.]

TRADESCANTIA. A genus of lily-like plants belonging to the *Commelinaceae*, well marked by their three sepals, three petals, three-celled capsule, and filaments clothed with jointed hairs. *T. virginica* is the Common Spiderwort of gardens, a pretty plant twelve to eighteen inches high, with numerous branched jointed succulent stems, linear-lanceolate glossy leaves, and dense umbels of flowers conspicuous by their three spreading bright blue petals. Varieties are also cultivated with purple white and double flowers. *T. rosea* from Carolina is like the preceding, but smaller and more delicate. *T. discolor* is so called from the colour of its leaves which are green above, purple below; the flowers, which are white, issue from a purple single-leaved spathe. This is a house plant. Other species are cultivated, all more or less resembling the above French: *Ephémère*. [C. A. J.]

TRAGACANTH. A kind of gum obtained from *Astragalus verus*, *A. creticus*, *A. arbiatus*, *A. gummifer*, and *A. strobiliferus*. —, **SENEGAL.** The produce of *Sterculia Tragacantha*.

TRAGANTHUS. The name of a genus of *Euphorbiaceae*, comprising certain tropical American herbaceous plants, the flowers of which are monocious, arranged in axillary spikes. The male flowers have a four-parted calyx, enclosing four stamens; and the females have also a small four-parted calyx, girt at the base by large overlapping scales arranged in four rows, a hairy three-celled ovary, and six curved styles. The fruit consists of three carpels, which separate one from the other, each bearing the two persistent styles at the summit. In the centre, between the carpels, is a winged column, from which the former separate when ripe. [M. T. M.]

TRAGIA. A genus named in honour of Tragus, an ancient German botanist, who, according to the fashion of the times, assumed a classical title, his true name having been Hieronymus Boek. The genus is included among the *Euphorbiaceae*, and consists of herbs or undershrubs, widely distributed in the subtropical regions of the Old and New Worlds. Some of them are of

climbing habit, and have serrated or lobed leaves, axillary flowers, the females few in number, situated at the base of the racemes, the males more numerous, all provided with entire or three-cleft bracts. The male flowers have a tripartite calyx, enclosing three stamens; the females a six-parted calyx, with persistent occasionally divided segments, a three-celled ovary with one ovule in each compartment, a three-cleft style, and capsular fruit. Some of the species have medicinal virtues. Thus an infusion of the root of *T. cannabina* is employed as a diaphoretic and alterative in India, where also the juice of *T. Chamælea*, mixed with wine or oil, is esteemed astringent and tonic. The root of *T. involucreta* is employed in India as a tonic and alterative in syphilitic maladies. The caustic juice of *T. volubilis* is likewise used as an application to ulcers. The species possess little beauty. [M. T. M.]

TRAGOPOGON. A genus of *Compositæ*, inhabiting Europe and the temperate parts of Asia, and consisting of biennial or perennial herbs, having simple or branched stems, narrow grass-like leaves, and distinct terminal flower-heads of a yellow or purple colour. The heads are many-flowered, and the florets all ligulate and perfect, containing both stamens and ovary. The involucre has from eight to sixteen leaves, in one row, connected at the base; and the receptacle is naked or nearly so, and deeply indented. The fruits are all of the same form, having a long beak, a lateral areole, and the feathery pappus or seed-down in many rows,—that of the external row of fruits being interwoven.

Among the species of this genus is the culinary vegetable called Salsafy, *T. portifolius*, a biennial indigenous to Britain and the Continent of Europe. It is distinguished by its smooth long narrow tapering acuminate leaves; by its peduncles being much thickened, and hollow at the apex; by its eight-leaved involucre, which is usually longer than the florets; and by its rose-coloured or purple flowers.

Salsafy has a long fusiform root full of milky juice, on which its salutary qualities depend. In colour it resembles the parsnip, of which it has also nearly the flavour, but is more agreeable. It ranks as one of the most salubrious of culinary vegetables, being antibilious, cooling, deobstruent, and slightly aperient; but although it is deservedly esteemed as an esculent, it is nevertheless decidedly inferior to *Scorzonera* in these properties; nor does it keep so well when taken out of the ground, as it soon becomes hardened, insipid, and difficult to cook properly. When taken by the invalid as a remedy for indigestion, it is important to know that the precautions necessary in cooking it are the same as with *Scorzonera* (which see), it being borne in mind that Salsafy usually requires a rather longer time boiling. It grows more freely than *Scorzonera*, and when fresh from the garden it is perhaps inferior only to that vegetable in its medicinal properties. [B. C.]

TRAGOPYRUM. A genus of *Polygonaceæ*, natives of Russia and Siberia, consisting of shrubs with divaricate branches, sometimes spinous at the point, furnished with oblong or elliptical entire leathery leaves on short stalks, and racemose flowers on nodding pedicels. They have a coloured five-leaved perianth, the inner three segments larger than the rest, eight stamens, three very short styles with capitate stigmas, and a three-edged nut inclosed in the three inner perianth-leaves, the two outer ones being reflexed. [J. T. B.]

TRAGUS. A genus of grasses of the tribe *Panicææ*, now included in *Lappago*.

TRAILING. Of an elongated prostrate habit of growth.

TRAILLIA. A genus of *Cruciferae* from Mesopotamia. It consists of an annual with the habit of *Vella annua*, having rigid hairy branches, with few oblong leaves decurrent into the petioles, and small yellow flowers. The pouch is indehiscent, rough and one-seeded, crowned by the broad rigid leaf-like style. [J. T. B.]

TRAINASSE. (Fr.) *Polygonum aviculare*; also *Agrostis stolonifera*.

TRAMA. A name given in mycology to the substance which separates the two surfaces of the gills of an *Agaricus*, or of two contiguous pores in *Polyporus*. It varies much in structure, and affords good definitions of genera. In *Agaricus*, for example, it is filamentous; in *Russula* and *Lactarius vesicularis*. In some cases it is of the same substance with that of the pileus, as in *Trametes*; in others it is different, as in such *Polypori* as *P. destructor*. In *Schizophyllum* it is completely exposed by the splitting of the gills along their edge into two plates. [M. J. B.]

TRAMETES. A genus separated by Fries from *Polyporus*, originally intended to receive those species in which the substance of the walls of the pores (or trama, as it is called by botanists) is continued immediately from the pileus without any change. So limited, the best-known British species is *T. suaveolens*, which grows occasionally in this country on the dead trunks of willows and limes, and is at once known by its larger pores from *T. odora*, which has the same strong smell of aniseed. Fries has, however, of late proposed a different definition of the genus. In a large portion of *Polyporus*, including such common species as *P. versicolor*, the trama though narrow is of the same substance as the flesh of the pileus. They differ, however, from typical species of *Trametes* in the fact that the pores, which are developed in a centrifugal direction, are perpendicular to the fibrillose stratum above the portion in connection with the trama, whereas in *Trametes* the whole pileus and trama are of the same substance. The species are placed in a genus named *Polystictus*, while *Polyporus* is confined to those in which the trama and substance from which it springs are different in texture. These

distinctions, though at first apparently too refined, are founded on an extensive examination of species, and will probably prove tenable. [M. J. B.]

TRANSVERSE. Broader than long,

TRAPA. The very singular four-horned fruits of the European species of *Trapa* (*T. natans*), which was the only one formerly known, have been compared to the spiked iron instruments called caltrops, employed in ancient warfare for strewing on the ground to impede the progress of cavalry; and, from the plant growing in water, it is commonly called the Water Caltrops. The genus belongs to the *Onagraceae*. Its flowers have a four-parted calyx with the tube adhering to the ovary; four petals, and as many stamens; and a two-celled ovary, with a cylindrical style and hemispherical flat-headed stigma. After flowering, the lobes of the calyx harden and form two or four more or less conspicuous horns at the top of the fruit; the latter being one-celled hard and unopening, and containing a solitary large pendulous seed, with very unequal cotyledons. There are two or three species known, natives of Central and Southern Europe, India, China, and Japan. All are floating plants, with long-jointed rootstocks, having tufts of hair-like roots (sometimes regarded as submerged leaves) at the joints, and surmounted by a radiating cluster of triangular toothed leaves, with swollen float-like stalks which serve to buoy them up.

The seeds of all these plants abound in starch, and are much eaten as food. Those of *T. natans*—called Jesuit's nuts at Venice, and Chataigne d'Eau by the French—are ground into flour and made into bread in some parts of Southern Europe. In Kashmir those of *T. bispinosa*, the Singhara of the natives, feed 30,000 persons for five



Trapa bicornis.

months in the year, and are so extensively collected that the celebrated Runjeet Singh of Lahore derived a revenue of 12,000l. per annum from them. *T. bicornis*, the Ling of the Chinese, has a fruit like a bull's head; the seeds of this plant also form a considerable article of food. [A. S.]

TRAPEZIFORM, TRAPEZOID. Having four sides, those which are opposite not being parallel; scarcely different from Rhomboid.

TRAP-TREE. A species of *Artocarpus*, which furnishes a gutta or glutinous gum, used as birdlime in Singapore.

TRASI. (Fr.) *Cyperus seculentus*.

TRATTINICKIA. A genus of trees belonging to the *Amyridaceae*. The species are natives of Brazil and Guiana, and have large branching panicles of small reddish flowers. Calyx cup-shaped, of three segments; corolla bell-shaped, three-cleft; stamens six, with very short filaments; ovary globose; style short. The trees abound in resinous juice. [M. T. M.]

TRAVELLER'S-JOY. *Clematis Vitalba*.

TRAVELLER'S TREE. *Urania speciosa*.

TREACLE, COUNTRYMAN'S. *Ruta graveolens*.

TREAD-SOFT. *Cnidioscolus stimulanus*.

TREASURE-FLOWER. *Gazania*.

TRECVLIA. A genus of *Artocarpaceae*, named in honour of M. Trécul, an eminent French vegetable anatomist. The species are trees, natives of Senegambia, having male and female flowers crowded together in the same head. The male flowers have a tubular three-cleft perianth; the females a perianth of three leaves, and an ovary with a pendulous ovule. The genus is closely related to *Artocarpus*, but may be distinguished by the characters just mentioned. [M. T. M.]

TREE. Any woody plant of perennial duration which rises from the ground with a trunk.

TREE-BEARD. A South American name for *Tillandsia usneoides*.

TREE-FERN. See *FILICES*.

TREE-HAIR. A name sometimes given to the dark wiry pendulous entangled masses of a lichen, *Cornicularia subata*, which is not uncommon on trees in sub-alpine woods. [M. J. B.]

TREE-LIKE. Resembling a tree, but very small. The name as *Dendroid*.

TREE OF CHASTITY. *Vitis Agnuscacastus*.

TREE OF HEAVEN. *Ailanthus*.

TREE OF LONG LIFE. *Glaiphyria glitida*.

TREE OF SADNESS. *Nycianthes arbor-tristis*.

TREE OF THE MAGICIANS. A Chinese name for *Lyclopiastium pubiflorum*.

TREE OF THE SUN. A Japanese name for *Retinospora*.

TRÉFLE. (Fr.) *Trifolium*. — **BITU-MINEUX.** *Psoralea bituminosa*. — **D'EAU.** *Trifolium*.

alba (leucantha). — **DE BOKHARA.**

LANDE. *Trifolium pratense*. — **DE VIR-**

GINIE. *Ptelea trifoliata*. — **ÉPINEX**

DE CANDIE. *Fagistia crotica*. — **HÉ-**

MORROIDAL. *Lotus hirsutus*. — **JAUNE.**

Lotus corniculatus. — **JAUNE DES SA-**

BLES. *Anthyllus vulneraria*. — **JAUNE**

PETIT. *Medicago lupulina*. — **NOIR.**

Medicago lupulina. — **ODORANT.** *Mel-*

lotus cœruleus. — ROUGE DU ROUSSILLON *Trifolium incarnatum*.

TREFOIL, *Trifolium*; also *Medicago lupulina*, and *Stylosanthes procumbens*. — BIRD'S-FOOT. *Lotus*. — HOP *Trifolium procumbens*. — MARSH. *Menyanthes trifoliata*. — MOON *Medicago arborea*. — SHRUBBY. *Pisilea trifoliata*. — TICK. *Desmodium*.

TREMANDRACEÆ. (Poreworts.) A small order of polypetalous dicotyledons, consisting of heath-like shrubs, all Australian, with small entire leaves often verticillate, and red blue or rarely white flowers on slender axillary pedicels. They are chiefly characterised by regular flowers, with four or five valvate sepals, as many spreading petals, twice as many free hypogynous stamens, anthers opening in terminal pores, and a free ovary, usually two-celled, with one two or rarely three pendulous ovules in each. The order, although small, is perfectly distinct in habit and character, and, though having some affinity with *Polygalaceæ*, is at once distinguished by its regular flowers; it has, however, a more remote analogy with the tribe *Lasiopteleæ* of *Sterculiaceæ*.

TREMANDRA. A genus of *Tremandraceæ*, conferring its name on the order to which it belongs, and composed of two species inhabiting Western Australia. They are delicate shrubs, covered with a stellate down; and have opposite ovate leaves, axillary purple flowers, a five-cleft calyx, a corolla composed of five petals, ten stamens, two-celled anthers, and a two-celled ovary. [B. S.]

TREMBLE. (Fr.) *Populus tremula*.

TREMBLIN. (Fr.) *Brisa minor*.

TREMBLING-TREE. *Populus tremula*.

TREMELLA. The typical genus of the natural order of *Fungi* called *Tremellini*, distinguished by its treacherous gelatinous generally more or less waved and sinuated mass, having an even hymenium without any definite upper or under side, and free from papillæ or tubercles. The species vary greatly in colour, being white bright or pale-yellow, rose-coloured, chocolate, brown, purple, &c. Their form is as varied as their colour, sometimes yielding sinuated plates, sometimes brain-like masses, sometimes club-shaped processes, and sometimes orbicular bodies or uniform resupinate strata. Occasionally they grow on living trees, but more frequently on dead branches, while two occur on the naked ground or amongst grass. *T. mesenterica*, which is conspicuous in every dead hedge in winter from its orange tint, produces occasionally myriads of conidia. [M. J. B.]

TREMELLINI. A natural order of hymenomycetous *Fungi*, distinguished by their gelatinous texture, their hymenium, in the more typical forms, covering the whole surface without any definite upper or under side; the sporophores, which are often lobed or quadripartite, not being

packed into a regular hymenium but placed at very different heights, and the apicules being much elongated. The spores moreover, which are either simple or septate, produce occasionally little offsets at the sides, which may either be secondary spores or spermatia. If secondary spores, the primary must be considered as protospores, analogous to those of *Pucciniae*. This opinion is, however, at present merely theoretical. *Tremellini* occasionally contain a nucleus which is not gelatinous, and which has sometimes a cretaceous texture. The species occur almost exclusively on decayed wood, either naked or bursting through the bark. Two species only have at present been described with a terrestrial habit. When dry many of the species shrivel up very much, but they recover their original condition perfectly when moistened. *Hirneola* has several representatives in tropical climates besides the common Jew's Ear, which seems universally distributed; but the greater part of the order is peculiar to temperate climes of either hemisphere. [M. J. B.]

TREMÈNE. (Fr.) *Trifolium pratense*.

TREMME. (Fr.) *Agrostis stolonifera*.

TRENTANELLE. (Fr.) *Rhus Cotinus*.

TREVESIA. A genus of *Araliaceæ*, which, as recently defined by Benthum and Hooker, includes *Parapanax* and *Reynoldsia*, and numbers eight or nine species, natives of tropical Asia and the Malay Archipelago. They are small trees or shrubs, prickly or unarmed, with palmatifid or digitately pinnatifid compound leaves, and paniculate umbels of polygamous flowers. From the more nearly allied genera, such as *Hesperispermum* and *Stranvaesia*, *Trevesia* is further distinguished by its 8-12-merous flowers, and by the globose furrowed or ribbed drupe. The petals are often coherent in the fertile flowers; while in the male flowers they are often free. The stamens equal the petals in number, having thick filaments, and ovate or oblong anthers. [J. Br.]

TREWIACEÆ. An order formerly proposed by Lindley for the genus *Trewia*, which he has since, with other botanists, referred to *Euphorbiaceæ*.

TREWIA. The name of a genus of *Euphorbiaceæ*, comprising a tree, native of India, with triplinerved leaves, and dioecious flowers—the males in racemes, the females in pairs on a branched peduncle. The male flowers have a membranous two-leaved calyx, ultimately reflected; within this are numerous stamens, placed on a convex receptacle. The female flowers have a calyx of one membranous sheathing leaf, ultimately falling off; and a four-celled sessile ovary, with the style divided into four feathery stigmas. The fruit is fleshy, with four one-seeded stones. [M. T. M.]

TRI. In compound words = three; as *tricostate*, having three ribs; *tricornis*, having three horns.

TRIADELPHOUS. Having the stamens collected into three parcels.

TRIAKENIUM. That kind of fruit

called a Cremocarp, in which the number of carpels is three.

TRIANGULAR. Three-cornered.

TRIANOSPERMA. A genus of *Cucurbitaceae*, allied to *Bryonia*, but distinguished by having three seeds only in the fruit. The species are chiefly Brazilian and West Indian (one is tropical African), and have thick fleshy roots, climbing stems with branched tendrils, and palmate leaves. The flowers are monocious, borne in loose panicles. The male flowers have three stamens, united by means of their curved anthers, but free as to their filaments. In the female flower the ovary is three-celled, with three erect ovules, and terminated by a short style, which divides into three stigmas. The fruit is globular and somewhat fleshy. The root of *T. Tuyuya* is used in Brazil in small doses as an emetic, in larger ones as a drastic. *T. scifolia* is a purgative and purifier of the blood. Some of the species have been introduced into the Paris gardens. [M. T. M.]

TRIANTHEMA. A genus of *Tetragoniaceae*, having a very wide geographical distribution, three or four species being natives of India, as many of the Cape of Good Hope; while one is confined to Arabia, and one spread over Tropical America and the West Indian Islands. They are usually prostrate more or less fleshy herbs, sometimes with their stems woody towards the base; they have opposite entire leaves, with the stalks enlarged into sheaths, one of each pair of leaves being often larger than the other; and their flowers are produced, either solitary or in clusters, in the leaf-axils. The flowers have a five parted calyx, coloured inside, with the divisions mucronate below the top; no petals; five ten or twenty stamens rising from the calyx-tube, and one two or rarely three styles. The fruit is either one-celled, or divided into two by a spurious partition, and when ripe separates crossways near the bottom into two pieces; the upper or largest piece, called the lid, being thick and having the seeds attached to one side, and the lower thin and having the seeds attached to the opposite side. The bitterish rather nauseous-tasted roots of *T. obcordata*, one of the Indian species—a perennial with spreading prostrate stems, the tender tops of which, together with the leaves, are collected by the natives and eaten as a potherb—are sold in the bazaars, and employed by the native doctors as a cathartic in combination with ginger. [A. S.]

TRIANTHUS. A Patagonian perennial plant, of the family *Compositae*, has been named, as the heads of flowers consist each of three florets. The plant is branched; its leaves awl-shaped, spreading; and the heads of flowers solitary on the ends of the branches, each surrounded by an involucre of two rows of scales—the outer ovate lanceolate acuminate prickly, the inner flat linear acuminate; the receptacle small, and naked. The corollas are two-lipped, white and perfect; and the fruits

inversely pyramidal, beakless, crowned by a pappus of three to five linear deciduous scales, hairy at the margins. [M. T. M.]

TRIAS. An unimportant genus of orchids referred to the *Malazideae*, and inhabiting Tropical Asia. Two species have been described. They are small herbs, with roundish glabrous one-leaved pseudobulbs forming dense tufts, small coriaceous veinless leaves, erect radical one-flowered peduncles shorter than the leaves, and rather large dark-green flowers. [W. B. H.]

TRIASPIS. A genus of *Malpighiaceae*, comprising scanty or erect shrubs, peculiar to tropical and Southern Africa. The flowers are rose-coloured or white, and have a five-parted glandless calyx, five stalked fringed unequal petals, ten stamens, all fertile of unequal lengths; three ovaries, each with two hairy sinuous wings; three styles, long slender and dilated at the top; and a winged one-seeded fruit. The generic name is derived from the Greek, and signifies 'three shields,' probably in allusion to the winged ovaries. [M. T. M.]

TRIBE. One of the subdivisions of Natural Order. Thus *Leptospermaceae* and *Myrtaceae* are tribes of the order *Myrtaceae*. These minor groups are sometimes themselves divided into one or more series of lesser groups, according to the number of genera, their diversities of structure, &c.

TRIBRACHIA. A genus of *Cinchonaceae*, including a semi-parasitical shrub, native of Sumatra. The flowers are white, arranged in groups of three, in a compact head. The tube of the calyx is somewhat globular, its limb entire or slightly toothed; the corolla has a short tube, and a limb, divided into three lance-shaped three-sided segments; the stamens are five in number, and inserted into the throat of the corolla by means of very short filaments; and the ovary is two-celled, surmounted by a fleshy disk, and having a cylindrical style, terminated by an undivided stigma. The fruit is fleshy. [M. T. M.]

TRIBULE AQUATIQUE. (Fr.) *Trapa natans*.

TRIBULOPIS. A small genus of *Zygophyllaceae*, consisting of prostrate annual herbs, with alternate leaves. It is usually united with *Tribulus*, but the nuts are single-seeded. Four species have been described from Australia. [W. C.]

TRIBULUS. A genus of *Zygophyllaceae*, consisting of procumbent herbs, with opposite bistipulate, and abruptly pinnate leaves, and one-flowered peduncles springing from the axils of the leaves. The caducous calyx has five sepals, and the corolla five petals; of the ten stamens those opposite to the sepals have a gland at their base; the style is very short or absent, and the stigma hemispherical and five-rayed, as in the poppy. The flattened pentagonal fruit is composed of five carpels, which are styinous or tubercular on the back. At maturity the fruit breaks up

into five indehiscent cells, which are transversely divided into from two to four single-seeded compartments. Albumen is but sparingly present in the embryos of this order, but in *Tribulus* it is altogether wanting. The species are generally distributed within the tropics of the Old World, and extend into the warmer temperate countries, one species only being found in the South of Europe. [W. C.]

TRICA. A button-like shield belonging to the genus *Gyruphora*.

TRICALYSIA. A genus of *Cinchonaceæ*, comprising a shrub native of Western Tropical Africa, with hairy flowers, closely crowded in the axils of the leaves. The flowers have, outside the true calyx, a double epicalyx, each portion with four teeth, while the true calyx has a five to six-toothed limb; the corolla has a short tube, and its five or six-parted limb is divided into five or six narrow spreading divisions; stamens five to six, inserted on to the throat of the corolla, beyond which they project; ovary two-celled; stigmas two, linear. [M. T. M.]

TRICERA. A genus of West Indian shrubs of the family *Euphorbiaceæ*. The flowers are monocious, disposed in racemes—the male flowers being below, the females solitary at the apex of the raceme. The males have a perianth of four segments, enclosing four stamens; the females a five-leaved perianth, and three styles, ultimately dividing into six stigmatic branches. The fruit consists of three two-seeded carpels, separating one from the other when ripe. [M. T. M.]

TRIGERANDRA. A supposed genus found in Manchuria, now referred to *Chloanthus*.

TRICERASTES. A genus of *Datiaceæ*, now united with *Datiæ*, consisting of an erect annual herb from California, with tripartite leaves, having the central lobe pinnatifid, and axillary heads of small green hermaphrodite flowers. The calyx-tube is connate with the ovary, with a minute three-toothed limb; there is no corolla; three stamens alternate with the calycine teeth; and the ovary is inferior, one-celled, with three parietal placentas and numerous ovules, and three bipartite styles opposite the calycine teeth. The capsule is three-valved at the apex. [T. M.]

TRICEROS. A little-known genus of *Loasaceæ*, apparently of terebinthaceous. The original species from Cochín China is the only one referred to it. It is a small tree, with spreading branches, and imparipinnate and bifurcate leaves. The calyx and corolla have each five spreading divisions; the five stamens have slender filaments, and ovate two-celled anthers; there are three short styles; and the berry is round below, but is furnished above with three horns, and has three one-seeded cells. [W. C.]

TRICHADENIA. A genus of *Pangiceæ*,

of which only one species, *T. zeylanica*, is known. This is a very large Clingalee tree, called *Tettigaha* or *Tettigass* by the natives; its wood, however, is of little or no value. It has alternate oblong leaves, and short axillary panicles of small pale-green unisexual flowers, the two sexes being borne on separate trees. The female flowers produce roundish fleshy fruits, about an inch in diameter, containing from one to three bony-shelled seeds, from which the Clingalese extract an oil, useful for burning, and as a remedy for diseases of the skin in children. Both kinds of flowers have an entire calyx, which ultimately breaks away irregularly at the bottom, and falls away in a single cap-like piece; and five overlapping petals, with fleshy hairy scales attached to them along the middle on the inside. The males contain five stamens, with thick filaments, spirally twisted in the bud, and oblong anthers; and the females a free one-celled ovary, with three ovules attached to the sides, and bearing three styles with broad kidney-shaped stigmas. [A. S.]

TRICHETA. *Triacetum*.

TRICHANTHERA. A genus of *Zygophyllaceæ*, containing a single species—a small and slender plant from Arabia, with alternate stipulate setaceous leaves. The five-cleft calyx is persistent; the corolla consists of five linear petals; the five stamens have flattened filaments and slender anthers; the style has five deep furrows, and a capitate stigma; and the ovate and stipitate capsule is obtusely five-sided, and has five many-seeded cells. [The genus is, by Benthams and Hooker, united with *Hermannia* in *Sterculiaceæ*; but the single series of stamens is scarcely sufficient to separate it from *Zygophyllaceæ*, with which order it otherwise agrees.] [W. C.]

TRICHIA. A genus of myxogastrous *Fungi*, remarkable from the threads which accompany the spores having a spiral structure. Some controversy exists as to the real nature of these bodies. An attentive examination, however, of the threads when branched (which is sometimes the case) shows, we think, that the spiral appearance does not arise from a mere twisting, but from the formation of one or more threads of a spiral form within a tube, with which they afterwards become intimately incorporated—the threads passing into the branch exactly like those of true spiral vessels in phænogams, when the vessels are branched. The species are very widely diffused, and occur in various parts of the world. The threads and spores often exhibit bright colours, as deep tawny, scarlet, golden-yellow, buff, &c. The spores are mostly smooth but sometimes rough, with little points. Most of them occur in Great Britain. [M. J. B.]

TRICHIDIUM. A hair which bears the spores of such fungi as *Gaestrum*.

TRICHILIA. A number of Indian and Australian species were formerly com-

prised under this genus of *Meliaceæ*, but they are now referred to other genera; as also are several of the American species; and *Trichodus* is restricted to six or seven American and a dozen or more African and West Indian species, some of which are trees, and others erect or climbing shrubs. Their leaves are unequally pinnate, or rarely trifoliate; and their flowers, which are borne in axillary panicles, have a four or five-lobed calyx, as many egg-shaped or oblong overlapping petals, an eight or ten-lobed stamen-tube, with narrow blunt segments bearing terminal anthers, and a three-celled ovary containing two ovules side by side in each cell. Their fruit is a three-celled capsule, which when ripe splits into three valves, each of which has a partition down the middle, with a seed, covered with a pulpy aril, on either side of it. *T. emetica*, the Koka of the Arabs, is a large tree with pinnate leaves composed of four pairs of smooth elliptical leaflets and an odd one, and dense panicles of whitish flowers like those of the citron. In an Arabic work, quoted by Forskahl, the fruits are called 'Djouz elkal,' and are said to possess emetic properties. The Arabian women mix them with the perfumes used for washing their hair; while the ripe seeds are made into an ointment with sesamum-oil, and used as a remedy for the itch. [A. S.]

TRICLINIUM. A genus of *Amaranthaceæ*, consisting of annual or perennial herbs, natives of Tropical and Extratropical New Holland. The flowers are in terminal heads, or spikes provided with three shining bracts to each flower; the perianth consists of five linear segments; stamens five, coherent at the base; ovary one-celled, with one erect ovule; style simple; fruit utricular, included within the perianth. Some of the species are extremely ornamental. [M. T. M.]

TRICHOCARYA. A genus of *Ranunculaceæ*, including two trees or shrubs, one from Borneo and the other from Sumatra. The leaves are feather-veined, and the flowers grow in clusters. The calyx has a long cylindrical or angular tube, expanding above into a somewhat cup-shaped limb, which is divided into five triangular segments; the petals are ovate, acute, shorter than the sepals; the stamens numerous, perigynous; and the ovary is enclosed by the tube of the calyx, one-celled, with a single ovule, and a basilar style. Fruit succulent externally, bony within, globose above, constricted and three-sided below; the stone is one-seeded, and very hairy in the interior. From this latter circumstance the genus takes its name, derived from the Greek *thrix* 'a hair,' and *karyon* 'a nut.' [M. T. M.]

TRICHOCENTRUM. A genus of orchids, belonging to the tribe *Vandeæ*, inhabiting South and Central America. They are epiphytal stemless herbs, with broad prominently veined leaves, and axillary flowers. The sepals and petals are spreading,

free, equal; the lip sessile, connate with the base of the column, furnished with a long spur, two-lobed. It comes near *Encyclodes*, from which it differs in its lip being united at the base with the column, and in the latter being furnished with two ears or wings. [W. B. H.]

TRICHOCLADUS. A genus of *Hamamelidaceæ*, containing two species of villose shrubs, with shortly petiolate and entire leaves, and flowers in axillary or terminal pedunculate heads. The flowers are dioecious from the abortion of parts. The calyx-tube is connate with the ovary below, but divides into five lobes above; the epigynous corolla has five long linear petals; the five stamens are inserted on the petals, and have very short filaments; the ovary is two-celled, with a single ovule in each cell; and there are two distinct styles. The species are natives of the Cape of Good Hope. [W. C.]

TRICHOCLINE. A genus of *Compositæ*, consisting of Brazilian perennial herbaceous plants, with leaves clustered near the bases of the simple stems. The head of flowers is terminal and solitary, surrounded by an involucre which is bell-shaped, consisting of an outer row of leafy scales, and an inner series of membranous ones. The receptacle is covered with fine fringe-like hairs. The corollas are two-lipped, the central ones equally so, the outer with the exterior lip largest. Achenes top-shaped, surmounted by a pappus of numerous scaly seriated hairs. [M. T. M.]

TRICHOCLORONIS. By this name is designated a genus of *Compositæ*, consisting of herbs growing in marshes and moist places in Texas. The stems are creeping at the base; the branches sticky; the leaves amplexicaul; the flower-stalks slender, naked, solitary or corymbose; the flowers rosy or purple, surrounded by an involucre of ten or twelve membranous scales; and the receptacle central, naked. The corollas are more or less glandular, tubular below, expanding above into a bell-shaped five-toothed limb; branches of the style projecting, linear, flattened. Achenes pentagonal, surmounted by a short crown-like pappus. [M. T. M.]

TRICHODESMA. A genus of *Boraginaceæ*, from India, Egypt, and South Africa. They are strigose annuals, with the habit of *Borago* or *Cynoglossum*. The corolla is subrotate, with a naked throat; anthers exerted, with pointed awns, furnished with two rows of hairs on the back, by which they adhere together; nuts half immersed in pits in the central column. [J. T. S.]

TRICHODESMIUM. A genus of *Algae* belonging to the *Oscillatoria*, distinguished by their short threads being collected in little fascicles, which float freely, forming a scum upon the surface of the sea. Instead, however, of occurring in circumscribed patches, it covers, without any intermission, oceanic tracts many miles in extent, distinguished by a peculiar red-brown tint,

and resembling at first, when closely examined, minute fragments of chopped hay. It was, we believe, in more recent times first noticed, particularly 'in Osbeck's voyage; but there is some reason to believe that the phenomenon was known to ancient mariners, and that the Red Sea, where it has been lately observed, derived its name from it. One circumstance which has more especially attracted the notice of navigators is, that while sailing through the scum, not only a disagreeable pungent smell has been perceived, but the mucous membrane of the eyes and nose have been affected, inflammation of the eyes and severe sneezing being induced by it. It is not, indeed, the only plant of the same natural order that has noxious properties, some of the common species of *Oscillatoria* emitting an odour like that of *Chara*, which in certain cases is strong enough to produce headache. [M. J. B.]

TRICHODIUM. The three species which were formerly described under this genus of grasses, are now placed in *Agratis* by Steudel and others. [D. M.]

TRICHOGASTRES. A natural order of gasteromycetous *Fungi*, comprising those genera which have in an early stage a sinuous complicated crumb-like hymenium, enclosed in a common peridium consisting of one or more distinct coats, and at maturity breaking up into a dusty mass of spores mixed with threads. It is closely connected with *Podaxinet* through the genus *Polyplocium*, which is equally dusty when mature, though retaining traces of the walls of the hymenium. The most familiar instances are the common puff-balls, which are found in almost every part of the world. *Batarræa* is connected with the phalloid fungi by its gelatinous volva. The species love open exposed situations, though a few are always found in the shade. One or two are esculent. [M. J. B.]

TRICHOGLOTTIS. A small genus of orchids, belonging to the *Vandææ*. They are epiphytal herbs, with linear or linear-lanceolate coriaceous or fleshy leaves, and flowers on short lateral or leaf-opposed few or one-flowered peduncles. It comes near *Phalenopsis*, but the inflorescence is sufficient to distinguish it. The species described are from Tropical Asia. [W. B. H.]

TRICHOGYNE. The name of a genus of undershrubs or herbs, natives of the Cape of Good Hope and of the Mediterranean region, and belonging to the family *Compositæ*. The leaves are sessile, membranous, densely woolly; the flower-heads in terminal tufts, rarely in axillary whorls. The involucre consists of a small number of loosely imbricated scales; the receptacle is scaly at the margin, elsewhere naked; and the pappus of the female flowers is absent, that of the male flowers consisting of one row of hairs, which are feathery at their points. [M. T. M.]

TRICHOLENA. The species which were formerly described under this genus of

grasses, along with a few others, form the section *Tricholena* of the great genus *Panicum*, in Steudel's *Synopsis*. [D. M.]

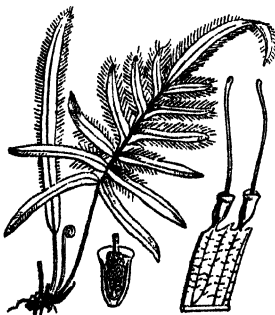
TRICHOLEPIS. A genus of Indian herbaceous plants, of the family *Compositæ*. The leaves are narrow, serrated and sessile. The involucre consists of very numerous overlapping scales, which are hair-like, and recurved at the points. The receptacle has a number of small scales terminating in fine hairs; and the pappus is various, either of one or of more rows of rough scales, confluent below or disunited, or sometimes altogether wanting. [M. T. M.]

TRICHOLOBUS. A genus of *Connara-cææ*, consisting of two trees, natives of the islands of the Indian Archipelago. The flowers have five lance-shaped sepals, and as many petals; ten stamens, alternately long and short, united together below; a sessile one-celled ovary, containing two ovules, and surmounted by a short style, and a dilated stigma. The capsule is sessile, and opens by two valves. [M. T. M.]

TRICHOLOMA. *Glossostigma*. See *Supra*.

TRICHOMA. The filamentous thallus of algae, as *Conferva*.

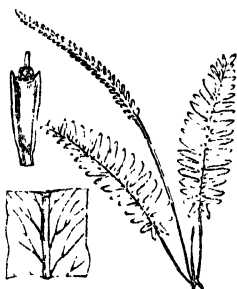
TRICHOMANES. A very extensive and also a very varied and beautiful genus of ferns, typical of the tribe *Trichomanaceæ* of the *Polypodiaceæ*. It belongs to the series with free veins and urn-shaped or tubular involucres, and is distinguished from *Loasoma* by its pellucid texture, and from *Flea* by its monomorphic fronds. The fronds are either simple pinnate or decompound, usually membranaceous in texture, and pellucid. The sori are seated in extrorse-



Trichomanes pinnatum.

marginal cups, either sunk in or free on the margins of the fronds: the veins being continued into filiform exserted sometimes capitate receptacles, free within the cups, and bearing the sessile lenticular sporocases near their base. The involucres or

cups are funnel-shaped or shortly bell-shaped, truncate at the mouth, entire with a straight or spreading margin, or more or less distinctly two-lipped. The species are most abundant in the moist shady woods



Ficus spicata.

of the tropics both of the Old and New World. One of them, *T. radicans* or *speciosum*, occurs in Madeira and on the coast of Ireland; this species was formerly found sparingly in Yorkshire. There are two tolerably distinct groups—*Eutrichomanes*, with the involucres truncate, spreading or not at the mouth; and *Didymoplossum*, with the involucres two-lipped. They are distinguished from *Ficus* by the much-contracted fertile fronds of the latter. [T. M.]

TRICHONEMA. A genus of *Iridaceæ*, occurring chiefly in South Africa and in the Mediterranean region; and consisting of small bulb-tuberous plants, with narrow leaves, and short terete scapes bearing solitary crocus-like flowers. It is closely related to *Crocus*, and differs chiefly from that familiar genus in the short tube of the perianth, and in having three bifid stigmas with slender lobes. [T. M.]

TRICHOPETALUM. A small genus of *Liliaceæ* from Chili, with fasciculate roots, linear-cusiform grass-like leaves, and sub-solitary racemose or spicate-paniculate white flowers, green on the outside of the hexapetaloid perianth, the segments of which are recurved, the three inner fringed at the margins. There are six stamens, with glabrous filaments; and the capsule is oblong three-celled, with numerous kidney-shaped compressed seeds having a hard black seed-coat. *Anthericum plumosum* is to be referred to this genus, and is now known as *T. stellatum*. [J. T. S.]

TRICHOPHORUM. The stipe of certain fungi.

TRICHOPILIA. A beautiful though small genus of epiphytal orchids, belonging to the *Vandææ*. They are natives of Tropical America and the West Indian Islands, and consist of herbs with curi-

ously sheathed fleshy pseudobulbs, having but one coriaceous leaf, and solitary axillary brilliantly-coloured flowers. The sepals and petals are equal, long narrow, in some species twisted; and the lip somewhat three-lobed, convolute, naked within. It differs from *Marillaria* in the column not being reclinate on the ovary, in the spreading sepals and petals, and especially in the singular column terminated by three little plume-like lobes, which unite at their base into a sort of hood that covers a remarkably compressed anther. [W. B. II.]

TRICHOPODIUM. A genus of Indian herbaceous plants, of the family *Aristolochiaceæ*. The leaves are lanceolate or linear; the female flowers, which alone are described, have a perianth which is tubular at the base and has a six-cleft limb; there are six sterile stamens, inserted in as many pits, and three cleft stigmas. The fruit is triangular, with wings at the angles, three-celled and indehiscent; and there are one or two seeds in each cell. [M. T. M.]

TRICHOPTERIS. *Amphidesmium*.

TRICHOS. In Greek compounds = hair like, or hairy.

TRICHOSACME. A Mexican genus of *Asclepiadaceæ*, consisting of a solitary species, *T. lanata*, an erect shrub covered all over with white wool. It is characterized by the callosa having a very short flattened tube, and egg-shaped segments, slightly notched at the apex, and marked outside with a learded nerve, which is prolonged a considerable distance beyond the apex of the segment, and forms a slender appendage, densely covered upwards with long jointed hairs, resembling a pencil-brush: the generic name, derived from *trichos* 'hair' and *acme* 'a point', referring to this appendage. The staminal corona is shortly urceolate or ring-like, the rim being divided into five short teeth, each of which is slightly notched; the anthers have no terminal appendages; and the pollen masses are pendulous. [A. S.]

TRICHOSANDRA. A genus of *Asclepiads*, containing a single species, *T. borbonica*, a twining shrub, native of the island of Bourbon, with smooth leaves shining on the upper side, and solitary many-flowered cymes on short stalks beyond the leaf axils. It is allied to *Gynemema*, from which it is technically distinguished by the gynostegium, which is nearly as long as the calyx-tube, being naked; and by the anthers terminating in a white irregularly torn hairy membrane. Its flowers have a corolla approaching a bell-shaped form, with five erect segments, and naked at the orifice; and its fruits are smooth and woody, and contain seeds furnished with hair-tufts. [A. S.]

TRICHOSANTHES. A genus of *Cucurbitaceæ*, named from two Greek words signifying 'hairy flowers,' in allusion to the blossoms being beautifully fringed. It consists of about thirty (mostly Asiatic) species of trailing or climbing plants, with

simple or twice or thrice divided tendrils, heart-shaped entire or three to five-lobed leaves, and flowers of separate sexes, but usually borne on the same plant—the males being generally in racemes, and the females solitary. These produce very long or roundish fleshy fruits, containing flat irregular-shaped seeds embedded in pulp.

T. cucumerina, the Doonimaala, a common Cingalese and South Indian plant, is much valued by the native doctors in Ceylon as a remedy for fevers; and, from experiments made in the hospital at Badulla, it would seem to possess considerable efficacy. It contains tannic acid; and the infusion of it, which is the form used, is very bitter. *T. colubrina*, the Serpent Cucumber or Viper Gourd, is so called from the remarkable snake-like appearance of its fruits, which are frequently six or more feet long, and at first striped with different shades of green, but ultimately change to a bright orange-colour. It is a native of Central America. Another species, *T. anguina*, a native of India and China, is called the Snake Gourd, but its fruits are seldom more than half as long as the above. [A. S.]

TRICHOSMA. A section of *Eru*, with terete two-leaved stems, smooth glabrous leaves, and terminal few-flowered spikes. It is represented by *E. suavis*. [T. M.]

TRICHOSPERMUM. A genus of *Tiliaceæ*, of which only two species are known—one inhabiting Java, the other the Feejees. They are middle-sized trees, with entire ovate leaves, and small cymose flowers. The sepals are distinct, and like the petals are five in number; whilst the stamens are numerous, free, all of them bearing anthers. The capsule is two-valved, somewhat wedge-shaped, containing numerous seeds. The Feejean *T. E. elii* (*Dacodermis*) yields a useful timber. [L. S.]

TRICHOSPORANGIA. See OOSPORANGIA.

TRICHOSTEMMA. A genus of *Labiata*, natives of North America, consisting of low annuals with entire leaves, and mostly solitary one-flowered pedicels terminating the branches. The oblique bell-shaped calyx is deeply five-cleft, its three upper teeth long and partly united, and the two lower ones very short; the corolla is divided into five nearly equal oblong lobes, the three lower of which are more or less united; and the four stamens have very long capillary filaments, exerted considerably beyond the corolla. [W. C.]

TRICHOSTOMEI. A natural order of acrocarpous mosses distinguished by a peristome with thirty thread-shaped teeth, frequently disposed in pairs, and sometimes spirally twisted. It abounds in species which are principally European, and some of which ascend to very high latitudes, the only three mosses in lat. 64° 57' N. belonging to this order. It is worthy of remark, that when the teeth are spiral, the cells of the lid which immediately covers them

follow the same arrangement. The typical genus *Trichostomum*, of which we have nine species, differs from *Tortula* only in the straight teeth; and even this character falls in *Trichostomum rigidulum*, which is perhaps our most common species. *T. glaucescens*, a very rare plant, is remarkable for its glaucous hue, which depends upon some extraneous substance whose nature has not at present been ascertained. A similar appearance occurs also in *Bartramia*. [M. J. B.]

TRICHOHECIUM. A genus of thread-moulds (*Hyphomycetes*) formerly proposed on erroneous characters, and, so far as *T. roseum* is concerned (about which alone we wish to speak), identical with *Dactylium*. This *T. roseum* consists of a creeping mycelium, from which arise short erect threads, crowned above with a few obovate unispore spores. The mass is at first white, but at length acquires a pale rose-colour, by which it is readily distinguished. The plant grows very abundantly on various objects, whether dead or living; and is sometimes highly destructive to cucumber-plants, forming broad patches on the leaves and stem. It occurs also not unfrequently in closed cavities, as in nuts, to which it must have made its way from without, through the tissues. Hoffmann has observed a second form of fruit in the shape of globose granules which he calls spermatia; these bodies germinate, and have apparently nothing to do with impregnation. As in the case of hant, and some other *Fungi* which occur in the tissues of plants, it is possible that the germination of these minute bodies may facilitate the entrance of the mycelium into the plant. A solution of bisulphite of soda, or indeed anything which contains sulphurous acid, properly applied, may facilitate the destruction of the mould, when regulate. [M. J. B.]

TRICOTOMOUS. Having the divisions always in threes.

TRICOCCÆ. A name under which Klotzsch and some others have designated the large order *Euphorbiaceæ*, taken in its most enlarged sense.

TRICOCCUS. A fruit consisting of three cocci, or elastically dehiscing shells.

TRICOLOR. The garden name for *Anarrhæus tricolor*.

TRICOLOR. Consisting of three colours.

TRICOMARIA. A shrub, native of Chili, constituting a genus of *Mulphigaceæ*. The leaves clasp the stem; the branches are spinous; and the flowers are orange-coloured. The calyx is five-parted, the four outer segments having each two glands at the base; the petals are five, stalked, hairy on the outer surface; there are ten stamens, all fertile, three filaments united at the base; the ovary is tri-lobed three-celled, each with a single ovule, and there are three styles. The fruit is succulent, three-celled, and hairy on the outer surface. [M. T. M.]

TRICOSTATE. Having three ribs.

TRICYCLA. This name has been given to a tree, native of Brazil, which constitutes a genus of *Nyctaginaceae*. Some of the branches are spiny; the leaves are alternate and tufted; and the flowers are solitary, on short stalks from the base of the tufts of leaves. The involucre consists of three coloured leaves. The perianth is petaloid, tubular, constricted in the middle, its limb having five lobes; stamens five, free; ovary one-celled, with a single ovule; fruit angular, enclosed within the hardened base of the perianth, and surrounded by the persistent involucre. [M. T. M.]

TRICYRTIS. A genus of *Melanthaceae*, from Nepal and Japan. It consists of erect woody herbs, with alternate ovate-cordate implexate leaves, and a leafy terminal raceme of flowers; these have a six-leaved perianth, the segments connivent in a ball, and narrowed into claws, the three outer bulging at the base; six stamens; a three-cleft style, with six stigmas; and seeds with rough black seed-coats. [J. T. S.]

TRIDAX. The name of a genus of *Compositae*, comprising a Central American herbaceous plant, with stalked ovate leaves, borne on procumbent stems. The flower-heads are surrounded by an involucre of two rows of bracts, the outer (six or eight in number) ovate leafy hairy externally, the inner membranous and very smooth; the receptacle is covered with lanceolate scales. The fruits are compressed, hairy, each surmounted by a pappus of fifteen or sixteen branched scales. [M. T. M.]

TRIDENTATE. When the point is truncated, and has three indentations.

TRIDENTIA. One of the subdivisions of *Stapelia*, proposed by Haworth. It has the outer staminal crown five-parted, the divisions in the form of three teeth, and the inner blind, the innermost horn being longer than the others. [T. M.]

TRIDESMIA. A genus of *Hypericaceae*, now united with *Cratogeomys*. The only species is a tree or shrub, native of the Moluccas, having angular branches, bearing on their extremities a terminal bud, consisting of membranous wavy dotted scales. The flower-stalks originate from the axils of the scars of the fallen leaves. The calyx is five-parted, persistent; petals five, provided in the interior with a trilobed linear appendage; stamens five, in three parcels, alternating with which are three small awl-shaped scales; ovary three-celled, ovules numerous; styles three; fruit capsular. The name is derived from the Greek *treis* 'three' and *desme* 'a bundle,' in allusion to the number of stamens. [M. T. M.]

TRIEDER. Having three sides.

TRIENNIAL, TRIENNIS. Lasting for three years.

TRIENTALIS. A small genus of *Primulaceae*, the species of which are found in Europe and North America. They are low and smooth perennials, having an erect

stem, which bears some alternate usually minute and scale-like leaves below, and a single whorl of large leaves at the top, from which spring one or more single-flowered peduncles. The calyx is five to seven-parted; the corolla rotate, with a short tube, and as many deep flat divisions as the calyx; there are five to seven stamens, inserted at the base of the corolla; the capsule is many-seeded, and opens to the base with five to nine recurved fugacious valves; and the seeds are inverted, and have a reticulated tunic. [W. C.]

TRIFARIAM, TRIFARIOUS. In three rows.

TRIFID. Split halfway into three parts.

TRIFOLIATE, TRIFOLIOLATE. Bearing three leaflets from the same point; as in those of the clover.

TRIFOLIUM. A genus of *papilionaceae* *Leguminosae*, distinguished by trifoliate leaves, with stipules adhering to the leaf-stalk. The number of British species is variously estimated at from fifteen to twenty: of these about half may be called meadow or pasture herbs, and the remainder weeds.

The agrarian species of Clover or Trefoil may be grouped as follows:—RED: *T. pratense*, Red or Broad-leaved Clover; *T. medium*, Zigzag Clover; *T. incarnatum*, Carnation Clover. PINKISH or WHITE: *T. hybridum*, Alsike Clover; *T. repens*, White or Dutch Clover. YELLOW: *T. procumbens*; *T. aliforme*.

The Broad leaved Red Clover is found in most fertile meadows, and is extensively employed as a shifting crop, either by itself, or in mixtures which the farmer calls 'seeds.' Its arable form is much larger than the wilder varieties; it is, indeed, so much an induced plant, that it has become difficult to make it hold to some lands so perfectly as it formerly did, in which cases the soil is described as 'clover-sick.' The Zigzag Clover is so called from the angular bends at each joint of its stalk. Its leaflets are more pointed than those of *T. pratense*, and usually without the white spot, but this character is not constant. It is a lover of sandy soils, whereas the *T. pratense* is not so well adapted for light land; and being a large species it appears to have been introduced to cultivation as a good cropper where the common clover had failed. Some ten years ago *T. medium* could be obtained of the seedsmen, but at present its place is supplied by what is labelled *T. pratense perenne*, and commonly called 'Cow-grass.' The solution of this mystery appears to be that the two forms here mentioned are but varieties of the Broad-leaved Clover, the sand-clover in cultivation so rapidly assuming the characters of Broad Clover, that, however different they may originally have been, their distinctive characters cannot with certainty be maintained in their growth as crop-plants. Hence the disputes which are so constant between farmers and

seedsmen, for not sowing the true Cow-grass, are exceedingly difficult to settle.

The Carnation or Crimson Clover, as a crop-plant, appears to have been introduced from the Continent. It is an annual species, much used (especially in the upland soils in the neighbourhood of London) upon the white-crop stubble sown in autumn, in which case even a heavier crop than that of the Broad-leaved Clover can be cleared away the following summer in time for a late sowing of turnips. Several varieties of its seed can now be obtained, among which the *T. incarnatum* 'lardifrouge' and *T. incarnatum* 'lardif blanc' of Vilmorin are red and white forms, coming in about a fortnight later than the usual variety, and so have been recommended for succession.

The Alsike Clover is also of foreign origin, being much grown on the Continent. It has got the name of 'hybrid clover' from its apparently possessing characters intermediate between the common red and Dutch clovers, but its hybridity is not admitted by botanists. Its flowers, which grow in compact heads like those of the red clover, are of a pinkish bluish. Its shoots trail along the ground without rooting, as in the Dutch Clover. It is a good pasture plant, deserving of more attention than it has yet received in this country.

The Dutch Clover, or Shamrock of Ireland, is a valuable feeding plant in dry and thin soils; and in laying down permanent pastures, unless in strong land, it should be always pretty freely employed. Its spontaneous growth in the meadow is always hailed as a sign of improved condition. It must not in that case be confounded with the *T. fragiferum*, called Strawberry-headed Clover from the fruit-like aspect of its calyces, which expand and take on a reddish colour after the flowers fade—this latter peculiarity being indicative of stiff clays.

The Procrumbent or Hop Trefoll of the botanist is readily distinguished from the other species by its bunch of yellow flowers, withering to the bright-brown of a strobile of hops, which it is not unlike in general aspect, and hence its common name. This must not be confounded with the Hop Trefoll of the farmer, which is the *Medicago lupulina*. They may be readily distinguished thus—The ripened fruits of the *Medicago lupulina* are arranged in a bunch of black, ribbed seed-pods. The pods of the *T. procumbens* are straight, and always covered with the persistent dried hop-like flowers. This latter has been used for farm purposes, but is of little value. The small Yellow or Suckling Clover is more diminutive in all its parts than the preceding. It has been recommended as a mixture in light pasture herbage, but is scarcely worth consideration.

A four-leaved Shamrock or other clover is greatly esteemed as being lucky, perhaps upon the principle that it is thought by some to be fortunate to get anything rare; four-leaved (even-leaved) clovers are, however, not unfrequently met with. [J. B.]

TRIFOLIUM DES JARDINIERS. (Fr.)
Cytisus sessilifolius.

TRIFURCATE. Having a fork with three tines, as some hairs.

TRIGLAND. Containing three nuts (glands) within an involucre; as the Spanish chestnut.

TRIGLOCHIN. Marsh-herbs with very narrow radical leaves, and slender spikes of inconspicuous green flowers, belonging to the order *Juncaginaceæ*. The flower is composed of six concave deciduous leaves, six stamens, three to six plumose stigmas, and as many combined one-seeded capsules. There are two British species, which agree in having grass-like but fleshy leaves, grooved throughout and sheathing at the base. The flowers, which are very small, are only remarkable for their feathery stigmas. *T. palustre*, the Marsh Arrow grass, is common in wet meadows and in marshy situations generally. In this species the stigmas are three, and the three capsules form a linear column. *T. maritimum* is a somewhat more robust plant, and is sufficiently distinguished by its six capsules, so combined as to be broadly elliptical or almost globose in form. In general habit both species bear some resemblance to a *Plantago*, but the spike is much more lax. [C. A. J.]

TRIGONANTHUS. *Ceratostylia*.

TRIGONELLA. A rather extensive genus of herbaceous leguminous plants, widely spread over Southern Europe, Western and Central Asia, Northern Africa, and occurring more sparingly in Australia, all the species possessing a heavy penetrating odour. Their leaves are composed of three leaflets, the middle one being stalked; and their flowers are disposed in axillary umbel-like heads, or are produced, either solitary or in clusters of two or three, in the leaf-axils. They are succeeded by straight or slightly curved flattened or cylindrical many-seeded pods, which are longer than the calyx, and split into two valves at maturity.

T. Fenugreek, the Fenugreek or Fenugree, is an erect annual plant about two feet high, a native of the Mediterranean region, but cultivated in India and other warm countries, and occasionally in England, though our climate is scarcely suitable to it. The seeds of Fenugreek were held in high repute among the ancient Egyptians, Greeks, and Romans, for medicinal and culinary purposes, but at the present day their use in medicine is with us confined to veterinary practice—Fenugreek powder being the principal ingredient in most of the quack nostrums which find so much favour amongst ignorant grooms and horsekeepers. They have a powerful odour of coumarin, and are largely used for flavouring the so-called concentrated cattle-foods, and for rendering damaged hay palatable. [A. S.]

TRIGONIA, TRIGONIACEÆ. The genus *Trigonia*, consisting of tropical American

trees, with opposite stipulate leaves (white underneath) and paniculate flowers, presents so many anomalies, that it has been proposed to consider it as a distinct order of polypetalous dicotyledons under the name of *Trigonaceæ*. It had been referred to *Polygalaceæ*, chiefly on account of its irregular flowers and the long hairs of its seeds; but it has little else in common with them, and the position of the petals and insertion of the stamens is quite different.

As the irregularity of the flower is of the same nature as in *Leguminosæ*—i.e., it has one petal, which is of quite a different shape from the others, placed uppermost or next the stem from which it springs—it disagrees with the *Polygalaceæ*, which have not this characteristic, and should therefore be regarded as a distinct family, or (what is perhaps more advisable) placed as a section of *Leguminosæ*. The irregularity of the stamens is also of the same nature as in *Leguminosæ*, the fissure or vacant space being opposite the enlarged upper petal. Some good authorities think that the real affinities of the genus or order lie probably in the direction of *Vochyaceæ*, through the medium of *Ligntia*. [B. C.]

TRIGONIDIUM. A small but curious genus of orchids from Tropical America, belonging to the tribe *Vandææ*. They are epiphytal herbs, with creeping stems, bearing pseudobulbs, few coriaceous leaves, and solitary flowers on erect radical peduncles clothed with sheathing bracts. The sepals are equal, somewhat herbaceous, cohering at the base, spreading at the apex, about twice the size of the petals. The remarkable flowers of this genus distinguish it from all others. [W. B. H.]

TRIGONOSTEMON. A genus of *Euphorbiaceæ*, comprising a Javanese shrub, with acuminate whorled leaves, hairy on the under-surface. Flowers monocious, crowded on axillary racemes; calyx five-parted; petals five, inclining inwards, alternating with five glands; stamens three, united below, free above, the anther-lobes divergent. In the female flowers the three cells of the ovary have each one ovule, and the fruit is capsular. [M. T. M.]

TRIGONOUS. Having three angles and three plane faces; as the stem of *Carex acuta*.

TRIILATE. Having three apertures, as some sorts of pollen-grains.

TRIJUGOUS. When the petiole of a pinnated leaf bears three pairs of leaflets.

TRILATERAL. A prism of three sides.

TRILIX. *Proelia*.

TRILLIACEÆ. A small order of monocotyledons, sometimes considered as a sub-order of *Smilacææ* or of *Liliacææ*. It is distinguished by simple stems, bearing a whorl of netted-veined leaves, and a single terminal flower, with usually three herbaceous sepals, three larger petals, six to ten stamens with linear anthers, a free

ovary with three to five cells and as many distinct styles, and a succulent fruit. The species are all natives of the temperate regions of the Northern Hemisphere, and are distributed into five or six genera, of which the most important are *Trillium* and *Paris*.

TRILLIDIUM. A genus of *Trilliaceæ* from India, containing the *Trillium Goenianum* of Wallich, which is somewhat intermediate between *Trillium* and *Paris*, having the same ternary arrangement of the flower which occurs in the former, from which it differs in the leaves of the perianth being all similar (coloured), the anthers extrorse after flowering, and the stigmas subulate. It is a herb with a horizontal creeping rhizome, and an erect stem, terminated by a whorl of three stalked five-nerved leaves, in the centre of which there is a single erect flower. [J. T. S.]

TRILLIE. (Fr.) *Trillium*.

TRILLIUM. An exclusively North American genus, referred by some botanists to *Smilacææ*, while others consider it the type of a distinct order called *Trilliaceæ*. It is distinguished from its congeners by its flowers having three green persistent sepals, and three larger coloured and withering petals, six stamens with anthers bursting inwards, and a six-sided three-celled ovary, with numerous ovules in several rows in each cell, and bearing three distinct or very rarely cohering styles. The plants belonging to it are perennial smooth herbs, with tufted tuberous roots or creeping rootstocks, and simple stems bearing at the summit three broad stalkless or short-stalked thin leaves arranged in a whorl, and a solitary flower either with or without a stalk in the middle. Seventeen species, spread over the Continent of America from Georgia to the Arctic regions, are described.

The fleshy roots of *T. erectum* (sometimes called *T. pendulum*), under the name of Beth-root, form one of the numerous drugs prepared for sale in the United States by some of the societies of the religious sect called Shakers. They are esteemed astringent tonic and antiseptic, and are employed in spitting of blood and several other complaints. The plant is also called Indian Balm or Lamb's Quarters. It has an erect stem a foot or more high, bearing three broad almost rhomboid leaves, and drooping fetid flowers, with green sepals striped with purple, and deep purple petals. [A. S.]

TRILOBED, TRILOBUS. Three-lobed, as in the leaf of *Ancione Hepatica*.

TRIMERIA. The name of two South African trees constituting a genus of *Biancheæ* (*Flacourtiaceæ*). The leaves are alternate, petiolate, three-nerved. The flowers are in axillary spikes, the calyx consisting of three sepals, and the corolla of three larger concave petals; there are nine stamens, aggregated together in three bundles, placed opposite to the petals, and

alternating with as many large glands; ovary free, with three parietal placentas, each bearing a single ovule; styles three; fruit one-celled, three-valved; seeds three or one. This genus derives its name from the Greek words *treis* 'three' and *meros* 'a part,' indicating the ternary arrangement of the parts of the flower; in this one particular, but in no other, the genus shows a resemblance to endogeous. [M. T. M.]

TRIMERIS. A shrub of St. Helena, constituting a genus of *Lobeliaceae*. The flowers are in axillary racemes; the calyx is five-cleft, the segments being provided with a thick dorsal nerve; the corolla consists of five petals, two upper ones free linear, the lower three united into an erect three-lobed lip; and the five stamens are inserted with the corolla on to the upper part of the tube of the calyx, the anthers united so as to form a tube, the two lower ones hairy. The ovary is two-celled, the stigma two-lobed; and the fruit capsular, bursting from above downwards into two valves. [M. T. M.]

TRIMESTRIS. Existing for three months.

TRIMUS. Lasting for three years.

TRINCOMALEE-WOOD. The timber of *Berrya Ammonilla*.

TRINERVED, TRINERVIS. Having three ribs, all proceeding from the base.

TRINIA. A genus of *Umbelliferae*, consisting of biennial branching herbs, with angular stems, and bipinnatisect leaves, the divisions of which are triterminate, and the lobes linear. The numerous many-rayed umbels are paniculate or thyrsoid, and without involucre. The flowers are dioecious, or rarely monoeious. The calyx-limb is absent; the petals of the staminal flowers are lanceolate and produced into a slender appendage, which is rolled inwards; the pistiloid flowers have oval petals, with a short appendage, the point of which is bent inwards. The oval fruit is compressed at the side, and the carpels have five filiform equal ribs, the intervals being without vittæ, or having but a single one. The genus is indigenous to Central and Southern Europe, Asia Minor, and the Cape of Good Hope. [W. O.]

TRINODAL. Having three nodes only.

TRINRAGAN. An Eastern name of the *Palmyra* Palm.

TRIODIA. A genus of grasses belonging to the tribe *Aveneae*. The inflorescence is in simple contracted spike-like panicles, the spikelets of which are few-flowered and awnless; outer glumes two, nearly equal; flowering glumes with three small teeth at the top. Steudel describes eleven species, which are all natives of the Southern Hemisphere, save *T. decumbens*, a British representative of the genus, which is a common grass growing on spongy wet cold soils, and not of much agricultural importance. [D. M.]

TRICEIOUS, TRIOICUS. Having male flowers on one individual, female on another, and hermaphrodite on a third. Its sign is ♂ ♀ ♀.

TRIOLET. (Fr.) *Trifolium repens*; also *Medicago lupulina*.

TRIONUM. *Hibiscus Trionum*.

TRIOPTERYS. A genus of trailing tropical American Malpighiaceae shrubs. Their flowers are purple or violet, in axillary or terminal clusters. Calyx five-parted, four of the segments having two glands at the base; petals five, stalked, entire; stamens ten, all fertile, alternately long and short, the filaments united at the base. Ovary three-lobed, each of the lobes having three crest-like ridges on the outer surface, and each containing a single pendulous ovule; styles three; fruit with three wings on each lobe, whence the name of the genus, from *treis* 'three' and *pteron* 'wing.' One or two species are cultivated as stove-climbers in this country. [M. T. M.]

TRIOSTEUM. A genus of *Caprifoliaceae*, consisting of several species of coarse hairy perennial herbs, with large entire leaves tapering to the base but connate round the simple stem; and sessile axillary flowers, solitary or in clusters. The leaf-like lobes of the calyx are linear-lanceolate and persistent; the corolla is tubular, swollen at the base, and five-lobed; there are five stamens; the ovary is generally three-celled; and the fruit is a rather dry triangular drupe, with three-ribbed one seeded bony nutlets. The species are natives of North America and the mountains of Central Asia. [W. C.]

TRIPALEOLATE. Consisting of three pales or paleæ, as the flower of a bamboo.

TRIPARDE, or TRIPARELLE. (Fr.) A kind of Olive.

TRIPARTED, TRIPARTITE. Parted to the base in three divisions.

TRIPARTIBLE. Partible into three.

TRIBE DE ROCHE. This name, or that of Rock Tripe, is given in North America, in consequence of the blistered thallus, to several species of lichens belonging to *Gyrophora* and *Umbilicaria*, but especially to the latter, which afford a coarse food, whose nutritive qualities are, however, much impaired by the presence of a bitter principle which is apt to cause serious diarrhoea. Bad, however, as it is, it has proved of the most material service to some of our Arctic voyagers, especially to the expeditions under the lamented Sir John Franklin, though from constitutional peculiarities it is not available to all. In no case, however, did it completely appease the pangs of hunger, probably from its not containing in the proper proportions all the constituents necessary to compose a truly nutritious article of food. Some of these lichens, of large size, have been found on the northernmost Arctic land which has yet been explored. [M. J. B.]

TRIPETALOID. Consisting of six parts, of which three resemble petals, and three are green and small.

TRIPETALOIDEÆ. One of the Linnean natural orders, which included *Butomus*, *Sagittaria*, and their allies.

TRIPHASIA. Four species have been described as belonging to this genus of *Aurantaceæ*, but one of them is now referred to *Atalantia*, and two others are imperfectly known; so that the genus is practically confined to a single species, *T. trifoliata*, that on which it was originally founded by Loureiro. This is a spiny shrub, having leaves composed of three egg-shaped leaflets, notched at the top; its flowers are white and sweet-scented, and usually grow singly in the leaf-axils; producing one to three-celled berries, containing a single seed surrounded with pulp in each cell. They have a trilobed calyx, as many petals, six distinct stamens, and an ovary elevated on a short stalk, and ending in a longish thick style, which ultimately falls away. It is a native of Southern China, but it is now naturalised in many parts of the East Indies, and is also cultivated in the West Indies. Its fruits are about as large as hazel-nuts, and have a red skin. When ripe they have an agreeable sweet taste, but if gathered green they have a strong flavour of turpentine, and the pulp is very sticky. They are sometimes preserved whole in syrup, and occasionally sent to this country from Manila as lime-berries. [A. S.]

TRIPHYLLOUS. Having the leaves in a whorl of three; also, having only three leaves.

TRIPINNARIA. *Colea*.

TRIPINNATE. When the leaflets of a bipinnate leaf become themselves pinnate.

TRIPINNATIFID. Three times divided in a pinnatifid manner.

TRIPINNATISECT. Parted to the base in a tripinnate manner.

TRIPLANDRON. A tree of Columbia, now referred to *Cordia* (*Guttiferae*). The short recurved flower-stalks are arranged in groups of three. The flowers are dioecious: the males having two small bracts, placed beneath the four-leaved calyx; four roundish spreading petals, reflected at the margins; and numerous stamens in three rows, combined together into a convex four-sided mass, with thick filaments, and terminal anthers. In the females the barren stamens are combined into a fleshy four-cornered cup, surrounding the globose four-cornered many-celled ovary, and there are nine sessile radiating stigmas. [M. T. M.]

TRIPLARIS. A genus of *Polygonaceæ* from Tropical South America, remarkable for the great development of the three outer lobes of the limb of the fruiting perianth, which somewhat resemble the wings of the maple fruit. They are trees or shrubs, with alternate shortly stalked

entire leaves, accompanied by extremely short obliquely truncate ocreæ, and bearing racemose bracted unisexual flowers, of which the males are six or eight-paired. The nut is three-edged, with winged angles, and the embryo similar in shape to the nut, not six lobed as in *Ruprechtia*. Schomburgk describes the *T. Schomburgkiana*, which he found in Guiana, as having the trunk and branches hollow between the nodes, and serving as the habitation of very venomous ants. [J. T. S.]

TRIPLE-NERVED, TRIPLINERVED, TRIPLINERVIS. The same as Triple-ribbed.

TRIPLE-RIBBED. When of three ribs the two lateral ones emerge from the middle one a little above its base.

TRIPLICATO-PINNATE. The same as Tripinnate.

TRIPLICI. Thrice repeated.

TRIPLO. Thrice.

TRIP-MADAM. *Sedum reflexum*.

TRIPOLI POWDER. A pulverous substance which is imported from Germany, and used as a material for polishing steel. It consists entirely of the finity integuments of several species of *Diatomaceæ*, divested of everything except the siliceous. Several of the species of which it is composed, are found to be identical with those which are at the present day contributing to form a sediment on the Victoria Barrier, in the Antarctic regions, hundreds of miles in length. Ehrenberg even asserts that in beds of fossil *Diatomaceæ*, which are occasionally several feet in depth, species are still in the process of propagation, but this is doubtless a mere fancy. The Phonolite stones of the Rhine also abound in the remains of these minute *Algae*. [M. J. B.]

TRIPOLIUM. A genus of *Compositæ*, very closely allied to *Aster*, and hardly to be distinguished from it except by the involucre, which consists of a number of bract-like scales, disposed along the upper part of the flower-stalk, or somewhat biserial. The ligulate florets are longer and narrower than in *Aster*. The species are somewhat fleshy, and inhabit salt-marshy districts throughout Europe and North America. *T. vulgare*, frequently called *Aster Tripolum*, is not unfrequently on muddy seashores or salt-marshes in this country; its ray-florets are purple, or sometimes absent. The somewhat fleshy leaves of this plant are occasionally gathered, with those of *Siliconia*, to make a kind of pickle. [M. T. M.]

TRIPSACUM. A genus of grasses belonging to the tribe *Rotheletæ*. The inflorescence is in spikes, either solitary or three together—the upper male, the lower female; male glume two-flowered, the outer male, the inner neuter; female glume one-flowered; styles two. The few species are natives of the Southern States of America. The Buffalo-grass, *T. dactyloides*, is consi-

dered a good forage species there. It is rather too tender for the climate of Britain, where it is either killed or much hurt during severe winters. [D. M.]

TRIPTERIS. A genus of herbs or undershrubs of the family *Compositæ*, natives of Arabia and the Cape of Good Hope. The plants are frequently dotted over with glands, secreting an odoriferous substance, like that of the common marigold. The heads of flowers are at the ends of the branches, and are surrounded by an involucre of one or two rows of scales, that are frequently membranous at their margins. The receptacle is naked, flat, or somewhat convex. The florets of the ray are strap-shaped, yellow white or purplish; those of the disk tubular, yellow. The fruits of the central or disk-florets are abortive, those of the ray three-sided and winged at the angles, provided with a hollow beak, closed by a thin membrane; at other times the fruits are wingless, and have a solid beak. The pappus is always absent. The name is given in allusion to the winged fruit. [M. T. M.]

TRIPTEROCOCCUS. A genus of Australian and Tasmanian herbaceous plants, of the family *Stackhouseaceæ*. The branches are somewhat four-sided; the leaves very narrow, with two stipules; and the flowers in terminal spikes; calyx with a distended tube, its limb five-parted; petals five, their claws cohering so as to form a tube, and their limbs spreading; stamens five, inserted with the petals into the throat of the calyx; ovary three-lobed three-celled, each cell with a single erect ovule; style cylindrical; fruit of three winged indehiscent carpels, ultimately separating from a central column. The generic name alludes to the three winged fruits. [M. T. M.]

TRIPTEROUS. Three-winged.

TRIPTILION. A genus of Obilian herbs of the family *Compositæ*. The leaves are rigid, membranous, pinnately divided, and spiny; and the flower-heads are aggregated in tufts, each one surrounded by an involucre of two rows of bracts, the outer of which are spreading leathery and spine-pointed, and the inner erect and membranous. The receptacle is covered with fringed hairy scales; corollas two-lipped, the outer lip three-toothed, much wider than the inner one; fruits angular, smooth or hairy; pappus of three to five-parted fringed scales, recurved at the points. The flowers are white or blue. Some of the species are grown as annuals for the sake of their pretty flowers. The generic name is derived from *três* 'three' and *ptilon* 'a wing,' in allusion to the pappus. [M. T. M.]

TRIPTOLEMÆA. In his recent synopsis of the *Dalbergiæ* (*Leguminosæ*), Mr. Benthams has combined the genus *Triptolemæa*, originally founded upon a group of exclusively Brazilian plants, with *Dalbergia*, an extensive genus common to the tropics of both hemispheres. As a section of this

latter genus, the *Triptolemæa* are characterised by their cymes of numerous extremely small flowers, which, by imperfection, are of one sex only, and have the calyx-teeth blunt and the petals furnished with short claws, their ten stamens being united into a sheath; lit on the upper side, and their ovary containing only one ovule; and also by their pods being hardened, and strongly marked with netted veins at the seed-bearing part. Nine species have been described, but they are now reduced to three. These are trees or woody climbers, with alternate unequally pinnate leaves, composed of a variable number (five to twenty-five) of oblong leathery leaflets, usually shining, and marked with netted veins on the upper surface. The true Rosewood of commerce, that imported from Brazil, was for a long time supposed to be the produce of this genus, upon the authority of the French traveller and botanist Guillemain, who brought from Brazil specimens of two species of *Triptolemæa* as the true rosewood plant; but according to Dr. Allemão of Rio Janeiro, the greater part of the best kind of rosewood sent to Europe is the timber of *Dalbergia nigra*, while other qualities are the produce of species of *Ma-charium*. [A. B.]

TRIQUE-MADAME. (Fr.) *Sedum album*; also *S. acre*.

TRIQUETER, TRIQUETROUS. Three-edged, or three-cornered.

TRISECTED. Cut deeply into three parts.

TRISERIAL. In three rows. Instead of 'serial,' the word *farium* is generally affixed to a Latin numeral; thus, *trifarium* (trifarious), in three rows.

TRISETARIA. A genus of grasses belonging to the tribe *Avenæ*, which contained one species, *T. linearis*, now included in *Trisetum*. [D. M.]

TRisetum. A genus of grasses belonging to the tribe *Avenæ*. The inflorescence is paniced; spikelets two to four-flowered; glumes two, membranous and pointed, rarely awned; lower pales with two short bristles, awned at the back; the upper keeled with a twisted awn; stamens three, styles two; ovary smooth. This genus is nearly allied to the oat-grass, and includes nearly seventy species. These are widely distributed over the different quarters of the globe. They are chiefly natives of the temperate zones, where some of them are useful pasture grasses. The British representatives of the genus are *T. pubescens* and a superior kinds and

are much used in the formation of all productive meadows.

TRISPORIC. Applied to bodies composed of three spores.

TRISTACHYA. A genus of grasses belonging to the tribe *Avenæ*. The inflorescence is paniced; spikelets two-flowered, the inferior male or neuter, the superior stalked hermaphrodite, bearded at the

base; glumes two, lance-shaped three-nerved, channeled and herbaceous, the upper slightly the longest; pales two, herbaceous and pointed. Steudel describes seven species, which are natives of South America and South Africa. [D. M.]

TRISTANIA. A genus of Australian shrubs, of the myrtle family. They have linearleaves, and yellow flowers in corymbs; calyx five-cleft; petals five; stamens arranged in five parcels, opposite the petals; fruit capsular, many-seeded; seeds without wings. Some of the species are grown as pretty greenhouse plants. [M. T. M.]

TRISTEMMA. This genus of *Melastomaceae* consists of certain tropical African shrubs with four-sided stems, and flowers in heads surrounded by involucre. The calyx is provided with a projecting rim or rim near to its four or five-lobed limb; the petals are stalked; the stamens eight to ten, equal, their anthers opening by one pore; the ovary is confluent with the tube of the calyx, and contains four or five compartments, which open at the hairy apex when ripe. [M. T. M.]

TRISTICHA. A genus of *Podostemaceae*, comprising species which grow in wet places in Brazil, Southern Africa, and Madagascar. They are little moss-like plants, with much-branched slender annual stems. The perianth is membranous and three-parted, concealing a single stamen, and a stalked three-celled ovary surmounted by three stigmas. The fruit is three-celled, three-valved, and marked by nine ribs. [M. T. M.]

TRISTICHOUS. In three rows.

TRISTIS. Dull-coloured.

TRITELIA. A small genus of *Liliaceae*, from Western North America and Buenos Ayres. It has a salver-shaped perianth, with a six-parted limb, six stamens in two rows, a trilobed stigma, and a many-seeded ovary. The leaves are linear, and the scapes bear involucre umbels of white or blue flowers, or in some of the species simple peduncles bear solitary flowers. *T. laxa*, a native of California, has glaucous leaves, and a many-flowered umbel of deep-blue flowers. *T. uniflora* is a very handsome white-flowered species. [J. T. S.]

TRITERNATE. When a common petiole divides into three secondary petioles, which are each subdivided into three tertiary petioles, each bearing three leaflets.

TRITRINAX. A genus of *Palmaceae*, of which three species are described:—*T. brasiliensis*, that upon which the genus was founded, a native of Rio Grande, the most southern province of Brazil; *T. aculeata*, a native of Western Mexico; and *T. mauritiformis*, of New Granada. They are all low-growing palms, with the lower part of their trunks marked by close circular scars, and the upper clad with the persistent bases of old leafstalks. They have deeply-cut fan-shaped prickly-stalked leaves, with threads hanging from between the segments; and much-branched spikes

of greenish-yellow flowers, which are either perfect or (by abortion) of one sex only. The perfect ones contain six free or slightly connected stamens, rising from the bottom of the corolla, and three distinct ovaries with narrow tapering styles and simple stigmas. Only one of the ovaries comes to maturity, forming a one-seeded fruit, the seed having the embryo placed at the back near the top. [A. S.]

TRITICUM. A genus of grasses of the tribe *Hordeae*, which includes, among other species—*T. vulgare*, or Common Wheat; *T. repens*, the Creeping Couch or Couch; and *T. caninum*. *T. vulgare* is an annual cereal or corn-grass, which under the name of Wheat is well-known to every one. Its varieties, though endless, may perhaps be all comprehended under the following heads, of each of which we may have varieties, with more or less hairiness on the chaff-scales, &c.:—*T. vulgare muticum* (*T. hybridum*, Linn.), the awnless or Beardless Wheat; *T. vulgare barbatum* (*T. aestivum*, Linn.); and *T. Spelta*, the grains in which are more or less adherent to the chaff-scales.

The native country and origin of Wheat has ever been a curious subject of speculation. We think, however, that M. Fabre's experiments, detailed in the *Journal of the Royal Agricultural Society*, afford very strong presumptive evidence that this cereal is derived from a wild grass of Southern Europe and Western Asia, known to the botanist as *Ægilops*: which see. It is true that a specimen of this genus would at first sight appear to be very different from wheat, but it is really not so on a minute examination of its parts, and under cultivation it soon affords a very respectable grain; its green herbage, too, emits the peculiar smell on being bruised which belongs to wheat, and, as we know from experiment, it is subject to the same epiphytes or attacks of 'blight' as wheat. That a plant very dissimilar from wheat, in fact a wild useless grass, should yet in cultivation become so changed as to afford a useful grain, is so far fortunate in that we might expect, from this amount of adaptability to circumstances, that it would be capable of easily affording a large variety of sorts. Such we know to be the case, and hence no plant is so easily adapted to variations of climate, soil, and management as wheat.

Our wild species of the genus are perennial grasses. *T. repens*, the Couch, is by far too well and unfavourably known to merit our dwelling upon it at great length. This has been split up into several species by some botanists, which has arisen from its capabilities of changing from circumstances; for, like its cultivated ally, it is bearded or beardless, and can adapt itself to all positions. *T. caninum* differs from it mainly in the absence of the running underground stems (rhizomes). It has, however, the same pungent flavour which belongs to all the *Triticæ*, due probably to the presence of some kind of essential oil, in virtue of which it would appear to be

capable of exerting powerful emetic action, at least on dogs, as we have seen these animals vomit most violently in a few seconds after eating two or three blades of the common Couch. [J. B.]

TRITOMA. This genus of *Liliaceæ* is closely allied to *Aloe*, but in place of fleshy leaves it has long linear grass-like root-leaves, from the midst of which is thrown up a scape, bearing at its summit an ovoid or elongated spike of scarlet or yellow flowers. The perianth is tubular or bell-shaped, and six-parted; from its orifice project six stamens; the style is thread-like, and terminated by a three-lobed stigma; the capsule is three-celled, and splits through the sutures into three valves. The species are natives of the Cape of Good Hope. Three or four are in cultivation as hardy plants, throwing up their splendid flowers late in autumn to a height of three or four feet or more. Few plants are so effective when placed on a lawn or in front of a shrubbery. The old name, *Kniphofia*, has of late been sometimes revived for them. [M. T. M.]

TRITOMA FAUX-ALOES. (Fr.) *Tritoma Uvaria*.

TRITOMODON. A Japanese shrub, of the family *Vacciniaceæ*. Its stem is much-branched; the leaves clustered towards the ends of the branches, wedge-shaped, hairy on the midrib and leafstalk; and the flowers grow in hairy racemes. The calyx is five-parted, hairy; the corolla membranous white, bell-shaped, its limb divided into five three-toothed segments; stamens ten, awl-shaped, the filaments with a narrow wing, and the anthers ending in a reflexed point; ovary free, five-celled. The generic name was given in allusion to the three-toothed lobes of the corolla. [M. T. M.]

TRITONIA. A genus of Cape herbs, with bulb-tuberosus rhizomes, ensate leaves, and a spicate inflorescence. They belong to the *Iridaceæ*, and are allied to *Ixia*. They have a two-valved spathe; tubular flowers, with a six-parted nearly regular limb; three stamens, three spreading stigmas; and a many-seeded capsule, the seeds being neither winged nor bearded. Many of them are very handsome. [T. M.]

TRIUMFETTA. The numerous species of this genus of *Tiliaceæ* are widely dispersed over the tropics of both hemispheres; and are either annuals or perennial shrubby herbs, or rarely shrubs, more or less clothed with star-shaped hairs. Their leaves are alternate entire or palmately lobed; and their yellow flowers are solitary or in clusters in the leaf-axils, succeeded by nearly globular unopening fruits thickly beset with slender hooked prickles, like the burrs of the burdock. The flowers have five coloured sepals; as many petals, or rarely none; indefinite or sometimes ten (rarely only five) free stamens, rising from a short disk bearing five glands opposite the petals; and a two to five-celled ovary bearing a slender style,

each cell containing two ovules separated by a spurious partition.

All the species possess more or less of the mucilaginous property of the order, and several of them are on that account employed medicinally in the tropics. In Jamaica the name Paroquet Burr is commonly given to them, on account of the green paroquets feeding on their ripe fruits or burrs. The inner bark of some species, particularly *T. angulata* and *T. semitriloba*, afford very good fibre, resembling jute both in regard to appearance and quality. The first of these is extremely common in Tropical Asia, and is an annual plant, with an erect branching stem becoming woody at the base, and usually producing broad three-lobed leaves on long stalks; while the latter is more generally distributed over the tropics of both hemispheres, and is a shrub of about five or six feet in height. [A. S.]

TRIURIDACEÆ. An order of monocotyledons, consisting of small slender colourless herbs, often almost transparent, without any other leaves than small scales, and small flowers either solitary or in terminal racemes. In their usually six-parted perianth, hypogynous stamens, distinct carpels, and apparently homogeneous embryo, they are connected with *Alismaceæ*, from which they differ chiefly in the divisions of the perianth being always a valvate in a single series, and in their embryo not being curved. These curious little plants are generally found, like the smaller *Burmanniaceæ*, on rotten leaves or other decaying vegetable matter in the moist tropical forests of both the New and the Old World. They are distributed into five or six genera, of which the principal are *Triuris* and *Sciphiella*.

TRIURIS. A genus of *Triuridaceæ*, distinguished by diocious flowers, a perianth with only three lobes ending in long filiform tails, three stamens, and styles arising from the base of the carpels. There is but a single species known, a little Brazilian leafless herb, with a slender stem a few inches high, and a rather large terminal flower.

TRIXAGO. A genus of *Scrophulariaceæ*, containing a single species found all over the world. It is intermediate between *Eufragia* and *Bartelia*, differing from both however in its fleshy ovate-gibbous capsule, and in its thick trifid placenta. [W. G.]

TRIXIS. The name of a genus of composite plants, consisting of herbs or shrubs sometimes of twining habit, and natives of the East India and the eastern shores of South America. The heads of flowers are in loose corymbs or panicles, and each is surrounded by a tubular involucre, consisting of one or two rows of scales, the innermost of which are the longest; the receptacle is either naked, or provided with fine fringe-like hairs. The fruits are striated hairy oblong, surmounted by a large disk; and the pappus is in two or more rows, scaly or somewhat feathery

One or two species, with white flowers, are grown in this country. [M. T. M.]

TRIZEUXIS. An epiphytal genus of orchids, belonging to the tribe *Vandeæ*, containing one species, an inhabitant of Tropical America and Trinidad. It bears distichous recurved acute laterally compressed fleshy leaves, which are grooved at the base; and small greenish flowers, in a panicle arising from the axils of the lower leaves, collected into heads at the extremities of the branches of the panicle. The genus is remarkable in having the lip superior—that is, with the parts of the flower in their proper position, the ovary not being twisted as in the generality of orchids. [W. B. H.]

TROCHETIA. A genus of small Sterculiaceous shrubs or trees, natives of St. Helena and the Mauritius. They are covered with brown scales, and have entire feather-veined leaves, and axillary flower-stalks. The calyx is five-parted; petals five, deciduous; stamens numerous, combined below into a tube, some of them sterile, strap shaped, entire or cleft, alternating with the fertile ones; ovary sessile, five-celled, the style thread-like; fruit capsular five-celled five-valved, the valves bearing numerous roundish seeds on their centre. [M. T. M.]

TROCHLEAR. The same as Pulley-shaped.

TROCHOCARPA. New Holland shrubs or small trees of the family *Epacridaceæ*. The leaves are on short stalks, the flowers white or yellow, placed on terminal or axillary spikes. At the base of the five-cleft calyx are two small bracts: the corolla is funnel-shaped, its limb divided into five spreading hairy segments; the stamens are concealed within the corolla, the anthers being pendulous; and a five-lobed cup-like disk surrounds the ten-celled ovary, in each compartment of which is a single seed. The fruit is succulent, with ten one-seeded stones, which ultimately fall away one from the other. The name is derived from the Greek *trochos* 'a wheel' and *karpos* 'fruit,' indicating the radiated arrangement of the cells of the fruit. *T. laurina* is a very handsome greenhouse shrub. [M. T. M.]

TROCHODENDRON. A genus of *Magnoliaceæ*, comprising a Japanese tree, whose leaves are described as being arranged in whorls, and as lasting green for three years, each whorl being separated by a rather long interval from its neighbour. On this space the perules or bud-scales remain, and do not, as in ordinary cases, fall off. The leaves themselves are stalked, somewhat rhomb-shaped, cuspidate, and of a thick texture. The clusters of flowers are terminal, and the pedicels are provided with a small linear bract at the base. The flowers themselves have no calyx or corolla, but a crowd of deciduous stamens, a five to eight-celled ovary with several ovules in each cell, and five to six styles. The fruit is capsular, surmounted by the

persistent styles, dividing when ripe into five to eight valves; seeds pendulous. The name is derived from the Greek *trochos* 'a wheel' and *dendron* 'tree,' in allusion to the whorls of leaves. [M. T. M.]

TROCHOPTILIS elegans is a small but remarkable Brazilian fern, closely resembling a rosulate lichen in the habit of growth, the fronds being scarcely an inch long, spreading horizontally, subrotund pilose and five-lobed; the two basal lobes are somewhat contracted, and bear the sporangia—which have the many-rayed apical ring characteristic of the *Schizæaræ*, to which they belong. It is free-veined, allied to *Anemia* by the fructification being borne on flat rachiform lobes, but distinguished as well by habit as by the lobes being scarcely contracted, and lying flat in the plane of the fronds, so that they do not resemble panicles. [T. M.]

TROCHOSTIGMA. Five species of Japanese plants were formed into a genus under this name by the Dutch botanists Siebold and Zuccarini; but four of them have since been referred to the older genus *Actinidia*, placed by some systematists in the order *Dilleniaceæ*, and by others in *Ternstroemiaceæ*; while the fifth has been found to belong to the genus *Sphorocnema*, one of the *Schizandraceæ*. [A. S.]

TROËNE (Fr.) *Liquidum*. — L'ÉGYPTÉ. *Lawsonia alba*.

TROLLE (Fr.) *Trollius*.

TROLL FLOWER. *Trollius*.

TROLLIUS. A genus of herbaceous perennials belonging to the *Ranunculaceæ*, distinguished by the following characters:—Sepals petal-like; petals very narrow, numerous; stamens and ovaries numerous. The genus is represented in Britain by *T. europæus*, the Globe-flower or Globe Ranunculus, frequent in mountain-pastures in Scotland, Wales, Ireland, and the North of England. It is a handsome plant, with deeply five-lobed leaves, which are again cut and serrated; and large pale-yellow flowers, which before full expansion are nearly globose. This species is often cultivated as a border flower, as are also *T. asiaticus* and *T. caucasicus*, plants of similar habit. French: *Trolle globuleux*; German: *Kugeltroll*. [G. A. J.]

TROMOTRICHE. A name given by Haworth to some species of *Stapelia*.

TROMPETTE DU JUGEMENT (Fr.) *Datura suaveolens* and *D. arborea*.

TROMPHE DÉLÉPHANT (Fr.) *Rhinanthus Elephas*.

TRONG. The Malayan name for the Egg-plant.

TROPÆOLACEÆ. An order established for the genus *Tropæolum*, which, formerly placed in *Geraniaceæ*, has been repeatedly separated therefrom, but is again reunited, especially on account of the close affinity the structure of its flowers bears to that

of *Pelargonium*. *Mugallana*, usually referred to *Tropaeolaceae*, is founded on a mistake. Lindley placed it in his Malval alliance.

TROPEOLUM. An extensive genus of herbs, mostly of climbing habit, representing the group or order *Tropaeolaceae*. Many of the species, which are all South American, are in cultivation, and are of a very ornamental character. The genus is known by its irregular flowers, with five sepals produced into a spur behind, and five petals (fewer by abortion), of which the two upper are more or less dissimilar from the rest; and by its equal free stamens, its sessile tri-lobed three-celled ovary, and its subcapitate indehiscent one-seeded carpels. The leaves are alternate peltate or palmate, angulate lobate or dissected; and the flowers solitary and axillary, orange-red or yellow, rarely blue or purple. [T. M.]

The *Tropaeolums* are remarkable for possessing an acrid taste, similar to that which exists among the *Cruciferae*. The only species grown for culinary purposes are *T. majus* and *T. minus*.

T. majus, the great Indian Cress or Nasturtium, is a hardy annual, a native of Peru, from whence it was introduced in A.D. 1686. The plant is of a trailing habit, but when its succulent stems can obtain any bush for support, they will attach themselves by means of the long twining petioles, and attain a considerable height. The leaves are alternate entire, nearly round, and somewhat undulated or lobed, with the stalk inserted towards the centre instead of at the margin. The flowers, which are borne on long footstalks, are large and showy, being of a rich orange colour, and having the two upper petals marked with deep reddish-brown. The seeds consist of three conjoined berries or nuts, with grooved wrinkled gibbous husks, which become fungous when dry. The flowers and young leaves are frequently used to mix in salads. They have a warm taste, not unlike that of the common cress, from which circumstance the plant has obtained the name of Nasturtium. The flowers are also used to garnish dishes, and have an excellent effect when tastefully arranged with other flowers of a complementary colour. The berries are gathered when young and quite green, and, without the aid of spice, make an agreeable pickle, which, as well as the green leaves steeped in vinegar, is accounted a good antiscorbutic, and is also an excellent substitute for capers.

It is worthy of remark that, in certain conditions of the atmosphere, the flowers, like those of the *Dictamnus Fraxinella*, have the power of emitting electric sparks towards evening—a circumstance first observed by the daughter of the great Linnæus.

The small Indian Cress or Nasturtium, *T. minus*, is a hardy annual, a native of Peru, and has been cultivated in this country since A.D. 1596. It is very similar in appearance to *T. majus*, already noticed, but is of a different habit, being much

smaller in every respect, and of dwarf weak growth. The seed-pods are also small, on which account alone they are considered preferable to those of *T. majus* for pickling as a substitute for capers. [W. B. B.]

TROPHIS. Under this name is designated a genus of *Artocarpaceae*, consisting of certain milky-juiced trees with entire leaves, and dioecious flowers arranged in axillary clusters. In the male flowers the four stamens are placed in front of the four segments of the perianth; in the female flowers the ovate ovary contains a single ovule attached to its inner surface near the top, and the stigma is bifid. The fruit is succulent, with one globular pendent seed; the cotyledons fleshy, and of unequal size. The species are natives of Tropical Asia and America. The leaves of *T. aspera* are used in the East Indies to polish wood, while those of *T. americana*, a West Indian species, are said to be occasionally used as fodder for cattle. [M. T. M.]

TROPHYWORT. *Tropaeolum*.

TROPIDOCARPUM. A small genus of *Cruciferae*, inhabiting North-western America, and consisting of annuals with pinatifid leaves, and small yellow flowers in leafy racemes. The pod is linear or lanceolate-linear, compressed contrary to the septum, the valves somewhat keeled, the septum narrow often incomplete, and the seeds oblong, compressed. [J. T. S.]

TROPIS. In Greek compounds = the keel of a papilionaceous flower, or any part resembling it.

TROSCART. (Fr.) *Triglochin*.

TROTTLES. An old name for *Symphytum asperum*.

TROXIMON. A genus of perennial *Compositae*, the species of which are natives of North America. The lower leaves are lobed, the upper entire, sheathing. The flower-heads are each surrounded by an involucre of two rows of bracts; the corollas are ligulate, yellow; and the fruits are quadrangular, surmounted by a pappus arranged in two rows—the outer row of numerous very short persistent scales, the inner of deciduous hairs. [M. T. M.]

TRUBS, or TRUBBES. Truffles.

TRUE-LOVE. *Paris quadrifolia*; more correctly written Trulove, according to Dr. Prior.

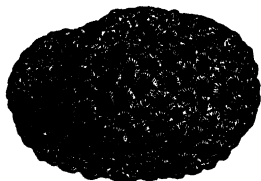
TRUFFE. (Fr.) *Tuber melanoporum*. — DEAU. *Trapa natans*.

TRUFFLE. *Tuber*. — AFRICAN. *Terfesta*. — ENGLISH. *Tuber estivum*. — FALSE. A name sometimes applied to species of *Elaphomyces* and *Scleroderma*, of which the former is really allied to *Tuber*, the latter to the puffballs. It is also given occasionally to the fungi noticed under *Hypogaei*. — FRENCH. *Tuber melanoporum*. — HART'S. *Elaphomyces*. — PIEDMONTESE. *Tuber mugnatum*. —

RED. *Melanogaster variegatus*. —, WHITE. *Charomyces*.

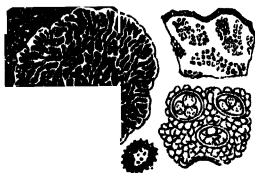
Applied generally, the name Truffle (or Trubs) comprises all the *Fungi* which belong to the natural orders *Hypogæi* and *Tuberacæ*. We shall, however, treat it here as confined to the Truffles, properly so called, belonging to the typical genus *Tuber*, and the closely allied genera *Charomyces* and *Terfezia*.

The Truffles of commerce all belong to the genus *Tuber*, of which several species are edible; the English Truffles belonging principally to *T. aestivum*, and the best French Truffles to *T. melanosporum*. These are black and warty externally, with the flesh variously marbled. The Piedmontese Truffles, on the contrary (which bear a high



Tuber aestivum

price, and are highly esteemed), are smooth, and within white more or less tinged with pink. Truffles are in this country sought for almost exclusively by dogs of a particular breed, but on the Continent sows are used for the same purpose, and they are raked up by persons who have a peculiar knack in recognising the spots where they



Tuber aestivum (section).

are likely to grow. In Poitou it is a common practice to enclose a space upon the downs, sowing it with acorns, and when the oaks attain size enough to shade the ground, there is sure to be a crop of truffles.

All attempts have failed at cultivating them in the same way as mushrooms. In the South of France, indeed, truffles have been procured in woods by watering the ground previously prepared with water in which the parings had been steeped; but no one has yet been able to prepare spawn for sale in a form similar to that of mush-

room-spawn. We believe, however, that this will some time or other be accomplished. The late Mr. Disney made a serious attempt at cultivation, but, unfortunately, the truffles on which he experimented were the refuse of an oil-shop, and were in slices which had been dried by artificial heat. Notwithstanding this, something like spawn appeared, and it is to be regretted that he did not continue his experiments with better materials. Our English truffles have not the fine aroma of the best French truffles, but when properly ripened they are by no means to be despised, and they always command a high price in our markets.

Truffles require a calcareous soil, and where that condition exists they are, we believe, much more common than is usually supposed. Without the assistance of a dog we have collected a couple of pounds in a few minutes, in a locality where truffles have never yet been sought for as objects of merchandisc. They are by no means, as is usually supposed, confined to beech-woods; but are found in England sometimes amongst oaks without any admixture of beech, and they do not dislike the neighbourhood of a few conifers. In Somersetshire we have seen them so near the surface as to be cut off by the scythe every time the lawn was mowed. Besides the edible truffles, which receive different names from collectors according to their degree of ripeness, there are several strongly-scented or minute species, mostly with an even bark, which are either not esculent or too small to attract general notice.

The large White Truffle belonging to the genus *Charomyces* is too rare in England to be of much consequence, but it is a poor article of food. The African Truffle (*Terfezia*), is a much better esculent than the white truffle, but is not equal to the *Tuber aestivum*, though it has of late attracted notice in Algiers from its abundance. We have received numerous specimens of this kind from Mogadore. A species of *Hydnoctrya* is sold abundantly in the market of Prague. The Red Truffle of the Bath market is a *Melanogaster*, and therefore belongs to *Hypogæi*, not *Tuberacæ*. [M. J. B.]

TRULOVE. *Paris quadrifolia*.

TRUMPET-FLOWER. A name applied to various large tubular flowers, as those of *Bignonia*, *Tecoma*, *Catalpa*, *Brunfelsia*, *Solantra*, &c.

TRUMPET HONEYSUCKLE. *Caprifolium sempervirens*.

TRUMPET SHAPED. Hollow, and dilated at one extremity, like the end of a trumpet; as the corolla of *Caprifolium sempervirens*.

TRUMPET-TREE, or TRUMPET-WOOD. *Cecropia peltata*.

TRUMPET WEED. The name of a seaweed, *Ecklonia buccinatis*, belonging to the natural order *Laminariaceæ*, and very common and well-known at the Cape of Good Hope. The stem is often twenty feet high,

and is crowned at the top by a fan-shaped cluster of leaves, ten feet or more in length. The stem of this seaweed, says Dr. Harvey, which is hollow in the upper portion, is when dried often used in the colony as a siphon, and by the native herdsmen is formed into a trumpet for collecting the cattle in the evening. A very long-necked variety of the common bottle-gourd is used in a similar manner for drawing wine from casks in Hungary, exactly after the fashion of the glass hebers which are used for taking whisky-toddy from the quaighs. The name is also applied in America to *Eupatorium purpureum*. [M. J. B.]

TRUNCATE. Terminating very abruptly as if a piece had been cut off; as the leaf of the tulip-tree.

TRUNCUS, or TRUNK. The bole or principal stem of a tree.

TRYMA. An inferior drupe, with a two-valved separable flesh; as the walnut.

TRYMALIUM. A genus of *Rhamnaceæ*, whose component species are shrubs, natives of South-western Australia. The leaves are feather-veined, smooth above, and covered below with star-shaped hairs. The flowers are hairy, in panicles or cymose heads. Calyx with a hemispherical tube, connate with the base of the ovary, its limb divided into five spreading, ovate acute, internally coloured segments; petals five, inserted into a lobed fleshy disk; stamens five, inserted with the petals, with which they alternate; ovary partly adherent to the tube of the calyx, its free portion hairy, two to four-celled, each cell containing a single erect ovule; style two to four-parted; fruit indehiscent, of four woody carpels, ultimately separating one from the other. [M. T. M.]

TRYPETHELIUM. A fine genus of lichens distinguished by the thallus producing a number of distinct pustules arising from the medullary stratum, though often more highly coloured, in which numerous perithecia are immersed, containing a gelatinous nucleus producing asci and highly-developed sporidia. It bears almost the same relation to the genus *Verrucaria* that *Hypozyton* does to *Sphaeria*. Indeed, the resemblance of particular species to *Hypozyton* is so close that it requires a minute examination of the crust from whence the tubercles spring to distinguish them. The species are all tropical or subtropical, extending northwards as far as South Carolina, while a single obscure species occurs in New Zealand. [M. J. B.]

TRYSLÉ, TRYSSIL. A native bark of Demerara used for tanning, and also as an emetic and fish-poison.

TSADA. *Eleusine coracana*.

TSAN-TJAN. *Fucus cartilagineus*.

TSEUDYA. A small genus of *Melastomaceæ*, differing from *Chidenis* by a few artificial characters merely, and consisting of erect shrubs indigenous to Guiana and

Brazil. They have ovate-lanceolate serrated leaves, terminal panicles, a campanulate calyx with a few obscure teeth, a five-petaled corolla, ten stamens, and a five-celled berry containing numerous angular seeds. [B. S.]

TSHERIVELLO. A Telinga name for *Oudenlandia umbellata*.

TSHETTİK, TJETTİK. Eastern names for *Strychnos Tieut*.

TSIN-Y. A Chinese name for *Magnolia Yuloh*.

TSTAMPAC. *Mitchelia Champaca*.

TUALIKA. An Indian name for *Schmidelia serrata*.

TUARI, or TAUARÉ. The bast of *Lerythis Ollaria* and other species, used by the Brazilians as wrappers for cigarettes.

TUBEFORM, TUBATE. The same as Trumpet-shaped.

TUBE. The part of a monosepalous calyx, or monopetalous corolla, formed by the union of the edges of the sepals or petals; also applied to adhesions of stamens.

TUBE-FLOWER. *Clerodendron Siphonanthus*.

TUBER. See TRUFFLES and TUBERACEI.

TUBER (adj. TUBEROUS). A roundish underground succulent stem, covered with buds, from which new plants or tubers are produced; as the potato. A receptacle of vegetable food.

TUBERACEI. A natural order of *Fungi* strictly analogous, amongst the sporidiferous kind, with the *Hypogæi* amongst the sporiferous. All the genera, with a single exception, are strictly subterraneous, and they are generally remarkable for the high development of the sporidia, which have mostly a cellular coat, either smooth, or rough with bristles. Hofmeister has observed that the threads which give rise to the fruit-bearing sacs or asci produce lateral branchlets, the tips of which become amalgamated with the walls of the sac, like the tips of the pollen-tubes with the embryo-sac in phænogams, and sometimes penetrate it like the similar branchlets in *Saprolegnie*. He has, however, seen no active molecules in these branchlets, and therefore is unable to speak positively about their functions.

Tuberacei differ much in the complication of their hymenial surface. In some it simply lines a cavity like that of a closed *Peziza*; in others this cavity is slightly convolute, the walls still remaining distinct, and following all the sinuosities of the hymenia; in others the sinuosities are so frequent and so involved, that there appears merely to be mucedinous veins between the confluent hymenial surfaces, the whole mass being contained in a smooth or warty bark; while in others, again, all outer bark is wanting, and in one genus the hymenial

surface is, as it were, turned inside out and completely exposed. Many *Tuberacel* are remarkable for their strong scent, and several are esteemed as great delicacies. No plants more amply repay a close examination, but from their subterranean habit they require much tact and patience in searching after them. Europe appears to present a maximum of species, which increase as we go southward; but a good many have been discovered in this country, principally by Messrs. Broome and Thwaites. Of exotic species we can say little, as they have not at present attracted much attention. [M. J. B.]

TUBEROLE. Any small warty excrescence.

TUBERCLED. Covered with little excrescences or warts.

TUBERCULARIA. A spurious genus of *Fungi*, but worthy of note here on account of the extremely common occurrence of one of the supposed species, *T. vulgaris*, on dead stems of currant, gooseberry, sycamore, &c. in gardens. Though apparently perfect, as the little bright rose-coloured pustules, which burst through the bark, bear a multitude of minute spores on delicate branched threads, forming a somewhat gelatinous mass when moist on the firmer base, they are not really so; these granules being merely conidia, and the production when fully developed bears a stratum of scarlet granulated cysts, and is then *Nectria cinnabarina*. The other *Tubercularias* produce species either of *Nectria*, *Hypoxea*, or *Sphaeria*. [M. J. B.]

TUBERCULATED. The same as *Tubercled*.

TUBERCULE. Simple roots which acquire a succulent condition, become reservoirs of vegetable food, and serve for propagation, in consequence of being terminated by a bud. A little tuber.

TUBERCULUM. A wart-like shield, such as is found in the genus *Verrucaria*.

TUBÉREUSE. (Fr.) *Polygonthes*. — BLEUE. *Agapanthus umbellatus*. — DES JARDINS. *Polygonthes tuberosa*.

TUBERIFORM. Tuber-like.

TUBEROSE. *Polygonthes tuberosa*.

TUBEROSTYLIS. The name of a genus of *Compositæ*, comprising a dwarfish herb, growing parasitically on the roots of the mangrove-trees in Darien. The heads consist of numerous perfect flowers, surrounded by an involucre of many rows of bracts—the inner ones oblong concave, the outer much shorter ovate and flat. Receptacle convex, naked; corolla tubular, five-toothed; style arising from a thick spongy mass; stigmas elongated, recurved, extending beyond the corollas; fruit inversely conical, curved furrowed and rough, surmounted by a thick obscurely-toothed margin. The generic name expresses the peculiarity of the style. [M. T. M.]

TUBEROUS. Having the succulent enlarged condition of a tuber.

TUBI, TUBULI. The pores of certain fungi; also ringed tubes found in the globule of a *Chara*.

TUBU. The Malay name for the Sugar-cane.

TUBULAR, TUBULATE, TUBULOSE. Approaching a cylindrical figure, and hollow.

TUBULIFLORÆ. One of the three large suborders into which Decandolle divides the *Compositæ*. It comprises the *Corymbifera* and *Cynarocephalæ* of Jussieu, including those genera which have all or at least the central florets of each head regular and tubular.

TUBURCINIA. A genus of naked-spored moulds presumed to belong to the section *Ustilagine*, with the spores or protospores either globose or conchiform, made up of minute cells. The species are, in fact, very similar to *Sporidesmia*, differing, in the typical species, in their subterranean habit, and, if they be really *Ustilagine*, in the nature of their reproductive bodies. The scab in potatoes arises from one of the species, and another occurs in the swollen base of the stems of *Orobanchæ*. This is not uncommon in France, but it has not yet been detected in England. We have, however, a very distinct species, which is developed on the leaves of *Trientalis europæa*, differing from the others in its not being subterranean. [M. J. B.]

TUCKAHO. The Americo-Indian name for a curious tuberous production, which is dug out of the ground in several parts of the United States, and which has been referred by Fries to the genus *Pachyma*. Like *Sclerotium*, however, *Pachyma* has no fruit, and there is some reason to doubt whether it has any pretensions to be classed with *Fungi* at all. It is composed almost entirely of pectic acid, and it is very probable that it is a peculiar condition of some root, though of what plant has not at present been ascertained. One similar production at least has been found in China, where it is supposed to possess medicinal virtues; and there is reason to believe that another exists there, attaining a diameter of several inches, like the American Tuckahoe. As may be supposed from its chemical constitution, it affords a nutritive article of food, for which purpose it is dug up by the natives like the *Mytilus* or Native Bread of Tasmania, with which, however, it does not correspond in character. It is also employed occasionally as a material for making jelly, for which it is well adapted, the pectic acid of currants and other fruits being the principle which disposes their juice when boiled to form a jelly-like mass. The principal objection which is brought forward against the supposed phænogamous origin of the production, is the absence of all trace of vascular or cellular structure like that of phænogams, or of bark except such as may be supposed

to arise from mere contact with the soil; but the dissimilarity between its structure and that of *Fungi* is quite as great, and the conversion of a fungus into pectic acid would be more surprising. [M. J. B.]

TUCKERMANNIA. A name applied to a succulent Californian herb, of the family *Compositæ*. The leaves are finely and pinnately divided; the involucre is double—the outer of six to eight scales, the inner of eight to ten; the receptacle is flat, scaly; the florets of the ray ligulate, three-toothed; those of the disk cylindrical, five-toothed; the stigmas hairy, surmounted by a short cone; and the fruits elliptical, winged, smooth, without pappus. [M. T. M.]

TUCUM. *Astrocaryum vulgare*, cultivated in Brazil for the fibre of its young leaves.

TUCUMA. *Astrocaryum Tucuma*, the fruit of which is eaten by the Indians of the Upper Amazon.

TUE-CHIEN. (Fr.) *Colchicum autumnale*.

TUFTED. Growing in tufts, or close dense cushion-like or tussock-like masses.

TULA. Under this name is described a little known Peruvian herb, supposed to constitute a genus of *Cinchonaceæ*. The limb of the corolla is five-cleft, its segments toothed and crisped; anthers included; fruit capsular, two-celled, many-seeded. [M. T. M.]

TULASI. *Michelia Champaca*.

TULASKEA. A small genus of *Melastomaceæ*, consisting of herbs, probably annuals, confined to Brazil. Their stem is simple, thread-like, and either erect or ascending; the leaves are small, ovate, and obscurely serrated; and the flowers terminal, and either solitary or in panicles. The calyx is four-toothed, the corolla tetrapetalous; the number of stamens four; the capsule two-celled, two-valved, and many-seeded. [B. S.]

TULIP. *Tulipa*.

TULIPACEÆ. A name sometimes given to the whole or a portion of the order *Liliaceæ*.

TULIPA. A well-known genus of liliaceous plants, distinguished by the erect position of the anthers, and by having the stigma sessile on the ovary. *T. Gesneriana*, the Tulip of gardens, has been a favourite object of the florist's care for three centuries. Gesner, who first made it known by a botanical description and figure, saw it in A.D. 1559 at Augsburg, the seeds having been brought from the Levant. It was at that time known in Italy under the name of *tulipa*, given to it on account of its resembling a turban, '*turbant*.' In the middle of the seventeenth century, Tulips became the object of a trade such as is not to be met with again in the history of commerce, and by which their price rose above that of the most precious metals. It is a mis-

take, however, to suppose that the high prices paid for bulbs, amounting in some instances to 2,500 and even 4,000 florins, represented the estimated value of a root, since these large sums often changed hands without any transfer of property. Bulbs were bought and sold without being seen, without even being in existence. In fact, they were the subject of a speculation not unlike that of railway scrip in this country at no very distant date. The tulip however was, and still is, extensively cultivated, there being many hundreds of named varieties. *T. sylvestris* is considered by some botanists to be a distinct species, by others to have been derived from useless roots of *T. Gesneriana*, discarded from gardens soon after its introduction, and reverted to its natural condition. It grows wild in the South of France and other countries of Europe, and is found, also in a wild state, in chalk-plots in England. The flowers are yellow and fragrant; and the leaves much narrower than in any of the cultivated varieties. [C. A. J.]

TULIPE. (Fr.) *Tulipa*. — **DES FLEURISTES.** *Tulipa Gesneriana*. — **DU CAP.** *Hemeranthus*.

TULIPIER. (Fr.) *Liriodendron*. — **DE VIRGINIE.** *Liriodendron tulipifera*.

TULIP-TREE. *Liriodendron tulipifera*; also *Paritum elatum*. —, **QUEENSLAND.** *Stenocarpus Cunninghamii*.

TULIP-WOOD. The striped rose-coloured wood of *Physocalymma floribunda*. —, **AUSTRALIAN, or QUEENSLAND.** *Cupania (Harpulia) pendula*.

TULOSTOMA. A genus of puffballs, distinguished by its paper-like peridium distinct from the tall stem, at first covered with a scaly or powdery coat or veil which soon falls away, and opening with a determinate orifice, filled with spores mixed with a few threads adherent to the peridium. The species are few, and occur in either hemisphere. *T. mammosum* is the only British species, but it is local, though not unfrequent on the tops of old mossy walls about London. In Sweden this species occurs only on vast sandy tracts, while *T. Ambriatum*, distinguished by its fringed mouth, grows on decayed heaps of seaweeds. The other species belong to Africa, Cuba, or the islands of the South Pacific Ocean. [M. J. B.]

TUM. A kind of Mastic obtained from *Pistacia atlantica*.

TUMBEKY. The narcotic leaf of a species of *Lobelia*.

TUMBO. The African name for *Welwitschia*; applied also to other plants.

TUMTUM. An Arabian name for Sumach, *Rhus Coriaria*.

TUNA. The Spanish-American name for several *Opuntias*, but adopted by botanists as the scientific designation of one of the Prickly Pears, *Opuntia Tuna*.

TUN-HOOF. *Nepeta Glechoma*.

TUNICA. A genus of *Caryophyllaceæ*, intermediate between *Dianthus* and *Gypsophila*, having the petalate seeds and straight embryo of the former, and the short few-nerved calyx of the latter. The species are natives of Europe and the Mediterranean region, and also of Central Asia. [J. T. S.]

TUNICA (adj. **TUNICATE**). The skin of a seed; any loose membranous skin not formed from epidermis.

TUNNA. An Indian name for the Toon-tree, *Cedrela Toona*.

TUPA. One of the genera of *Lobeliaceæ*, consisting of tall herbaceous plants or undershrubs, with unbranched stems, alternate lance-shaped leaves, and many-flowered leafy racemes. The calyx is five-lobed, the corolla persistent, its tube slit on the upper side, its limb bent downwards, and consisting of five petals irregularly united together—the two lateral ones spreading, all ultimately crowded together after flowering; stamens five, united together, some or all of the anthers hairy; capsule two-valved.

These plants are natives of Peru, Chili, and the West Indies. *T. Feuillet* yields an acrid poison in Chili, where the root is chewed to relieve the pain of decaying teeth. So acrid is this plant, that *Feuillee* says that even the odour of the flowers will cause excessive vomiting, and if taken internally, or even applied to the skin, violent inflammation and pain are produced, sometimes resulting in death. Some of these plants are grown in this country for their handsome purple scarlet yellow or greenish flowers. [M. T. M.]

TUPELO-TREE. *Nyssa*.

TUPISTRA. A genus of the group called *Aspidistree*, which is usually regarded as belonging to *Liliaceæ*, though differing in habit from most of the order. They are natives of India, and have thick tuberous rhizomes winged by the bases of the leaves, which are two-ranked, and resemble those of the *Zingiberaceæ*. The flowers are on a scape, dingy purple or green, with a bell-shaped six or eight-cleft perianth, having six or eight stamens inserted on the sides of its tube, and the stigma radiating and four-lobed. [J. T. S.]

TURANIRA-WOOD. The timber of the Bastard Bully-tree of Guiana.

TURBINATE. The same as Top-shaped.

TURBITH. A genus of *Umbelliferae*, now referred to *Achamantia*, containing an herb with tripartite compound leaves, the segments of which are very narrow and linear; and terminal umbels, which have deciduous involucre, and many-leaved involucre. The calyx-tube is five-toothed and deciduous; and the petals are obovate, with an inflexed appendage. The fruit is contracted at the side, and the carpels have five obtuse equal ribs, with

one vitta in the intervals and two in the commissure. The carpophore divides into two. The species is a native of the mountains of Carats and Piedmont. [W. C.]

TURBITH BLANC. (Fr.) *Globularia Alpinum*.

TURCANINOWIA. This latinised version of the name of a celebrated Russian botanist is applied to a genus of *Compositæ*. The species is a perennial plant, native of Dahurian marshes. The leaves are entire, the flower-heads borne in a many-headed corymb, each surrounded by an involucre of linear scales; the outer florets are ligulate, entire, female, white; the central ones tubular, five-toothed, perfect and yellow; the achenes compressed, and surmounted by a pappus of silky hairs. [M. T. M.]

TURGENIA. A genus of *Umbelliferae*, consisting of herbs, with pinnatisect leaves, and few-rayed umbels, and with the general and partial involucre having three to five leaves. The sepals are setaceous. The fruit is contracted laterally and subdidymous; the carpels have five primary ridges with a single row of prickles, and four large secondary ones with two or three rows of prickles. In other respects the characters of the genus are as in *Caucalis*, of which it is by many considered only a section. The species are natives of the Mediterranean region. [W. C.]

TURIO. A scaly sucker, which afterwards becomes a stem; as in asparagus.

TURKEY-BERRY. A West Indian name for *Solanum torvum* and *S. mammosum*.

TURKEY-BERRY TREE. *Cordia Collococa*.

TURKEY-BLOSSOM. A West Indian name for *Tribulus cistoides*.

TURKEY-FEATHER LAVEL. The common name of *Padina pavana*.

TURK'S CAP. *Melocactus communis*; also *Litium Martagon*.

TURK'S-HEAD. *Melocactus communis*.

TURMERIC. A medicinal and tinctorial substance obtained from the root of *Curcuma longa*. It forms one of the chief ingredients in the preparation of Indian curry-stuff or curry-powder, to which it imparts its yellowish hue.

TURMERIC-TREE. A species of *Zizia*.

TURNIP. *Brassica Rapa*.

TURNERACEÆ. (*Turnerads*). A small order of polypetalous dicotyledons, consisting of tropical herbs or undershrubs, chiefly American or African, with alternate leaves, and yellowish or blue axillary flowers. They agree with *Passifloraceæ*, *Himantaceæ*, and some others in their petals alternating with the lobes of a campanulate or tubular calyx, and in their one-celled ovary with three parietal placentas; and are chiefly remarkable for their forked styles. It is doubtful whether the two or three small genera associated with *Turnera*

in the order, should not be rather treated as sections only of that genus, which has a considerable number of species chiefly Brazilian, but mostly of a weedy aspect.

TURNERA. This genus gives its name to the order *Turneraceæ*, and consists of herbs or undershrubs inhabiting the West Indies and South America. The leaves are notched or sometimes more deeply cleft, and provided with two small glands at the base. The flowers arise singly from the axils of the leaves, and are either sessile or stalked, in which latter case the flower-stalk is often adherent to the leaf-stalk. Very rarely the flowers are in terminal racemes. The calyx is coloured and five-parted; the petals and stamens five, attached to the calyx; ovary free, one-celled, with three parietal placentas; styles three; stigmas three, fan-shaped; capsule one-celled, bursting into three pieces.

Several species are in cultivation in greenhouses, and have for the most part yellow flowers. An infusion of the leaves of *T. opifera* is employed as an astringent by the natives of Brazil. *T. ulmifolia* is also considered to have tonic and expectorant properties. [M. T. M.]

TURNIP. *Brassica Rapa.* —, **DEVIL'S.** *Bryonia dioica.* —, **FRENCH.** A variety of *Brassica Napus.* —, **INDIAN.** *Arisema atrovirens*; also applied to the tubers of *Pseoralea esculenta.* —, **LION'S.** The tuberous roots of *Leontice.* —, **PRAIRIE.** The tubers of *Pseoralea esculenta.* —, **ST. ANTHONY'S.** *Ranunculus bulbosus.* —, **SWEDISH.** *Brassica campestris rutabaga.*

TURNIP-RADISH. A variety of *Raphanus sativus.*

TURNIP-SHAPED. *Napiform.*

TURNIP-TOPS. The young green leaves of the common or Swedish turnips, eaten as a vegetable by the working classes.

TURNSOLE. A purple dye-drug, the inspissated juice of *Crotophora tinctoria*; also an old name for *Euphorbia helioscopia.*

TURPENTINE. A resinous exudation, which flows from incisions made in the stem of trees of the pine family. —, **BOSTON.** American Turpentine, obtained from *Pinus palustris* and *P. Teda.* —, **BOURDEAUX.** A resin obtained from *Pinus Pinaster.* —, **CHIO, SCIO, or CYPRUS.** The limpid fragrant balsamic resin of *Pistacia Terebinthus.* —, **STRASBURGH.** A resin obtained from *Abies pertinata.* —, **VENETIAN.** An oleo-resin obtained from *Abies Larix*, the common Larch.

TURPENTINE-TREE. *Pistacia Terebinthus*; also *Bursera gummifera.* —, **AUSTRALIAN.** *Tristania albicans.*

TURPENTINE VESSELS. Tubes formed in the interstices of tissue, into which turpentine, or such secretions, are naturally drained during the growth of a plant. They are common in coulfers.

TURPINIA. This genus of *Asplundaceæ* (*Staphyleæ*), named after M. Turpin, a

well-known French naturalist and artist, consists of certain West Indian and tropical Asiatic trees or shrubs, bearing white flowers in terminal panicles. These have a calyx of five rounded lobes, and five petals inserted upon a ten-lobed disk, as also are the five flattened awl-shaped filaments of the stamens; a sessile three-lobed ovary, with numerous ovules in the inner corner of each compartment; three styles, and a succulent three-celled fruit, with two or three seeds in each cell. The fruit of some of these plants is edible. [M. T. M.]

TURQUETTE. (Fr.) *Herniaria glabra.*

TURQUOISE. (Fr.) A kind of Olive.

TURREA. A genus of *Meibaceæ*, the species of which belong exclusively to the Old World, and are nearly all tropical. They are either shrubs or trees, sometimes of large size; and have entire or bluntly-lobed leaves, and usually large flowers, variously disposed on lateral stalks. The flowers have a five-toothed calyx; five long strap-like petals, twisted round each other previous to expanding; a long cylindrical stamen-tube, slit into ten at the top and having the anthers inside, opposite the slits, each anther being tipped by a single or double strap-like prolongation; and a five ten or twenty-celled ovary bearing a slender style, and a club-shaped or round stigma. [A. S.]

TURRITIS. The plants of this genus of *Cruciferae* are closely allied to *Arabis*, from which they mainly differ in having their seeds arranged in two rows in a linear pod. The species are unimportant weeds, with clasping leaves, somewhat arrow-shaped at the base, and elongated racemes of white or sulphur-coloured flowers. *T. glabra*, or Tower Mustard, is a plant of wide distribution, being a native throughout Europe in dry exposed situations, on banks and by roadsides in many parts of Britain, and of North America from Hudson's Bay to the Rocky Mountains. It grows from one to two feet high, and has glaucous leaves (of which the radical ones are toothed at the base, the upper arrow-shaped), and yellowish white flowers. There are several other species. French: *Tourrette*; German: *Thurnkrant.* [C. A. J.]

TURTLE-HEAD. *Chelone.*

TURUNJABINS. An Indian name for the Manna of the desert, obtained from the Camel's Thorn, *Alhagi Camelorum.*

TURWAR. A tanning bark obtained in India from *Cassia auriculata.*

TUSO SO. The Japanese name for *Stauiontia.*

TUSSILAGE. (Fr.) *Tussilago.*

TUSSILAGO. The Coltsfoot, a common and in many places a troublesome weed, the existence of which indicates a clayey soil. *T. Farfara*, the only British species, sends up very early in spring a short erect flower-stalk four to six inches high, imbricated with scales, and bearing at its sum-

mit a single large bright-yellow radiated flower-head; as this dies away the stalk elongates, and finally bears a head of white serrated pappus-hairs, much employed by goldfinches in lining their nests. The leaves, which appear after the flowers, are all radical, broadly heart-shaped, angular, and toothed; beneath they are thickly clothed with white cottony down, which was formerly used (being previously dipped in a solution of saltpetre) as tinder. The leaves themselves are still employed in rural districts as a remedy for asthma, either smoked or in the form of an infusion. There are several foreign species, which in habit resemble *T. Parfara*. The Butter Bur, formerly called *T. Petasites*, is now sometimes placed in a distinct genus, *PETASITES*: which see. [C. A. J.]

TUTSANS. *Androsæmum officinale*.

TUTSANS. Lindley's name for the order *Hypericaceæ*.

TUTUMA. An American name for *Crescentia Cujete*.

TUWAK. A Malay name for the toddy obtained from *Arenga saccharifera*.

TUYE. (Fr.) *Ulex europæus*.

TUZELLE BLANCHE DE PROVENCE. (Fr.) A kind of Wheat.

TWAYBLADE. *Listera*.

TWEEDIA. Twining shrubs, natives of Chili, and belonging to the family *Asclepiadaceæ*. They have very pointed fleshy leaves, and handsome blue flowers, arranged in umbels. The corolla is large bell-shaped five-cleft, hairy externally, and with five fleshy appendages within; the anthers have a membranous wing at their summits; and the stigma is pointed and cleft. *T. corulca* and *T. versicolor* are in cultivation in this country. [M. T. M.]

TWICE-WRITTEN. *Polygonum Distorta*.

TWIGGY. Consisting of numerous small slender branchlets.

TWIG-RUSH. *Cladium Mariscus*.

TWIN DIGITATO-PINNATE. When the secondary petioles, on the sides of which the leaflets are arranged, proceed in twos from the summit of a common petiole; as in *Mimosa purpurea*.

TWIN-FLOWER. An American name for *Lunaea*.

TWINING. Ascending by means of spiral convolutions around a supporting body.

TWIN-LEAF. *Jeffersonia*.

TWISTED-STALK. *Streptopus*.

TWO-LIPPED. When a tubular body, as a calyx and corolla, is parted at the mouth so as to form two divisions.

TYDEA. A genus of herbaceous plants belonging to the *Gonolobaceæ*, and inhabiting the mountains of New Grenada. We are at present acquainted with only four spe-

cies, all inmates of our gardens, where they are better known under their old name of *Achimenes*, the most widely diffused being *T. picta* (*Achimenes picta*). They are erect robust herbs, with fine blotched leaves, and axillary bright-coloured flowers. The calyx is connate with the ovary, the corolla almost funnel-shaped and five-lobed; the stamens are included, the ovary surrounded by five glands, the stigma five-cleft, and the fruit a capsule. [B. S.]

TYLE-BERRY. *Jatropha multifida*.

TYLOCHILUS. *Cyrtopodium*.

TYLOPHORA. A considerable genus of *Asclepiadaceæ*, confined to the tropical and warm regions of the Old World; and consisting of twining mostly thin-leaved herbs or shrubs, bearing slender flower-stalks proceeding from between the leaves, and having umbels of small flowers disposed alternately along them. It is characterised by the staminal corona consisting of five simple acuminate fleshy leaflets, more or less united to the gynostegium, and usually shorter than it; by the pollen-masses, which are very small and swollen (hence the name, from *tylos* 'a swelling,' and *phoreo* 'to bear'), being transverse subsacculiform or erect; and by the point-like stigma. The fruits are smooth, compressed, and attenuated at the apex.

T. asthmatica, a twining shrubby species with slender branches, native of the Indian Peninsula, Ceylon, and the Moluccæ, yields a strong white silky fibre resembling that of the jernum (*Calotropis gigantea*). Its roots also possess valuable medicinal properties, acting in large doses as an emetic (on consequence of which they are substituted in India for ipecacuanha), and in smaller doses as a cathartic. They have been successfully employed in epidemic dysentery, and are said to have a good effect in humoral asthma. The Chinese call the plant Binooga, and the natives of Madras Koorluja. Two varieties are distinguished by botanists; one being everywhere covered, except upon the upper surface of the leaves, with soft close-pressed down, and the other quite free of down in every part. [A. S.]

TYMPANANTHE. *Dictyanthus*.

TYMPANUM. A membrane which stretches across the mouth of the sporocarp of some urn-mosses.

TYPHACEÆ. (*Typha*, *Typhaceæ*, *Typhaceæ*). An order of monocotyledons, consisting of reed-like herbs growing in marshes, ditches or shallow water, with long narrow parallel veined leaves, and small flowers densely packed in cylindrical spikes or globular heads. In structure they come near to *Araceæ*. The flowers are monœcious, without any perianth, unless the small scales or tufts of hairs intermixed with the stamens and ovaries be regarded as such. The ovary tapers into a slender simple style, and ripens into a small nut with a single pendulous seed; the embryo is straight, lying in copious albumen. There

are very few species, but some of them are dispersed over nearly all parts of the globe. They form two genera, *Typha* and *Sparganium*.

TYPHA. Tall herbaceous aquatics giving name to the order *Typhaceæ*, and distinguished by bearing the stamens and pistils in separate flowers but on the same plant; either forming a continuous spike or spadix shaped like a constable's mace, with the barren flowers in the upper part, or an interrupted spadix with the barren flowers above, the fertile below, the point of interruption. There are two British species, *T. latifolia* and *T. angustifolia*—often popularly but erroneously called Bulrush, which name properly belongs to the genus *Scirpus*—common, especially the former, on the borders of ponds and lakes, where with their singular large terminal spikes (called from their form Cat-tail, or Reed-mace), they present a most picturesque appearance, and are often selected by artists to indicate the presence of water. *T. latifolia* grows to the height of five or six feet; its spikes are continuous, leaves very long linear and nearly plane. In the other species, which is smaller, the spike is interrupted, and the leaves are grooved. French: *Massette*; German: *Rohrkolbe*. [C. A. J.]

TYPHONIUM. This name is applied to a genus of *Araceæ*, differing from *Arum* principally in having a single erect ovule, arising from the base of the ovary. The upper part of the spadix too is more sharply pointed than in *Arum*. The species of this genus are Indian herbs, with perennial fleshy rootstocks, and petiolate heart-shaped leaves whose sheathing stalks encircle the base of the long-peduncled spadix. The spathe is uniform in colour, and not spotted. The rootstocks of *T. orizense* are very acrid, and are used in India as an application to scirrhus tumours. [M. T. M.]

TYRIA. A genus of Peruvian shrubs of the family *Vacciniaceæ*. The leaves are scattered, and thick in texture; the flowers grow in tufts. The tube of the calyx is marked by ten ribs, its limb five-parted, the segments lance-shaped, withering; the corolla is cylindrical, five-cleft; stamens ten, within the corolla, the filaments combined below into a shallow cup; and the anthers two-celled below, one-celled above, opening by a pore at the top; ovary ten-ribbed, with five compartments. [M. T. M.]

TZONTECOMATL. A Mexican cosmetic prepared from the seeds of *Swietenia Mahagoni* mixed with oil.

UBI. The Malay name for Yam. — **BUNGALA.** The Potato.

UBRIDI. A Guiana name for the asstringent bark of the Wild Cashew-tree.

UDIKA-BREAD. *Irrvingia Darteri*.

UDORA. M. Caspary, in a recent monograph of the order *Hydrocharidaceæ*, combines the present genus with *Anacharis*, and restores the old name *Elodea*, which

Nuttall changed to *Udora*, in consequence of his incorrectly supposing that *Elodea* had previously been assigned by Adanson to a genus of tutsans. Ten species of *Elodea* (otherwise *Udora*) are described by Caspary—all aquatic perennial plants growing below the surface of the water, and inhabiting fresh-water rivers and lakes in various parts of both North and South America. *Elodea canadensis* of Richard includes, amongst others, the plant called *Udora canadensis* by Nuttall in America, and *Anacharis Aleinastrum* by Babington in England. It proves to be a great pest in still waters, choking up the stream by its rapid growth, and impeding navigation. See ANACHARIS. [A. S.]

UFYOON. An Arabic name for Optum.

UGENA. *Lygodium*.

UGNI. A genus founded on a single Chilian species, which was at first referred to *Myrtus* (from which it differs in the structure of the embryo) and afterwards to *Eugenia*, to which it is so nearly allied that there seems no good reason for separating it. The calyx has four linear divisions, not five as Turczaninow makes it; there are five roundish obovate petals; the numerous stamens have flattened filaments and two-celled anthers; the subulate style has the apex incurved, and surmounted by an acute stigma. The berry, crowned with the persistent calyx, has four cells, each nearly subdivided by the projecting placenta, and containing six to eight seeds having a hard testa, and a curved exalbuminous embryo, with the cotyledons and short radicle blended into a solid mass. The species *Eugenia Ugni* has very agreeably-flavoured aromatic fruit, and some attempts have been made to introduce it into general cultivation. [W. C.]

UGOORO. An Indian name for Eaglewood and Aloes-wood.

UHDEA. A Mexican genus of *Compositæ*, comprising an undershrub, with much-divided hairy leaves, and yellow capitulate flowers, the heads arranged in a definite corymb at the ends of the branches. The genus is most nearly allied to *Actinomeris*, from which, however, it differs in habit, and in the ovary, which is destitute of pappus. [M. T. M.]

ULANTHA. *Chloræa*.

ULE. The Caoutchouc-yielding trees named *Custillia elastica*, and *C. Markhamiana*.

ULEX. A genus of prickly shrubs belonging to the order *Leguminosæ*, distinguished by their two-parted calyx bearing two minute bracts at the base, and their turgid few-seeded legume. *U. europæus*, the Common Furze, Whin, or Gorse, is one of the few British social plants sufficiently important to give a name to the localities on which it fixes, a 'Furze-brake' being a characteristic feature of English landscape. Harsh and rugged though Furze be in appearance, it has by no means a wide geographical range. Even in North Britain it

dwindles in size, and in the more exposed regions is hardly known. In Russia and Sweden it occurs only as a greenhouse plant, and even in the South of England an unseasonably severe frost nips the flowers or sometimes destroys all the exposed part of the plant. Unlike the spines of *Prunus* and *Mespilus*, which are modifications of branches, and the prickles of *Rubus* and *Rosa*, which are simply extensions of the cuticle, the thorns of Furze represent leaves. The true leaves are minute, situated at the base of the thorns, and most observable in young seedlings.

U. europæus is distinguished by the two bracts at the base of the calyx being ovate concave and somewhat spreading. The double-flowered Furze of gardens is a variety of this species, as is also the Irish Furze, distinguished by the softness of its upright branches. *U. nana*, the Dwarf Furze, called also French Furze, is a much smaller plant, specifically distinguished by its minute adpressed bracts. The flowers are of a deeper yellow, and expand in the greatest profusion at the season when heath is in blossom, with which it harmonises beautifully in colouring. French: *Ajone*; German: *Stechginster*. [C. A. J.]

U. europæus, the young leaves of which are trifoliate, like so many others of the order, has been much recommended for cultivation, and especially on soils almost too poor to grow anything else. In the *Cyclopædia of Agriculture* we find it thus noticed: 'When regularly cut down every year, the annual shoots, mown as wanted, and bruised to deaden the prickles, supply a green food throughout the winter, which all animals, and especially horses, are particularly fond of. When cultivated the seeds sown are either collected from the wild plants, or from a variety which, by successive cultivation, has become rather more succulent and productive.' Our own observations on the use of both the wild and the cultivated Furze as food for cattle, lead to the conclusion that its feeding properties are too low to render its gathering and preparation at all a remunerative matter: still less does its value at all warrant the purchase of crushing machinery, which has been invented for bruising the prickly plant. [J. B.]

ULIGINOSE. Growing in swampy places.

ULLAT-KUMU. An Indian name for *Abroma augusta*.

ULLPU. A drink obtained from the farina of the seeds of *Milium nigricans*.

ULLUCO. The Peruvian name of *Ullucus tuberosus*.

ULLUCUS. A genus of *Basellaceæ*, synonymous with **MELLOCO**: which see. *Ulluco* and *Melloco* are native names for the best-known species, which is a fleshy Peruvian herb, with a stem throwing out thread-like branches, which when they enter the earth produce edible tubers. The plant is extensively cultivated for these tubers in the Andes of Peru and Bolivia, under the name of *Oca-quina*. They are

about the size of a hazel-nut, waxy, and of a yellow colour. When the failure of the potato was dreaded, this plant was one of the substitutes proposed; but the tubers proved far less agreeable to British palates than might have been supposed from the de-



Ullucus tuberosus.

mand for them in South America, where they are used by the Indians in the preparation of Chuño, a starchy substance obtained by alternately freezing and steeping them. A second species, *U. peruvianus*, is possibly not distinct from *U. tuberosus*. [J. T. S.]

ULMACEÆ. (*Celtidæ*, *Elmwort*s.) A small order of Apetalous Dicotyledons, considered by some as a suborder of *Urticaceæ*, but differing in their hermaphrodite flowers. By others the two groups are widely separated, Lindley, for example, placing Elmworks in his Rhamnal alliance. They are all trees or shrubs, with rough alternate leaves, furnished with stipules, and small green or brown flowers in loose clusters or cymes. They have a small calyx-like often irregular perianth, definite stamens, and a free ovary, either one or two-celled, but always with two styles or stigmas. They consist of two tribes, regarded by some as natural orders: the *Ulmæe* proper, with a two-celled ovary—including *Ulmus* and four or five other genera, dispersed over the temperate regions of the Northern Hemisphere, and often very valuable timber-trees; and the *Celtidæ*, with a one-celled ovary, many of them tropical, comprising four or five genera, of which the most extensive are *Celtis* and *Sponia*.

ULMAIRE. (Fr.) *Spiræa Umlaria*.

ULMUS. A genus of lofty trees giving name to the order *Ulmaceæ*, to be distinguished among other British trees in March and April by their purplish-brown flowers, which, though small, are so numerous as to tinge the whole tree; in April by their green membranous leaf-like seed-vessels; and all the summer by their harsh serrated pointed simple leaves, which are unequal at the base. Much difference of opinion exists among botanists as to which of the Elms should be considered species, and which varieties.

The Common Elm, *U. campestris*, is the most generally diffused species, though said to have been introduced into Britain by the Crusaders. It is a lofty upright tree, composed of many tiers of spreading branches, which often hang in graceful festoons at the extremities; the winged seed-vessel (samara) is deeply cleft; the leaves are rough to the touch, and taper to a point. The young twigs are downy, and sometimes slightly corky. The Cornish Elm has its flower-buds arranged more



Ulmus campestris.

regularly on the twigs than the last; the leaves are much smaller, more evenly notched, and nearly smooth; the branches are generally rigid erect and compact. The Wych Elm, *U. montana*, is well distinguished from the preceding by its numerous spreading branches, which frequently droop so as to conceal the main trunk; its flowers are in looser tufts than those of the common elm, and the seed-vessel differs materially in being only slightly notched. The leaves are much larger, tapering to a sharp point, and nearly equal at the base. The Cork-barked Elm is in habit intermediate between the common and wych elms, being more spreading than the former, but not so much so as the latter. The leaves are large, but the best distinctive character is afforded by the branches, which when one year old are very hairy, and in the second year are thickly coated with a cracked corky excrescence, from which the tree derives its name.

The Elm was held in high estimation by the ancients, partly for the sake of its leaves, which were dried and employed as fodder, and partly for the use to which the tree itself was applied, namely, as a prop for vines. The former custom still obtains in some parts of the Continent; but the Elm is now principally valued for its timber, which is not only tough, but remarkable for its durability under water. Hence it is employed in naval architecture. It was formerly much used in making water-pipes, but of late years it has been superseded by cast-iron pipes. The Elm, growing in a forest and in good soil, arrives

at perfection in 150 years, but it will live for 500 or even 600 years. It retains its foliage till late in the autumn, the leaves assuming a rich yellowish hue some time before they fall from the tree. The Common and Cornish Elms are considered to afford the best timber. The American Elm was introduced into England in A.D. 1752. It is distinguished by its seed-vessel being fringed at the edge with hairs. French: *Orme*; German: *Ulm*. [C. A. J.]

The Elm, though one of our commonest trees, is nevertheless a doubtful native; for, in the language of old Aubrey:—“I never did see an elm that grew spontaneously in a wood, as oaks, ashes, beeches, &c., which consideration made me reflect that they are exotic; but by whom were they brought into this island? Not by the Saxons; for upon enquiry I am informed that there are none in Saxony, nor in Denmark, nor yet in France, spontaneous; but in Italy they are natural—e.g. in Lombardy, &c. Wherefore I am induced to believe that they were brought hither out of Italy by the Romans, who were cultivators of their colonies. The Saxons understood not nor cared for such improvements, nor yet had hardly leisure if they would Aubrey's *Wiltshire*, cap. ix.

As regards the species of Elm, authors are by no means agreed. We are, however, inclined to think that the two following may stand at the head of two groups, about which the many forms which occur in our estates and shrubberies may be ranged as varieties. These are *U. campestris*, the English Elm, distinguished by its aspiring method of growth; and *U. montana*, the Scotch Elm, a shorter tree with more or



Ulmus montana.

less pendent branches. Both of these kinds occasionally attain to enormous dimensions, rivalling even the oak in size, and both have warm admirers as contributing to the beauty of forest scenery. As timber-trees both the English and Scotch Elms are employed extensively, but the former is the favourite in this respect, and we think it decidedly more profitable to grow for timber.

Before we possessed our *Gardener's Char-*



c. Aspects
Angelica

a. b. A tall nettle

VEGETATION OF KAMTCHATKA WITH TALL UNREPAIRED, A FIRCH FOREST IN THE DISTANCE
(after Kintov)

nicles, to point out to us the garden operations for each month, the budding of the Elm was a matter for the gardener to note warily; for, as say the old rhymes:—

'When the Elmen leaf is as big as a farding
'Tis time to sow kidney-beans in the garding.'
'When the Elmen leaf is as big as a penny
You must sow kidney-beans if you aim to have any.'

So the farmer derived a lesson from the Elm-leaf, as thus:—

'When the Elmen leaf is as big as a mouse's ear
Then to sow barley never fear.'
'When the Elmen leaf is as big as an ox's eye
Then say I, High boys, high!'

The *Ulmus montana* is often called the Wych Elm and Witch Hazle, probably from the similarity of its leaves to those of the hazel-nut; and hence, like it, its twigs were formerly employed as riding-switches to ensure good luck on the journey. Had Iam O'Shanter but possessed this, he could not possibly have lost his horse's tail! Forked branches of Wych Elm, as of hazel, were used as divining-rods, and formed the *virgula divinatoria* of the experts. A more practical use for its branches was that of converting them into long bows, the archer esteeming the elm next to the yew for that purpose. [J. B.]

ULNA (adj. ULNARIS). The average length of a man's arm; about twenty-four inches.

ULSEE. An Indian name for Flax.

ULVACEÆ. A natural order of green-pored *Algae*, characterised by their flat or tubular green or rarely purple membranous frond, which never throws out rootlets at the base, consisting of cells which are divided both vertically and horizontally, and generally in fours. The fruit consists of zoospores furnished with two or four ash-shaped appendages. In some species both these kinds of spores occur. Thuret has observed both germinating, but Robin believes that these with two cilia have the office of impregnation. In *Prasiola* and *Bangia* the frond is very narrow and sometimes filiform, but there is every gradation, from threads with a single row of quaternate cells to the large frond of *Ulva latissima*. In *Tetraspora* the gelatinous element predominates so much that we have a close approach to the palmeloid *Algae*. *Ulvaceæ* are distributed all over the globe, occurring both in salt and fresh water, and a few grow on the damp ground or on rocks, where they are occasionally dry. In *Algae* are more thoroughly citizens of the world. [M. J. B.]

ULVA. The typical genus of the natural order *Ulvaceæ*. It is distinguished from *Porphyra* principally by its green colour, and from *Enteromorpha* by its flat frond. In one or two species, however, the frond is shaped like a sac when young and becomes flat by the rupture of the apex, and some states of *U. Linza* come very near to *Enteromorpha intestinalis*. *Ulva* is some-

times divided into two genera: *Ulva* proper, in which the frond consists of a single stratum of cells, and *Phycoseris*, in which there are two strata. Most of the species are marine and very widely diffused, but *U. bullosa* (so-called from its being swollen out with bubbles of oxygen disengaged from its frond) and one or two more grow in fresh water, and are very nearly related to *Tetraspora*. The most familiar species is probably *U. Lactuca*, which from its being frequently attached to oysters is called Oyster Green. This and *U. latissima* are sometimes eaten like the true Laver, under the name of Green-Laver. It is also used occasionally in Scotland as a sort of water-dressing bound round the temples, and is considered efficacious as a remedy for headache. [M. J. B.]

ULVE MARINE. (Fr.) *Ulva Lactuca* and other seaweeds.

UMBAREE. An Indian name for the fibre of *Iltibus cannabinus*; also for inferior hemp.

UMBEL. An inflorescence in which the stalks radiate from a common point, and the expansion of the flowers is centripetal.

UMBELLATÆ. The Linnæan name for the *Umbelliferae*.

UMBELLATE. Arranged in an umbel.

UMBELLIFERÆ. See APIACEÆ. This is one of the most natural and, consequently, one of the most easily recognised of the orders of plants, but one of the most difficult to divide into well-defined genera. It consists of herbs, often strongly scented, with small flowers, usually in a simple or compound umbel, which has given the name to the order, although this umbel is sometimes contracted into a dense head, while in a very few species this normal inflorescence is departed from. The ovary is two-celled, with a single pendulous ovule in each cell, and is crowned by two styles on the top of the disk. The fruit always separates into two dry one-seeded carpels or mericarps, resembling seeds, as they are popularly but erroneously called. The real seed is inside, closely adhering to the outer pericarp; it has a minute embryo in the base of the horny albumen. The mericarps are furnished with a definite number of raised longitudinal ribs, and underneath the intervening channels are frequently placed elongated receptacles for essential oil, called vittæ, remarkably constant in each species in their number and position. It is chiefly from the arrangement of these ribs and vittæ, and from the shape of the enclosed albumen, that modern botanists have derived the characters by which the numerous genera of *Umbelliferae* are distinguished.

Though mostly herbs, these plants sometimes attain gigantic size, as in some species of *Heracleum*, and the *Angelica* represented in Plate 18. Dr. Welwitsch, moreover, mentions having found in Tropical Africa, in the region of Golungo Alto, an arboreal umbellifer, with a stem one to

one-and-a-half foot thick, which is prized highly by the natives for its medicinal properties and its value as a timber-tree. This, so far as is at present known, is the most gigantic plant of the order.

UMBELLIFEROUS. Bearing umbels.

UMBELLULE. A partial umbel; an umbel formed at the end of one of the rays of a general umbel.

UMBEH-BROWN. Nearly the same as deep brown.

UMBILICAL CORD. A thread by which seeds are sometimes attached to their placenta.

UMBILICARIA. See *TRIPE DE ROCHE* and *GYROPHORA*. *Umbilicaria* is, in fact, a *Gyrophora* without the convolute disks of that genus. [M. J. B.]

UMBILICATE. The same as Peltate.

UMBILICUS. The hilum of a seed; the scar formed by its separation from the placenta.

UMBILICUS. A genus of Crassulaceous herbs, natives of Southern Europe, the Levant, and tropical Africa, and now usually placed in *Cotyledon*. The characters are—Calyx five-parted; corolla bell-shaped, with five acute lobes; stamens ten, inserted in the corolla; nectariferous scales five, obtuse; carpels five, tapering to a point. Some of the species have the radical leaves rosulate, or disposed like the petals in the flower of a double rose; others have them alternate on the stalk; in all they are fleshy; and the flowers, which are either white or yellow, grow in simple or branched racemes. They principally affect dry stony places, on which account they are often employed in the decoration of artificial rockeries. [C. A. J.]

UMBONATE. Round, with a projecting point in the centre, like the boss or umbo of an ancient shield; as the plicæ of many species of *Agaricus*.

UMBONULATE. Terminated by a very small boss or nipple.

UMBRAULIFORM. Umbrella-shaped; that is to say, hemispherical, with rays or plaits proceeding from a common centre; resembling an expanded umbrella; as the stigma of *Sarracenia*.

UMBRAULUM. A convex body, which in *Marchantia* terminates the seta, and bears the reproductive bodies on the underside; also any similar body.

UMBRELLA-LEAF. *Diphyllota cymosa*.

UMBRELLA-SHAPED. The same as Umbrauliform.

UMBRELLA-TREE. *Magnolia Umbrella* and *M. tripetala*; also *Theopesia populnea* and *Pandanus odoratissimus*. —, GUINEA. *Paritum guineense*.

UMBRELLAWORT. *Oxybaphus*.

UMBRINUS. Umber-brown.

UMBROSUS. Growing in shady places.

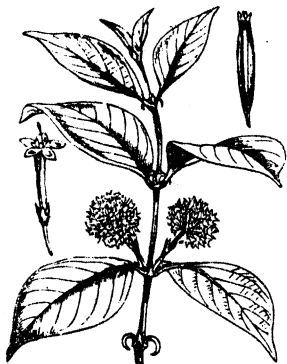
UMIRI. A Brazilian name for *Humatrium floribundum*.

UMLEE, or UMLI. Indian names for the Tamarind.

UMRITI. An Indian name for the Emblic Myrobalan, *Embilca officinalis*.

UNARMED. Having no spines, prickles, or other sharp hard projections. It sometimes means pointless.

UNCARIA. This generic name was first given to a group of Indian and American climbing plants with hooked spines, belonging to the *Cinchonaceæ*, one of which affords the astringent masticating or tanning material called Gambir or Terra Japonica; but as these plants agree in their principal technical characters with



Uncaria Gambir.

the older Linnæan genus *Nauclea*, they are combined with it by most botanists. They, however, form a well-marked section of that genus, characterised by their climbing habit, and by their old or barren flower-stalks being converted into hard woody spines, directed downwards so as to form hooks. Their flower-heads also are not so dense, and their fruits are narrowed or stalked at the base. See *NAUCLEA*.

The name *Uncaria*, being thus disengaged, was afterwards given to a South African plant, *U. procumbens*, the sole representative of a genus of *Pedaliaceæ*, commonly known as the Grapple-plant at the Cape of Good Hope and in other parts of South Africa, on account of its very curious fruits being furnished on all sides with strong-branched very sharp hooks, by means of which they lay hold of the clothes of travellers or the skin of animals, and adhere so tenaciously that they are difficult to remove. Dr. Livingstone says that when these fruits happen to lay hold of the mouth of an

ox, the animal stands and roars with pain and a sense of helplessness. The plant was first described by Burchell, and named *Uncaria* from the Latin word *uncus* 'a hook'; but Decandolle, who retained the name *Uncaria* for the cinchonal genus above alluded to, afterwards changed it to *Harpagophytum*, from the Greek *harpaz* 'to seize' and *phyton* 'a plant.' It is a prostrate herb, with opposite five-nerved hand-shaped leaves, and purple flowers borne singly on short stalks rising from the leaf-axils. The flowers have a small persistent five-parted calyx, with narrow lobes, one of which is shorter than the rest; a tubular or funnel-shaped corolla, not puffed out at the base, with a nearly equal five lobed limb; four stamens, in two pairs of different lengths; and a stigma formed of two plates. The fruit contains an indefinite number of angular wrinkled seeds. [A. S.]

UNCATE, UNCIFORM, UNCINATE. Hooked; curved suddenly back at the point.

UNCL. Hooked hairs; any kind of hook.

UNCIA (adj. **UNCIALIS**). An inch.

UNCINIA. A genus of cyperaceous plants belonging to the tribe *Caricina*. The spikes of inflorescence are solitary terminal erect, simple androgynous, the upper male, the lower female; scales one-flowered, imbricated; stamens three; styles three, rarely two-cleft; achenes convex or triangular. Steudel describes twenty-nine species, mostly natives of the Southern Hemisphere. [D. M.]

UNCTUOUS. Having a surface which, though not actually greasy, feels so.

UNDERSHRUB. A woody plant of small size, the ends of whose branches perish every year. See **SUFFRUTEX**.

UNDULATE, UNULATING. Wavy; having an uneven alternately convex and concave margin or surface.

UNDULATO-STRIATE. Having elevated lines with a wavy direction.

UNEQUAL-SIDED. The same as **Oblique**.

UNGERIA. This genus, named in compliment to the late Professor of Botany at Vienna, includes a tree, native of Norfolk Island, having thick entire leaves, shining above, and covered below with stellate downy hairs, the stipules deciduous. The flowers are rose-coloured, growing in terminal panicles; the calyx club-shaped or bell-shaped, its limb five-cleft, somewhat two-lobed; the petals five, stalked, longer than the calyx, their limb spreading and destitute of scales; the stamens united into a tube, adherent below to the stalk supporting the ovary, dilated above, five-cleft, each segment bearing within three anthers; the ovary stalked five-lobed five-celled, each cell with a single ovule. Fruit capsular, five-valved, five-seeded. The genus is included in *Sterculiaceae*. [M. T. M.]

UNGEROOT. An Arabic name for Gum Sarcocol.

UNGNADIA. The name of a genus of *Supinadaceae*, consisting of a North American tree related to *Esculus*, with unequally pinnate leaves, and lateral racemes of flowers. The flowers are polygamous; each has a five-parted calyx, three stalked unequal petals, whose stalks are provided with a little crest; nine stamens adhering to the stalk of the ovary, and to a sheathing scale-like process originating from the thalamus; and a stalked three-celled ovary, with two ascending ovules in each cell. The fruit is unknown. [M. T. M.]

UNGOOR. A Persian name for a kind of Grape.

UNGOOZEH. A Persian name for *Asa-fetida*.

UNGUICULATE. A term exclusively applied to petals which have an unguis or stalk.

UNGUIS. Half-an-inch, or the length of the nail of the little finger; also the stalk of a petal.

UNHA DE BOY. A Brazilian name for the mucilaginous leaves of *Caulotretus microstaphyus*.

UNI. In Latin compounds = one: as *unilatus*, having one wing; *unicalaratus*; one spur; *unicapsularis*, one capsule, and so on.

UNICOLOR. Uniformly of one and the same colour.

UNICORN-PLANT. *Martynia*.

UNICORN-ROOT. The root of *Helontas dioica*, used in North America as an anthelmintic.

UNICORN'S-HORN. *Helontas dioica*.

UNICUS. Growing singly.

UNIFOLIATE, UNIFOLIOLATE. When a compound leaf consists of one leaflet only; as in the orange-tree.

UNIJUGATE, UNIJUGUS. Having one pair of leaflets. See **CONJUGATE**.

UNILATERAL. One-sided.

UNINERVATE, UNINERVIS. One-ribbed.

UNINTERRUPTED. Consisting of regularly increasing or diminishing parts, or of parts all of the same size. See **CONTINUOUS**.

UNIOLA. A genus of grasses belonging to the tribe *Festuceae*. The inflorescence is in panicles or racemes; spikelets three to twenty-flowered, the florets more or less imbricated. The parts of the flower are inconstant in the species, some being monandrous, whilst others are triandrous; and some have the florets mostly sterile, while others are nearly all hermaphrodite. They are natives principally of North and South America, and several species are sufficiently hardy to survive the winters

In Great Britain. *U. stricta* and *U. spicata* are two handsome hardy grasses. [D. M.]

UNIPAROUS. Having but one peduncle.

UNISEPTATE. Having but one septum or partition.

UNISEXUAL. Of one sex only.

UNJEER. The Indian name of the Garden Fig.

UNONA. A great number of American and African plants have at one time or other been placed under this genus of *Anonaceae*, but they are now mostly referred to other genera, *Unona* being restricted to about a dozen Asiatic and five or six tropical African species, characterised by their flowers having three sepals, six longish thin flat petals in a double row (or sometimes only three, the inner row being suppressed); numerous four-sided stamens with rather distant anthers, the connecting portion prolonged into a nearly round or flattened process; and numerous hairy ovaries, each containing several ovules in a single row, and bearing an oval or oblong recurved style, with a furrow down its inner face. Two species are climbing shrubs, and the rest upright shrubs or trees, with simple pellucid dotted leaves, and rather large flowers, usually borne singly on stalks, growing from the sides of the branches at or near the leaf-axils; the petals also have pellucid dots, and increase in size after expanding. The fruits consist of numerous long distinct carpels, usually constricted between the seeds, and thus divided into several one-seeded joints.

One of the commonest species, *U. discolor*, found throughout most parts of India, Ceylon, Malacca, Java, and Southern China, is a small tree with smooth or hairy very variable-shaped leaves from two to eight inches long, dirty green or yellow flowers, and purple fruits with joints about the size of peas. The Chinese at Hongkong obtain a fine purple dye from the unripe fruits. See also **HABZELIA**. [A. S.]

UNSTEETLA. A Cherokee name for *Spigelia marilandica*.

UNTAMOL. A vernacular name for Indian Ipecacuanha, the dried roots of *Tylophora asthmatica*.

UNUNTAMUL. An Indian name for the roots of *Hemidesmus indicus*.

UNXIA. The name applied to a genus of *Compositae*, native of Guiana. The species are branched herbs, with entire hairy leaves, and axillary flower-heads on short stalks, each one surrounded by a somewhat globose involucre of five ovate scales. The outer florets are ligulate and female, the central ones tubular five-toothed and male. The fruits are compressed, smooth, without pappus. Some of the species have a smell of camphor. [M. T. M.]

UOLIN. (Fr.) *Pimelea*.

UPAS ANTIAR. A Javanese name for a poison composed of a black gun-resin-

ous mass, formed of the concrete juice of *Antiaris toxicaria*. — RADJA, or TIETÉ. A Javanese name for the frightful poison obtained from the bark of the root of *Strychnos Tieuté*.

UPAS-TREE. *Antiaris toxicaria*.

UPSTART. *Colchicum autumnale*.

URA. In Greek compounds = tall or tall-like process, or even a tail-like inflorescence.

URACHNE. A genus of grasses of the tribe *Stipeae*, synonymous with *Piptatherum*. The inflorescences in ramose diffuse panicles, the spikelets one-flowered; glumes two, membranaceous mucous; pales two, subcoriaceous, the lower convex the upper awned; scales three; stamens three, the anther-lobes often bearded at the top; styles two, with plumose stigmas. The few species are mostly natives of Southern Europe and Northern Africa. [T. M.]

URALEPIS. A genus of grasses belonging to the tribe *Festuceae*. The inflorescence is panicled or racemose; spikelets many-flowered, the florets distichous; glumes two unequal, half keel-shaped and awned; pales two, membranaceous, the lower concave three-nerved, two to four-cleft, with small awns between the clefts, the upper two-keeled; stamens one to three. There are nineteen species, mostly natives of South America and Africa. [D. M.]

URALIER. (Fr.) *Anthocercis*.

URANDRA. A genus of *Oleaceae* (*Escineae*), now united with *Lusitanthera*. It includes a large Cingalese tree, with leathery ovate acuminate stalked leaves, and perfect flowers, which have a cup-shaped five-toothed persistent calyx, alternating with the teeth of which are five purple petals, greenish at their tips. The stamens alternate with the petals, their filaments being densely covered with long club-shaped hairs at their upper portion; the ovary is surrounded by a small glandular ring-like disk; and the fruit is oblong one-seeded, fleshy externally fibrous and woody within. [M. T. M.]

URANIA speciosa (or *Ravenala madagascariensis*—its older and more correct name) represents a magnificent palm-like genus of *Musaceae*, confined to Madagascar, where it is called the Traveller's Tree, because the leaves when cut yield an abundant and refreshing juice, with which travellers allay their thirst. The plant is occasionally cultivated in our hothouses, but not unfrequently *Strelitzia augusta*, which it somewhat resembles in habit, goes under that name. The plant does not seem indigenous to Mauritius, as stated by some, but whole groves of it have been planted in the botanic gardens of that island. The leaves are of *giantic size*, somewhat like those of *Musa Ensete*, but arranged in two rows on opposite sides of the arboreous stem. The flowers are small in comparison to the gigantic foliage, and are aggregated in the axils of the leaves. The arillus surrounding the bean-like seeds

is of a most beautiful ultramarine colour, and yields an essential oil. A dye is extracted from the capsules. An American species, referred by some authors to this genus (*U. guianensis*) properly belongs to *Phenacospermum*. [B. S.]

URARI. The Ourari or Wourai poison of *Strychnos toxifera*.

URBUREE. *Cicer arietinum*, also called Chenna.

URCEOLA. The single species of this genus of *Apocynaceae*, called *U. elastica*, is a large climbing milky-juiced shrub or tree, frequently with a trunk as thick as a man's body. It is confined to Borneo, Sumatra and other islands of the Eastern Archipelago, where its milky juice, collected by making incisions in its soft thick rugged bark, or by cutting the trunk into junks, forms one of the kinds of Caoutchouc called Jinta-

of white hairs in the centre and pollen-bearing at the top; and an entire disk surrounding two flat-topped ovaries, bearing a short style and egg-like stigma divided by a circular line into two differently coloured halves. [A. S.]

URCEOLATE. Pitcher-shaped, that is, similar to Campanulate, but more contracted at the orifice, with a small limb.

URCEOLINA. A genus of *Amaryllidaceae*, the two or three species of which as yet known are found in Peru. They have roundish bulbs, broad oval petiolated leaves growing up with the flowers, and a tall scape supporting an umbel of several (five to eight) pendulous flowers, two inches long or more. The tube has a straight slender cylindrical green base an inch long, and a yellow ventricosely bell-shaped upper portion, which is contracted at the mouth, with short reflexed green segments; there are six stamens inserted in the tube, and joined at the base by a membrane (an abbreviated corona); the style is erect filiform, with an obtuse three-cornered stigma; and the capsule is cordiform, three-cornered three-furrowed three-celled, and many-seeded. They are handsome plants. [T. M.]

URCEOLUS. The two confluent bracts of *Carex*; any flask-shaped or cup-shaped anomalous organ.

URCHILLA. A Spanish name for the Orchella-weed.

URCHIN. (Fr.) *Hydnum*.

UREDINEI. A section of *Pucciniae*, a natural order of *Fungi* including those genera, whose protospores (except in one case, where there are two forms of fruit) are not septate and disposed in regular sori. All were formerly included in one genus, *Uredo*, but this has been gradually divided, till the group so named contains comparatively few species. Some are undoubtedly merely the secondary fruit of other *Fungi*, but many, so far as is at present known, are true species. In *Uredo* proper the little heaps of brown or yellow protospores are composed of several layers of cells, each of which encloses a spore. The stroma which supports them is composed of little irregular cells. Of the brown species, *Uredo Circæe* on enchanter's nightshade may be quoted as one of the most common; and of those with yellow spores *U. confluens*, which abounds inspruing on *Mercurialis perennis*. *Trichobasis*—most of whose species are referrible as a secondary form of fruit to different *Pucciniae*, which they often accompany—has free caducous protospores attached to a short stalk; *Uromyces*, of which *U. Ficariae*, found on the lesser celandine, is a good example, has stalked protospores which are not caducous. *Coleosporium* has two kinds of protospores, the one consisting of short strings with deciduous joints, the other of obtuse clavate three to four septate bodies, while a third form, with the terminal spore polygonal (as figured in Berkeley's *Intro-*



Urceola elastica.

wan; but, owing principally to want of care in its preparation, this Eastern caoutchouc is inferior in quality to the South American, the milk being simply coagulated by mixing with saltwater, instead of being gradually inspissated in layers on a mould. The plant has sharp ovate-oblong opposite leaves, roughish on the upper and hairy on the under surface; and bears many-flowered terminal cymes of small greenish blossoms, which produce double fruits, consisting of two large roundish apricot-coloured rough leathery-skinned pieces about the size of oranges, containing numerous kidney-shaped seeds nestling in a copious tawny-coloured pulp, which is much relished both by natives and European residents, and is said to taste like well-bletted medlars. The flowers have a five-cleft calyx; a pitcher-shaped hairy corolla with five short erect teeth; five stamens, rising from the base of the corolla, and having very short filaments and arrowhead-shaped anthers, with tufts